# Addendum
# INITITIAL STUDY/MITIGATED NEGATIVE DECLARATION

## Alturas Wastewater Treatment Plant Improvement Project
**(SCH No. 202100579)**

Lead Agency:

City of Alturas
200 W. North Street
Alturas, CA 96101
(530) 233-2377

Technical Assistance By:

SHN Consulting Engineers & Geologists, Inc.
350 Hartnell Avenue, Suite B
Redding, CA 96002

July 2024

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# Abbreviations and Acronyms

| | |
|---|---|
| § | Section |
| °F | Degrees Fahrenheit |
| AB | Assembly Bill |
| ADWF | Average Dry Weather Flow |
| ADT | Average Daily Traffic |
| AF | Acre feet |
| AFY | Acre feet per year |
| AMS | American Meteorological Society |
| A-P Act | Alquist-Priolo Earthquake Fault Zoning Act |
| API | Area of Potential Impacts |
| APN | Assessor's Parcel Number |
| AB | Assembly Bill |
| BAAQMD | Bay Area Air Quality Management District |
| BAU | Business as Usual |
| BLM | Bureau of Land Management |
| BMP | Best Management Practices |
| CA | California |
| CAA | Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| CalEEMod | California Emissions Estimator Model |
| Cal EPA | California Environmental Protection Agency |
| CAL FIRE | California Department of Forestry and Fire Protection |
| Cal OSHA | California Occupational Health and Safety |
| Caltrans | California Department of Transportation |
| CAO | Cleanup and Abatement Order |
| CAPCOA | California Air Pollution Control Officers Association |
| CARB | California Air Resources Board |
| CBC | California Building Code |
| CBSC | California Building Standards Commission |
| CCR | California Code of Regulations |
| CDFW | California Department of Fish & Wildlife |
| CEC | California Energy Commission |
| CERS | California Environmental Reporting System |
| CEQA | California Environmental Quality Act |
| CFC | California Fire Code |
| CGS | California Geological Survey |
| $CH_4$ | Methane |
| CHP | California Highway Patrol |
| City | City of Alturas |
| CNDDB | California Natural Diversity Data Base |
| CNPS | California Native Plant Society |
| CO | Carbon Monoxide |
| $CO_2$ | Carbon Dioxide |
| $CO_2e$ | Carbon Dioxide equivalent |
| County | Modoc County |
| CPRA | California Public Records Act |
| CPUC | California Public Utilities Commission |
| CRHR | California Register of Historic Resources |
| CUPA | Certified Unified Program Agency |
| CVRWQCB | Central Valley Regional Water Quality Control Board |
| CWA | Clean Water Act |

# Abbreviations and Acronyms, Continued

| | |
|---|---|
| dBA | Decibel |
| DOF | California Department of Finance |
| DOI | United States Department of the Interior |
| DTSC | California Department of Toxic Substances |
| DZC | DZC Archeology and Cultural Resource Management |
| ECHO | Enforcement and Compliance History Online |
| EIR | Environmental Impact Report |
| EO | Executive Order |
| EPA | United States Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESL | Environmental Study Limits |
| FAA | Federal Aviation Administration |
| FEMA | Federal Emergency Management Agency |
| FHSZ | Fire Hazard Severity Zone |
| FHWA | Federal Highway Administration |
| FOIA | Freedom of Information Act |
| FMMP | Farmland Mapping and Monitoring Program |
| FRA | Federal Response Area |
| FRAP | Fire and Resource Assessment Program |
| FTA | Federal Transit Administration |
| GHG | Greenhouse Gas |
| GPD | Gallons per day |
| GSA | Groundwater Sustainability Agency |
| GSP | Groundwater Sustainability Plan |
| HAP | Hazardous Air Pollutants |
| HCFs | Hydrofluorocarbons |
| HDD | Horizontal Directional Drilling |
| HMBP | Hazardous Material Business Plan |
| IGP | Industrial General Permit |
| IRP | Integrated Resource Plan |
| ITE | Institute of Transportation Engineers |
| LAFCO | Modoc County Local Agency Formation Commission |
| $L_{eq}$ | Equivalent Sound Level |
| LESA | California Agricultural Land Evaluation and Site Assessment |
| $L_{max}$ | Maximum Noise Level |
| LOS | Level of Service |
| LRA | Local Response Area |
| LwA | A-weighted sound power level |
| MCAQMD | Mendocino County Air Quality Management District |
| MCAPCD | Modoc County Air Pollution Control District |
| MCL | Maximum Contaminate Level |
| MFHSZ | Moderate Fire Hazard Severity Zone |
| MG/yr | Megagrams per year |
| MGD | Million Gallons per day |
| MND | Mitigated Negative Declaration |
| MNWR | Modoc National Wildlife Refuge |
| MRP | Mitigation and Reporting Program |
| MSL | Mean Sea Level |
| MT | Metric tons |
| MMT | Million metric tons |
| $MTCO_2e/yr$ | Metric tons of $CO_2$ equivalent per year |
| NAAQS | National Ambient Air Quality Standards |
| NAHC | Native American Heritage Commission |

| | |
|---|---|
| $NO_x$ | Nitrous Oxides |

## Abbreviations and Acronyms, Continued

| | |
|---|---|
| $N_2O$ | Nitrous Oxide |
| ND | Negative Declaration |
| NMOC | Non-methane Organic Compounds |
| NOA | Naturally occurring asbestos |
| NOAA | National Oceanic and Atmospheric Administration |
| NOI | Notice of Intent |
| NHPA | National Historic Preservation Act |
| NPAB | Northeast Plateau Air Basin |
| NPDES | National Pollution Discharge Elimination System |
| NPPA | California Native Plant Protection Act |
| NRHP | National Register of Historic Places |
| NWP | Nationwide Permit |
| $O_3$ | Ozone |
| OES | Office of Emergency Services |
| OHV | Off-Highway Vehicle |
| OPR | Governor's Office of Planning and Research |
| OSHA | Occupational Health and Safety |
| PFAS | Per- and Polyfluoroalkyl Substances |
| PFCs | Perfluorocarbons |
| PG&E | Pacific Gas & Electric Company |
| PM | Particulate matter |
| PPM | Micrograms per cubic meter |
| PRC | Public Resources Code |
| RCRA | Resource Conservation and Recovery Act |
| REC | Renewable Energy Credit |
| ROG | Reactive organic gases |
| RPS | Renewable Portfolio Standard |
| RWQCB | Regional Water Quality Control Board |
| SAA | Streambed Alteration Agreement |
| SB | Senate Bill |
| SCH | State Clearinghouse |
| SDWA | Safe Drinking Water Act |
| $SF_6$ | Sulfur Hexafluoride |
| SGMA | Sustainable Groundwater Management Act |
| SGP | Sustainable Groundwater Plan |
| SHN | SHN Consulting Engineers and Geologists, Inc. |
| SHMA | Seismic Hazards Mapping Act |
| SMARA | Surface Mining and Reclamation Act |
| SOI | Sphere of Influence |
| SR | State Route |
| SRA | State Responsibility Area |
| SSURGO | Soil Survey Geographic |
| SVEC | Surprise Valley Electrification Corporation |
| SWPPP | Stormwater Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TAC | Toxic Air Contaminates |
| TCR | Tribal Cultural Resources |
| TSO | Time Schedule Order |
| TSS | Total Suspended Solids |
| U | Unclassified (Zone Classification) |
| US | United States |
| USACE | United States Army Corps of Engineers |

| | |
|---|---|
| USDOT | United States Department of Transportation |
| USEPA | United State Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VHFHSZ | Very High Fire Hazard Severity Zone |
| VOC | Volatile Organic Compound |
| VMT | Vehicle Miles Traveled |
| WDR | Waste Discharge Requirements |
| WRCC | Western Regional Climate Center |
| WWTP | Wastewater Treatment Plant |

# City of Alturas
# Environmental Checklist Form

1. **Project Title:** Alturas Wastewater Treatment Plant Improvement Project

2. **Lead Agency Name and Address:**

   City of Alturas
   200 W. North Street
   Alturas, CA 96101

3. **Contact Person and Phone Number:**

   Warren Farnam
   Director of Public Works
   (530) 233-2377
   wfarnam@cityofalturas.us

4. **Project Location:** The City of Alturas (City) currently owns and operates a wastewater treatment plant (WWTP) just south of the city limits, on County Road 54 (N. West Street), in unincorporated Modoc County. The existing WWTP facility is located along the north bank of the North Fork Pit River at its confluence with the South Fork Pit River and provides primary and secondary treatment with treated effluent discharged to the Pit River.

   The project study area which includes the existing WWTP, proposed pipeline and new offsite aerations ponds and land application consists of approximately 290 acres. The 290-acre study area is situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East, of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The site ranges in elevation between 4,360 and 4,490 feet above mean sea level (msl). The study area consists of a portion of the developed WWTP parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 270.4 undeveloped acres at the proposed new treatment and disposal site.

5. **Applicant's Name and Address:**

   City of Alturas
   Public Works Department
   200 W. North Street
   Alturas, CA 96101
   (530) 233-2377

6. **General Plan Designation:** Rural Residential (RR) – Modoc County

7. **Zoning:** Unclassified (U) – Modoc County

8. **Description of Project:** The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand, total suspended solids, total coliform, toxicity, and total suspended solids. Therefore, the City is proposing improvements to WWTP to enhance system efficiency and comply with Central Valley Regional Water Quality Control Board (CVRWQCB) requirements.

   As currently proposed, the City would decommission the existing WWTP; pump the raw wastewater to new, offsite aeration ponds; and dispose of the treated wastewater through land discharge via evaporation and percolation ponds at a new offsite location. Implementation of the revised project would result in the installation of an irrigation pump system that directs effluent to a previously cultivated non-irrigated field for disposal via a subsurface drip system. The effluent from the storage pond will also be disposed of via a sprinkler irrigation system, north of the treatment ponds during the late spring through early fall time period.

The new offsite treatment and disposal facility would be located on a portion of Modoc County Assessor's Parcel Number (APN) 022-130-042, which is on the northwest side of County Road 54, over a mile southwest from the City's existing WWTP. This parcel will be purchased by the City for use in wastewater treatment and disposal and consists of approximately 270.4 acres of land currently used for livestock grazing. The existing building located on APN 022-130-042 consists of an approximately 672 square foot former residence and has been historically used to manage onsite grazing and agricultural activities. The building has existing utility connections for electricity, water, and an onsite septic system.

A new pipeline would be constructed along County Road 54 from the existing WWTP to the new location. From the headworks, the raw wastewater will be pumped via a force main that will be constructed using horizontal directional drilling (HDD). The force main will pass under the Pit River to County Road 54 and continue within the road right-of-way to the treatment ponds on APN 022-130-042. All construction would occur within the existing County Road 54 right-of-way. No in-water work would be required.

Implementation of the proposed project will also require an amendment to the City of Alturas General Plan SOI, a general plan land use amendment from Modoc County General Plan Rural Residential (RR) designation to the Public Facilities (City of Alturas), and a concurrent pre-zone of the entire property from Unclassified (U) to Agriculture (AG). Upon City purchase of the subject property and prior to initiation of construction, the City will submit an application "non-contiguous City-owned territory for municipal purposes" (GC Section 56742) to LAFCO for consideration.

9. **Surrounding Land Uses and Setting:** Existing land uses within a one-mile radius of the proposed project consist of undeveloped grazing lands and rolling open space lands with weedy, grazed, sagebrush scrub communities. No existing residents or other sensitive land uses are located immediately adjacent to or within the immediate project vicinity.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):** The City of Alturas as Lead Agency for the proposed project has discretionary authority over the primary project proposal. To implement this project, the City may need to obtain, at a minimum, discretionary permits, or approvals from the following agencies:

    - California Department of Fish and Wildlife
    - Central Valley Regional Water Quality Control Board
    - Modoc County Air Pollution Control District
    - Modoc County Local Agency Formation Commission
    - Modoc County Road Department
    - State Water Resources Control Board – Division of Water Rights
    - United States Army Corps of Engineers

11. **Tribal Consultation:** On May 1, 2020, the City initiated environmental review under CEQA for the proposed Alturas Wastewater Treatment Plant Improvement project. Although there are no tribes that have notified the City for inclusion on the City's Assembly Bill (AB) 52 notification list, the City sent a project notification letter to the Pit River Tribe, a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, on May 4, pursuant to Public Resources Code (PRC) 21080.3.1. No responses were received requesting initiation of consultation under the provisions of AB 52.
    Requests for comment from DZC to the Eleven Confederated Bands of the Pit River Tribe resulted in an expression of interest in the project by Pit River THPO Natalie Forest-Perez, who arranged for coordination with Chris Brown, a member of the Kosealekte Band who maintains traditional ties with the project location (DZC, 2024). Mr. Brown participated in both survey efforts, geotechnical testing, and in the extended phase 1 testing at P-25-002281. Following the results of the survey, THPO Perez expressed interest in having a Native American Monitor present during ground-disturbing activities within the boundaries of known resources within the Area of Potential Impact (API) during active construction.

12. **Purpose of this Document:** This document analyzes the environmental effects of the proposed Alturas Wastewater Treatment Plant Improvement project and makes appropriate findings in accordance with Section 15070 of the State CEQA Guidelines. In addition, this document has been prepared to the degree of specificity appropriate to the current proposed action, as required by Section 15146 of the State CEQA Guidelines. The analysis considers the actions associated with the proposed project to determine the short-term and long-term effects associated with their implementation.

# Section 1.0 – Introduction and Purpose

## 1.1 Introduction

The City of Alturas (City), as the Lead Agency, has prepared this Addendum Initial Study to provide the general public and interested public agencies with information about the potential environmental impacts of the Alturas Wastewater Treatment Plant Improvement Project (approved project). Details about the approved project are included in Section 2.0, PROJECT DESCRIPTION, of this Addendum Initial Study. This Addendum has been prepared in accordance with the California Environmental Quality Act (CEQA), as amended, to evaluate the potential environmental impacts of the proposed modifications to the Alturas Wastewater Treatment Plant Improvement Project as analyzed in the *Alturas Wastewater Treatment Plant Improvement Project Final Initial Study/Mitigated Negative Declaration* (2022 Final MND), State Clearinghouse No. 202100579, certified in March 2022.

This Addendum focuses on the proposed modifications to the approved project, which involves the installation of an irrigation pump system that directs effluent to a previously cultivated non-irrigated field for disposal via a subsurface drip system. The effluent from the storage pond will also be disposed of via a sprinkler irrigation system, north of the treatment ponds during the late spring through early fall time period. This Addendum provides an assessment of potential environmental impacts associated with the minor project modifications compared to the assumptions from the 2022 Final MND.

The City intends to apply for funding through the State Water Resources Control Board (SWRCB) Clean Water State Revolving Fund (CWSRF) Program, partially funded by the U.S. Environmental Protection Agency (USEPA). In accordance with the Operating Agreement between the SWRCB and USEPA, and the State Environmental Review Process, this Initial Study has been prepared to address certain federal environmental regulations (federal cross-cutters), including regulations guiding the General Conformity Rule for the Clean Air Act (CAA), the Federal Endangered Species Act (FESA), and the National Historic Preservation Act (NHPA). These requirements are addressed in Section III, AIR QUALITY, Section IV, BIOLOGICAL RESOURCES, and Section V, CULTURAL RESOURCES, of this Initial Study.

## 1.2 Lead Agency

The Lead Agency is "*the public agency which has the principal responsibility for carrying out or approving a project,*" which may be subject to CEQA (PRC Section 21067). Accordingly, the City of Alturas is the CEQA Lead Agency.

## 1.3 Purpose of an Addendum

The purpose of the Addendum is to provide clarifications to the certified 2022 Final MND necessary to complete environmental documentation related to the project revisions pursuant to Public Resources Code sections 21000 et seq., inclusive of the Guidelines for Implementation of CEQA. Section 15164(b) of the CEQA Guidelines states that:

*"An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling of the preparation of a subsequent EIR or negative declaration have occurred."*

An addendum does not need to be circulated for public review but can be included in or attached to the final EIR or adopted Negative Declaration prior to deciding on the project.

This Addendum describes the clarifications to the extent of work associated with implementation an irrigation pump system that directs effluent to a previously cultivated non-irrigated field for disposal via a subsurface drip system as well as a surface sprinkler system north of the treatment ponds on APN 022-130-042. For each of the clarifications in the Addendum, an explanation supports the findings that these revisions to the project will not result in a substantial change as described in the CEQA Guidelines section 15162(a) which requires that when an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

1. Substantial changes are proposed in the project that require major revisions of the previous EIR or negative declaration due to involvement of new significant environmental effects or a substantial increase in severity of previously identified significant effects;

2. Substantial changes have occurred with respect to circumstances under which the project is undertaken that will require major revisions of the previous EIR or Negative Declaration due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; and,

3. New information of substantial importance, which was not known and could not have been known with exercise of reasonable diligence at the time the previous EIR or Negative Declaration was adopted, shows any of the following:

   A. That the project will have one or more significant effects not discussed in the previous negative declaration;

   B. Significant effects previously examined will be substantially more severe than identified in the previous EIR or Negative Declaration;

   C. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponent declines to adopt the mitigation measures or alternative; or

   D. Mitigation Measures or alternatives which are considerably different from those analyzed in the previous EIR or Negative Declaration would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Therefore, this Addendum analyzes the project refinements as required by the CEQA Guidelines, Sections 15162 and 15164. As set forth in this Addendum, the clarifications to the project are minor and none of the conditions described above will occur that require preparation of a subsequent negative declaration in relation to the Altura Wastewater Treatment Plan Improvement project. Therefore, an addendum is appropriate for the project. This document describes the impacts associated with project and minor technical changes and additions revisions

## 1.4 Incorporation by Reference

In accordance with Section 15150 of the State CEQA Guidelines to reduce the size of the report, the following documents are hereby incorporated by reference into this Addendum and are available for public review at the City of Alturas Planning and Zoning Division.

- Alturas Wastewater Treatment Plant Improvement Project Final IS/MND (March 2022)
- City of Alturas General Plan (updated November 2014)
- City of Alturas Municipal Code (updated August 2019)
- Modoc County General Plan Goals, Policies, and Action Program (September 1988)
- Modoc County Local Hazard Mitigation Plan (April 2016)
- Modoc County Municipal Code (updated January 2020)

## 1.5 Project Environmental Studies

As part of the preparation of this Addendum, the following studies, which are included in Section 6.0, TECHNICAL APPENDICES, were prepared or utilized to develop baseline information and project-related impact discussions. These studies are available for inspection at the City of Alturas Planning and Zoning Division, 200 W. North Street, Alturas, CA 96101, during normal business hours (9:00 a.m. to 5:00 p.m. Monday through Friday).

- *Addendum Report: Biological Study and Aquatic Resource Screening Evaluation for the Alturas Wastewater Treatment Improvement Project.* ENPLAN. November 2023.
- *Aquatic Resource Delineation Report, Alturas Wastewater Treatment Plant, Modoc County, California*. ENPLAN. October 2020.
- *Biological Study Report, Alturas Wastewater Treatment Plan (WWTP) Improvement Project*. ENPLAN. October 2020.

- *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California*. DZC Archeology and Cultural Resource Management. December 2020.
- *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California*. DZC Archeology and Cultural Resource Management. June 2024.
- *Final Wastewater Preliminary Engineering Report*. SHN Consulting Engineers and Geologists, Inc. November 2020.

It is important to note that information contained in the cultural resources documentation related on the specific location of prehistoric and historic sites is confidential and exempt from the Freedom of Information Act (FOIA) and the California Public Records Act (CPRA); therefore, site specific cultural resource investigations are not attached to this initial Study. Professionally qualified individuals, as determined by the California Office of Historic Preservation, may contact the City of Alturas Planning and Zoning Division directly in order to inquire about its availability.

## 1.6 Review Process

This Addendum is being circulated for public and agency review as required by CEQA. Because State agencies will act as responsible or trustee agencies, the City will circulate the Addendum to the State Clearinghouse (SCH) of the Governor's Office of Planning and Research (OPR) for distribution and a 30-day review period. During the review period, written comments may be submitted to:

City of Alturas
Public Works Department
200 W. North Street
Alturas, CA 96101

Warren Farnam
Director of Public Works
(530) 233-2377
wfarnam@cityofalturas.us

# Section 2.0 – Project Description

## 2.1 Project Location and Setting

### Regional Setting

Modoc County lies within the far northeast corner of California and has a total area of 4,203 square miles (3,910 square miles of land and 286 square miles of water) and is contiguous to the states of Oregon and Nevada (refer to Figure 2-1, REGIONAL VICINITY). The County is bordered by Klamath and Lake Counties to the north; Washoe County to the east; and Lassen, Shasta, and Siskiyou Counties to the south, southwest, and west, respectively. There are 2.25 persons per square mile, making this one of the most sparsely populated counties in California.

Elevations in Modoc County vary from approximately 4,170 feet above mean sea level (msl) to approximately 9,856 feet above msl. A significant feature within the county is known as the Modoc Plateau, a volcanic table land (elevation 4,000 - 6,000 feet above msl) consisting of a thick accumulation of lava flows and tuff beds along with many small volcanic cones.

Modoc County has an existing population of approximately 9,570 persons based on the January 1, 2020 population estimates provided by the California Department of Finance (DOF). The county seat and only incorporated city is Alturas. Modoc County maintains approximately 5,279 existing housing units and 2.42 persons per household (DOF, 2020b). Of these, approximately 1,405 housing units are within the City of Alturas (DOF, 2020b). A substantial portion of Modoc County is federal land. Several federal agencies, including the United States Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS), Bureau of Indian Affairs (BIA), and the United States Fish and Wildlife Service (USFWS), have employees assigned throughout the county, and their operations are a significant part of the area's economy and services.

The City of Altura's 2020 population is 2,826 people and has remained static since 2010 (2,827 people). Between January 2019 and January 2020, the City's population declined from 2,849 to 2,826 (DOF, 2020a). This reflects a decline of about 0.7% compared to about 1% for all of Modoc County.

### Local Setting

The proposed project is located in unincorporated Modoc County, southeast of the City of Alturas (refer to Figure 2-2, SITE VICINITY). Existing land uses within the area are comprised of grazing land and open space lands that are characterized by rolling terrain with weedy, grazed, sagebrush scrub communities. The average July maximum temperature in the City of Alturas is 88.2°F and the average minimum temperature in January is 16.5°F. No existing residents or other sensitive land uses are located adjacent to or within the immediate project vicinity. County Road 54 (Centerville Road) provides the principal means of vehicular travel in the project area. This general east-west two-lane improved roadway begins at State Route 299 (SR-299) in the unincorporated community of Canby and provides west bound access to the proposed project area, including the City's existing wastewater treatment plant (WWTP) facility.

### Project Location

The City of Alturas currently owns and operates its WWTP just south of the City limits, on County Road 54, in unincorporated Modoc County (Figure 2-2). The existing WWTP is located along the north bank of the North Fork Pit River at its confluence with the South Fork Pit River and provides primary and secondary treatment with treated effluent discharged to the Pit River. This property is also used for the City's dog pound and for storage of excess City equipment. Portions of the existing WWTP are within the 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA) (refer to Figure 2-3, FEMA FLOODPLAIN).

The project study area which includes the existing WWTP, proposed pipeline and new offsite aerations ponds and land application are consists of approximately 290 acres (refer to Figure 2-4, PROJECT STUDY AREA). The 290-acre study area is situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East, of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The site ranges in elevation between 4,360 and 4,490 feet above msl. The study area consists of a portion of the developed WWTP parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 290 undeveloped acres at the proposed new treatment and disposal site. The facility location includes one single parcel, Assessor's Parcel Number (APN) 022-130-042.


| | | |
|---|---|---|
| | Alturas WWTP Improvement Project | Regional Vicinity |
| | June 2024 | Source: DZC, June 2024 | Figure 2-1 |


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| | | |
|---|---|---|
| SHN | Alturas WWTP Improvement Project | Site Vicinity |
| | June 2024 | Source: SHN, 2024 | Figure 2-2 |


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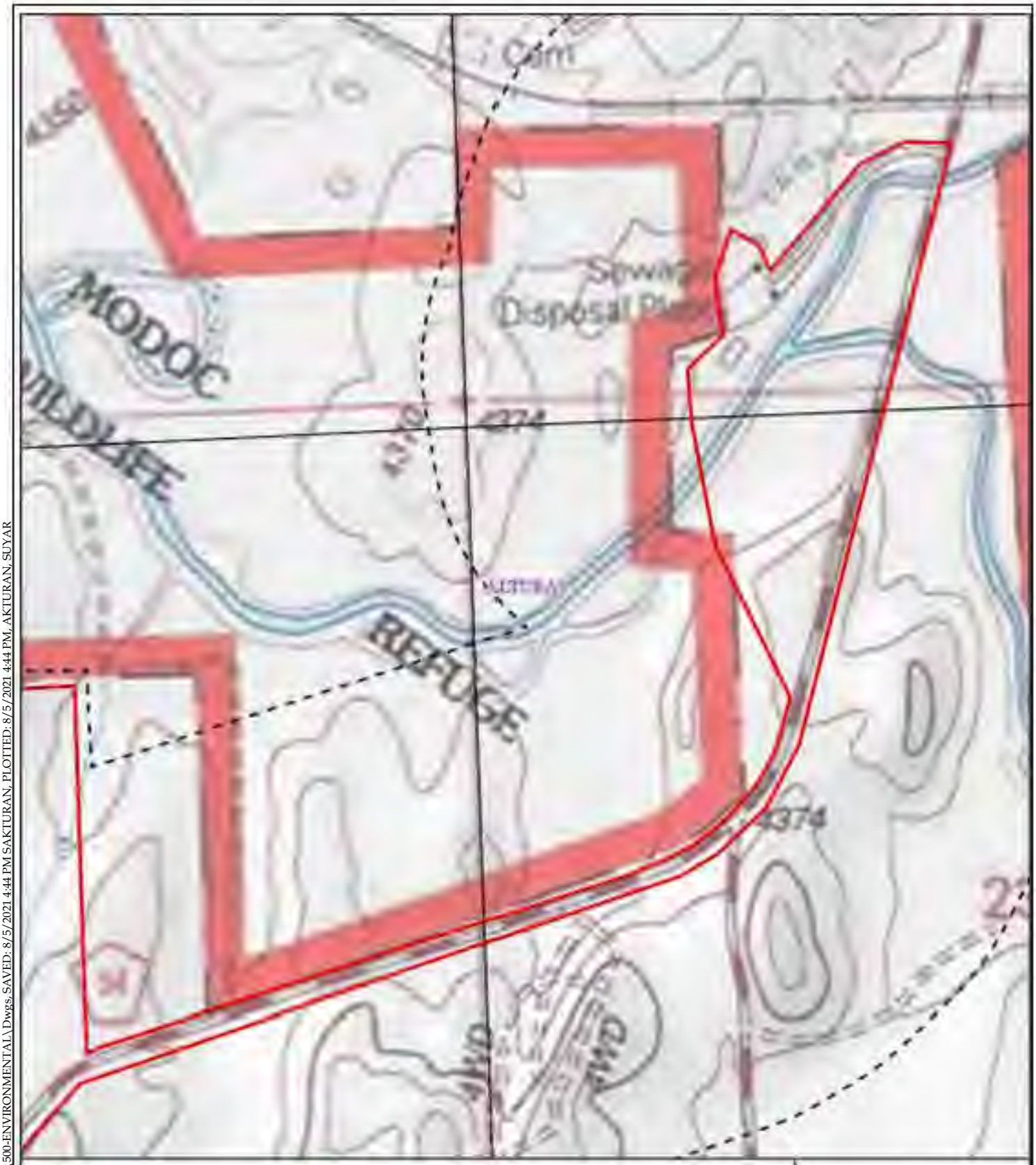
| | | |
|---|---|---|
| | Alturas WWTP Improvement Project | FEMA Floodplain |
| | June 2024 | Source: SHN, 2024 | Figure 2-3 |



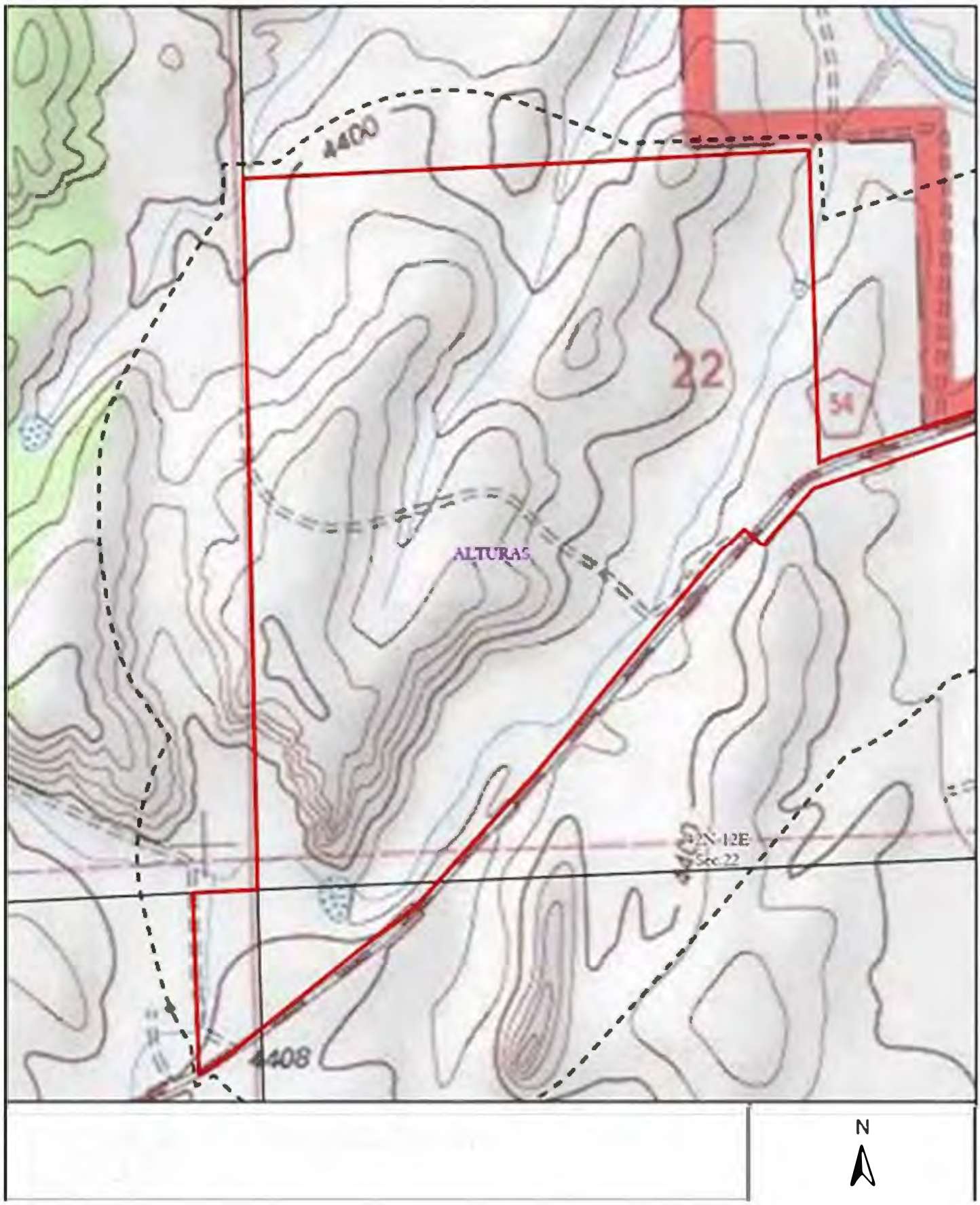

Alturas WWTP Improvement Project

Project Study Area

June 2024

Source: DZC, June 2024

Figure 2-4a




Not to Scale

| | | |
|---|---|---|
| SHN | Alturas WWTP Improvement Project | Project Study Area |
| | June 2024 | Source: DZC, June 2024 |

Figure 2-4b

## 2.2 Existing WWTP Plant

The exact year when the original WWTP was constructed is not known; however, improvements were first constructed in 1965 with subsequent improvements completed in 1974 and 2006. The existing WWTP was originally designed for an average dry weather flow (ADWF) of 0.5 million gallons per day (MGD), with a peak day flow of 1.0 MGD. Current ADWF is approximately 0.33 MGD, and peak daily flows have been as high as 1.2 MGD. The existing WWTP is a Class II trickling filter facility with the following major components:

- Headworks (including grit removal)
- Grinder
- Influent Pump Station
- Primary Clarifier
- Trickling Filter
- Secondary Clarifiers
- Digester
- Sludge Drying Beds
- Disinfection
- Outfall (including high water pump station)

A site plan of the current WWTP is presented in Figure 2-5, EXISTING WWTP FACILITY. Figure 2-6, PROCESS FLOW DIAGRAM, illustrates the existing treatment process used onsite.

The City's WWTP has been regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB) under Waste Discharge Requirements (WDR) Order No. R5-2014-0033 (NPDES No. CA0078921). At the time the WDRs were issued, it was recognized that the City was not able to comply immediately with the effluent requirements for copper, zinc, and total coliform. The City has had compliance schedules to meet effluent limits for copper and zinc since 2006 in the permit or Time Schedule Orders (TSO). Therefore, TSO R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued by the CVRWQCB. This TSO gave interim compliance limits for copper, zinc, and total coliform. The final compliance date for copper and zinc was May 18,2020.

A review of effluent water quality data for 2015-2018 revealed that effluent water quality often did not meet the regulatory limits stipulated in the WDR and TSO for the following constituents: Aluminum, copper, zinc, BOD, TSS, and toxicity. The City was assessed $15,000 in civil liability for effluent limitation violations of copper and zinc in 2015. The $15,000 was treated as a permanently suspended administrative civil liability since the City completed a compliance project designed to correct the violations.

On April 1, 2020, the CVRWQCB issued a new permit under WDR Order No. R5-2020-0004, which provides interim limits through March 31, 2030 for the following constituents: Chronic Whole Effluent Toxicity, biological oxygen demand (BOD), total suspended solids (TSS), and ammonia.

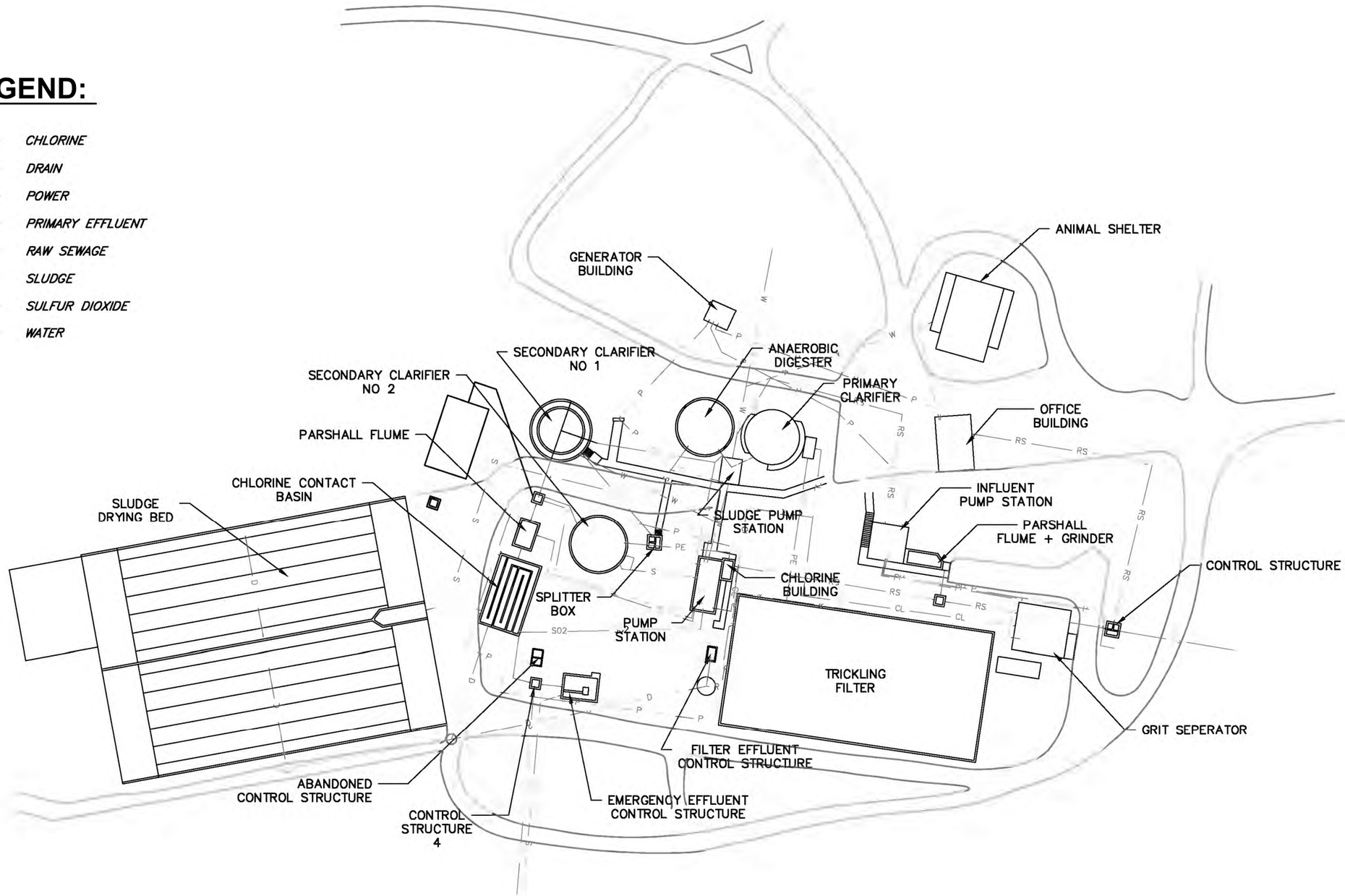
The City has had historical challenges meeting the chronic toxicity with nine out of 36 toxicity tests since 2014 having failed. The newly issued permit has the following compliance schedule for chronic toxicity:

- Until March 31, 2030, chronic whole effluent toxicity shall not exceed 16 toxicity units and a percent effect of 25% at 6.25% effluent, any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.
- After March 31, 2030, chronic whole effluent toxicity shall not exceed 1 toxicity units and a percent effect of 25% at 100% effluent for any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.

Suspected reasons for the toxicity violations have included ammonia and, most recently, surfactants. Other potential causes include chlorine, metals, non-polar organics, other treatment chemicals, and total dissolved solids. The most recent *Toxicity Identification Evaluation* completed by Pacific EcoRisk in August 2019 from samples collected July 8 and 10, 2019 concluded the following:

# LEGEND:

- CL — CHLORINE
- D — DRAIN
- P — POWER
- PE — PRIMARY EFFLUENT
- RS — RAW SEWAGE
- S — SLUDGE
- S02 — SULFUR DIOXIDE
- W — WATER

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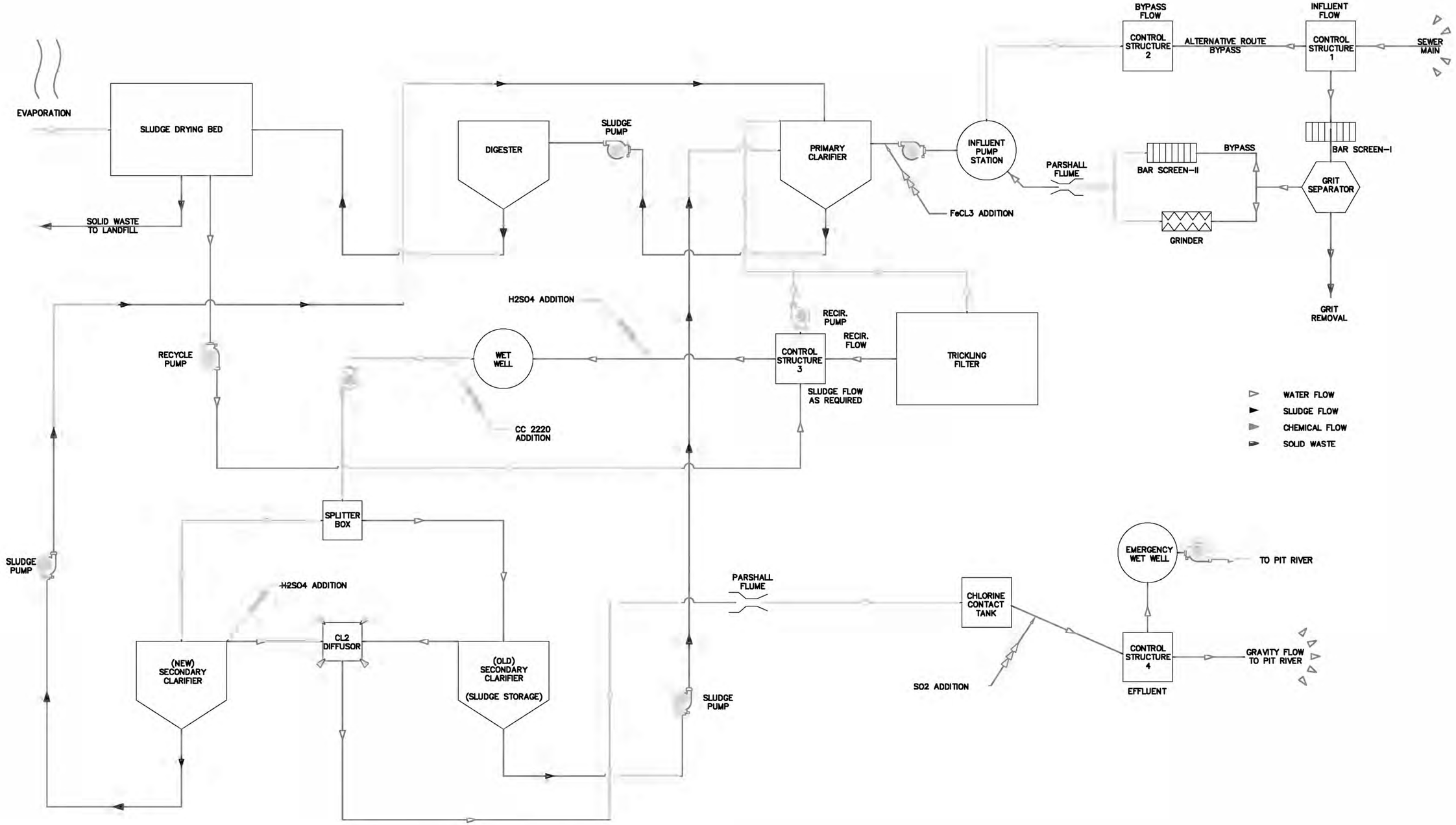
| SHN | Alturas WWTP Improvement Project | | Existing WWTP Facility |
| | June 2024 | Source: SHN, 2019 | Figure 2-5 |

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| | | |
|---|---|---|
| | Alturas WWTP Improvement Project | Process Flow Diagram |
| | June 2024 | Source: SHN, 2019 |

Figure 2-6

*"Toxicity was persistent with a 54.4% reduction in growth relative to the laboratory control…By weight of evidence, the combined visual observation of foam during air sparging and the overall improvements in cell growth from all treatments suggest that surface-active compounds (i.e., surfactants) may be causing or contributing to toxicity. Further analysis of all treatments for anionic and nonionic surfactants is recommended."*

The CVRWQCB has indicated that if the City continues to discharge to the Pit River, future permits will include effluent limits for previously nonregulated constituents which include arsenic, Bis (2-ethylhexyl) phthalate, ammonia, and nitrate+nitrite. Significant upgrades to the existing WWTP would be required to address these new effluent limits.

## 2.3 Project Purpose and Need

The City's existing WWTP serves a population of approximately 2,600 persons. As previously described above, treated effluent is currently discharged to the Pit River under WDR Order R5-2014-0033 and NPDES Permit No. CA0078921, issued by the CVRWQCB.

The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, BOD, TSS, total coliform, and toxicity. TSO R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued specifying interim limits for zinc, copper, and total coliform. The City obtained a Proposition 1 Wastewater Planning Grant (Agreement No. D17-04002) from the State Water Resources Control Board (SWRCB) Division of Financial Assistance (DFA) to assist the City in developing wastewater treatment plant improvements that will achieve regulatory compliance.

Using funding from the Proposition 1 grant, the City developed a Preliminary Wastewater Engineering Report (PER) that evaluated several alternatives that would allow the City to upgrade the WWTP and come into regulatory compliance (refer to Appendix A, *Final Wastewater Preliminary Engineering Report*). The CVRWQCB has indicated that the Pit River is a sensitive water body and would prefer to see the City use land disposal for the effluent and eliminate the permitted discharge to the river. Due to the frequency of the City's effluent exceeding regulatory levels, the CVRWQCB is concerned with the City's ability to meet the current and future effluent limits if they continue to discharge to the Pit River. A copy of the PER is included as Appendix A.

## 2.4 Approved Project (2022)

The approved project (identified as Alternative 3 in the PER, Appendix A) consists of decommissioning the existing WWTP and moving treatment to a new offsite location where new aeration ponds would treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. Project features include the decommissioning of the existing WWTP and creating a new headworks, installation of a new influent pump station, construction of a new force main wastewater line, and construction of new aeration and evaporation/percolation (disposal) ponds (refer to Figure 2-7, APPROVED SITE PLAN). These elements are further described below, with a summary of anticipated impacts displayed in Table 2-1, ALTURAS WASTEWATER TREATMENT FACILITY – PROJECT COMPONENTS. Aeration treatment ponds and treated effluent evaporation/percolation (disposal) ponds will be constructed on Modoc County Assessor's Parcel Number (APN) 022-130-042. This parcel will be purchased by the City for use in wastewater treatment and disposal and consists of approximately 270.4 acres of land currently used for livestock grazing.

### Decommissioning of Existing WWTP

The existing WWTP will be decommissioned once the new facilities are installed and brought online. Decommissioning consists of removal of all existing mechanical equipment (pumps, motors, screens, etc.); the existing structures will remain in-place. Decommissioning also includes termination of raw wastewater flows to the existing facility. The remaining facility will be retained by the City for repurposing for other uses. Area of impact from decommissioning is anticipated to be approximately 0.5 acres, all of which has been previously disturbed by development and use of the existing WWTP.


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| | | |
|---|---|---|
| | Alturas WWTP Improvement Project | New Headworks & Pump Station |
| June 2024 | Source: SHN, 2019 | Figure 2-8 |

**Table 2-1**
**ALTURAS WASTEWATER TREATMENT FACILITY – PROJECT COMPONENTS**

| Project Component | Location | Ground Disturbing Activity | Length (feet) | Width (feet) | Depth (feet) | Height (feet) | Notes |
|---|---|---|---|---|---|---|---|
| Existing WWTP Decommissioning | Existing WWTP | Removal of Mechanical Equipment | Varies | Varies | Varies | NA | Removal of existing mechanical equipment for salvage value; structures will remain for other uses. Estimated total area within the treatment plant that may be disturbed is 0.5 acres. Impacts to the site have occurred from previously approved projects and ongoing uses as a WWTP. |
| Headworks | Existing WWTP | New Headworks Building | 30 | 15 | 12 | 15 | Piping at headworks connect to control structure and pump station. |
| | | Trenching for Piping | 20 | 10 | 12 | NA | |
| Pump Station | Existing WWTP | New Pump Station | 20 | 10 | 12 | NA | Pump station will be above and below ground. Piping to connect pump station to new force main pipeline. |
| | | Trenching for Piping | 20 | 10 | 12 | NA | |
| Force Main Pipeline | Shoulders of County Road 54 and APN 022-130-042 Access Road | Excavation and installation of HDPE 8-inch diameter pipe. | 11,000 | 10 | 4 | NA | Force main impacts will be trench excavation. Impacts consist of trench, excavated material for backfill, and area of impact from excavation equipment. |
| Aeration Ponds (Treatment) | APN 022-130-042 | Excavation of two aeration ponds | 400 (each) | 240 (each) | 14 (each) | NA | Aeration ponds have HDPE liner installed along with aeration piping on bottom of pond. |
| | | Piping between ponds and to percolation ponds | 500 | 10 | 4 | NA | |
| | | Blower Building | 20 | 20 | 5 | 15 | |
| Evaporation/Percolation Ponds (Disposal) | APN 022-130-042 | Excavation of two evap/perc ponds | 205 (each) | 250 (each) | 12 | NA | Evaporation/Percolation ponds have no liner. |
| | | Piping between ponds | 70 | 10 | 4 | NA | |
| Treatment Facility Office | Existing 672 square foot building at APN 022-130-042 | None. Reuse of existing structure with interior and minor exterior work to the structure. | NA | NA | NA | Existing Structure | Existing structure will be repurposed for the City's treatment facility office. Improvements will be minor upgrades to the interior and exterior of the structure for modernization and weather proofing. No new construction would occur. |

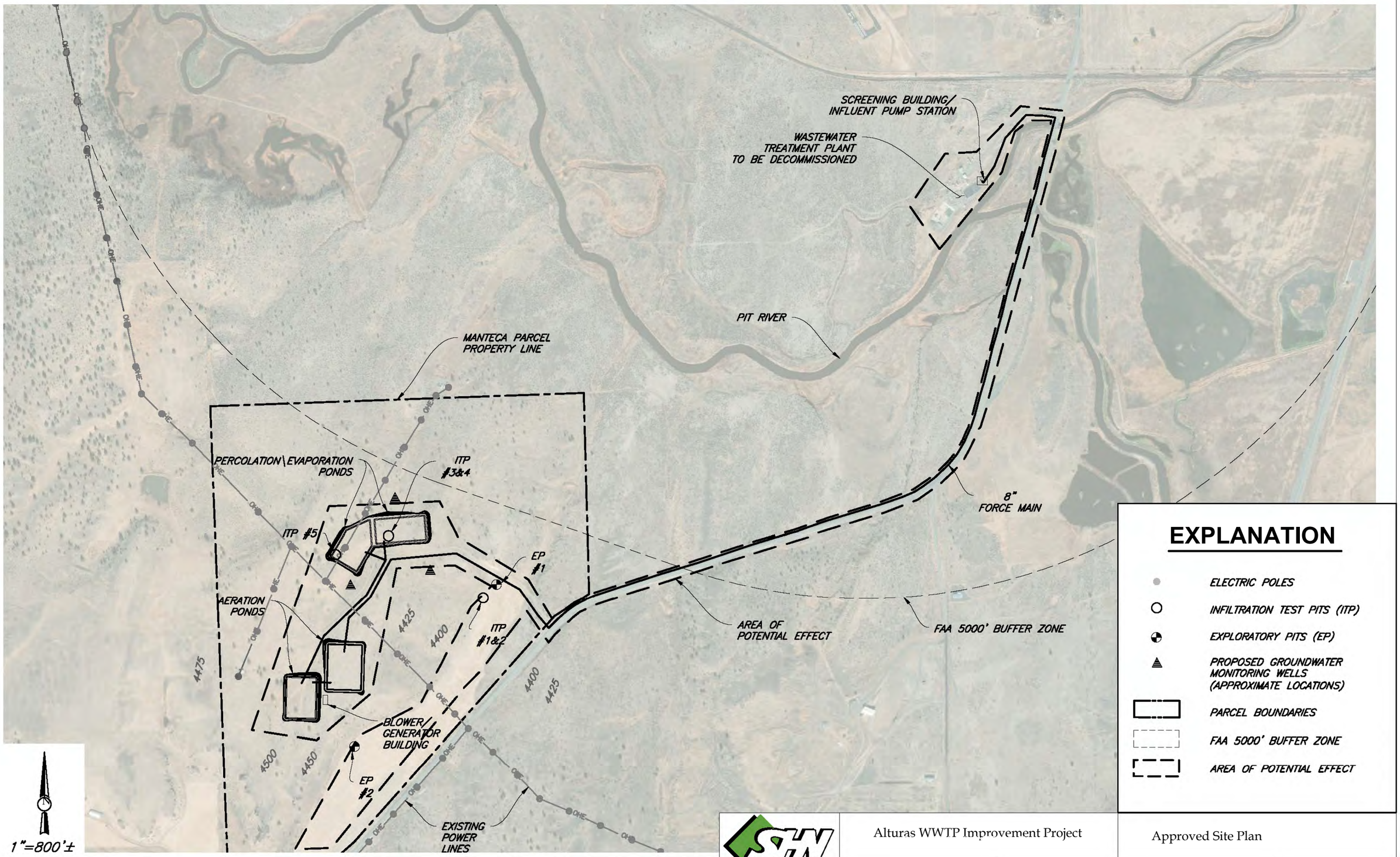
Source: SHN Consulting Engineers and Geologists, Inc. January 2021.

## New Headworks and Pumpstation

Both the headworks and pump station facilities are expected to impact a total of 0.02 acres.

- *Headworks.* The new headworks and pump station would be located near the existing WWTP control structure (refer to Figure 2-8). The existing wastewater raw sewage line would remain in-place to provide sewage to the headworks. The new headworks will consist of a new concrete structure built over the existing sewer line with a screw press screen and dewatering unit. The purpose of the screw press screen is to screen out solids from the wastewater stream that cannot be digested and treated in the ponds. Solids such as plastics, metals, rocks, and other debris will be removed by screening and pressing the wastewater to separate out solids and liquids. The solid 'screenings' will be conveyed and further dewatered where they will be placed into a dumpster. The dumpster will be emptied on a weekly basis by removal of solids to an approved municipal landfill. Wastewater from the headworks is directed to the pump station.

- *Pump Station.* Wastewater from the headworks will be piped to the new pump station, which will pump wastewater through a new 8-inch force main pipeline to the new treatment and disposal area. The new effluent pump station would be a package lift station located adjacent to the existing raw sewage control structure. The pump station would be installed below grade to allow gravity flow of wastewater from the headworks to the pump station wet well. Wastewater would then be pumped through the new force main pipeline to the treatment facilities. Figure 2-8 provides the location of the pump station in relation to the headworks and the new force main.




Alturas WWTP Improvement Project

Approved Site Plan

June 2024

Source: SHN, 2019

Figure 2-7

## Wastewater Force Main

A new 8-inch diameter force main would run from the pump station along the existing WWTP access road to County Road 54, where it would run along the road shoulder for approximately 1.4 miles to the entrance of the disposal property. Once at the disposal property, the force main will continue for approximately 3,000 feet along an existing unpaved road where it will terminate at the location of the new aeration treatment ponds.

Figure 2-7 provides an overview of the pipeline alignment and Figure 2-8 provides a detail of the treatment property where the pipeline terminates. The new force main will cross the North Fork Pit River on the County Road 54 bridge under authorization of a Modoc County Encroachment Permit. The force main will consist of high density polyethylene (HPDE) pipe except where crossing over the Pit River, where it will be constructed with ductile iron pipe.

The force main will be placed in a new utility trench, approximately 24 inches wide and 4.5 feet in depth. The pipe will be bedded in sand or gravel and have 3 feet of soil covering the top of the pipe. Anticipated area of direct impact of the trench is 0.51 acres along the shoulder of the existing WWTP access road, County Road 54, and the access road to the new WWTP facility. Total area of impact is estimated at 1.7 acres (at 10 feet wide disturbance area), based upon the use of a backhoe for trench excavation, the excavation of the trench and the placement of excavation material adjacent to the trench for later use in pipe cover.

## Treatment and Disposal Ponds

As previously mentioned above, aeration treatment ponds and treated effluent evaporation/percolation (disposal) ponds will be constructed on APN 022-130-042 once purchased by the City. The treatment and disposal ponds are discussed below. Figure 2-8 provides an overview of the treatment and disposal areas.

- *Treatment Ponds.* The proposed project will construct two wastewater aeration (treatment) ponds. Aeration of the wastewater will provide the mechanical and biological breakdown of the wastewater needed prior to disposal. The ponds will be 400-feet long by 240-feet wide each, with a 3:1 side slope and a 12 foot water depth. Each pond will hold approximately 6.7 million gallons of wastewater (20.6 acre-feet). Each pond will be lined with a 60 millimeter HDPE liner, with coarse and fine bubble aerators installed on the pond bottoms. Aeration will occur by way of three blowers housed in a new blower building providing air to the bubblers. The new blower building will be approximately 400 square feet in size.

  Power for the operation of the aeration blowers will be provided by existing onsite power provided by the local electric utility. A new power drop will be required as part of the construction of the blower building and will occur as part of the future construction of the project. Aeration is expected to occur 24 hours per day in both ponds.

- *Disposal Ponds.* The proposed project will also construct two wastewater evaporation/percolation (disposal) ponds; these ponds would not be lined. The purpose of these ponds is to accept the treated wastewater effluent from the aerated ponds and allow this effluent to both evaporate to air and percolate into the local soil. Evaporation rates will vary depending on time of year (hot/dry periods will evaporate faster); percolation rates have been estimated from field tests to be in excess of 400 feet per year at the site.

  Each pond will have an approximate storage area between 1.1 and 1.5 acres in size, equating to a maximum storage capacity of approximately 2.9 million gallons (9.0 acre-feet). These evaporation/percolation ponds are not anticipated to have a static water level, as evaporation and percolation rates are expected to keep the pond levels below maximum levels. One disposal pond is expected to be used continuously, with the second disposal pond providing redundancy, allowing for taking the first pond off-line for servicing, and to provide additional winter storage if needed.

  Total area of anticipated impact from the creation of the 4 ponds (treatment and disposal) is estimate at 7.4 acres, with another 2.5 acres of anticipated disturbance around the ponds for construction and other facility improvements for an estimated total area of impact of approximately 10 acres.

- *Existing Building Renovation.* The existing building located on APN 022-130-042 is approximately 672 square feet with an existing bathroom. The facility has been previously used as a residence to manage activities at the site. The building has existing utility connections for electricity, water, and an onsite septic system. The City proposes to repurpose this existing building as its treatment facility office. Anticipated work on the existing structure would be to interior spaces to provide routine maintenance and upgrades for use as a City facility. Work may include painting, flooring and potentially communications equipment upgrades. Exterior work to the facility may include painting, maintenance to the roof, exterior walls, and windows to provide water tightness. Security lights may be installed at the building entrance door. There is sufficient parking at the site.

  Since the structure has existing utilities located at the site, there will be no need for excavations or other site development work. Once upgrades/improvements are completed, the City will use the building for staff use during operations and maintenance of the new wastewater treatment facility.

## Sphere of Influence Amendment

The proposed project site is located approximately 1.4 miles outside of the City's Sphere of Influence (SOI), within unincorporated Modoc County. Implementation of the proposed project would require an approved SOI amendment in addition to a general plan amendment from Rural Residential (RR) (Modoc County) to Public Facilities (City of Alturas) and a concurrent pre-zone of the entire property from Unclassified (U) to Agriculture (AG). Table 2-2, PROPOSED SOI AMENDMENT AND PRE-ZONE, illustrates the various land use approvals.

**Table 2-2**
**PROPOSED SOI AMENDMENT AND PRE-ZONE**

| Existing County General Plan Land Use Designation | Proposed City General Plan Designation[1] | Sphere of Influence Amendment[2] | Existing County Zoning | Proposed City Pre-Zoning[3] |
|---|---|---|---|---|
| Rural Residential (RR) | Public Facility (PF) | Yes | Unclassified (U) | Agriculture (AG) |

1. Public Utility Service Facilities are conditionally allowed in the Agricultural (AG) zone subject to issuance of a use permit by the City.
2. Once property is acquired by the City, LAFCO approval of a non-contiguous sphere of influence amendment request is required.
3. Pre-zoning of the site by the City is required before LAFCO can take action on the sphere of influence amendment.

Upon City purchase of the subject property and prior to initiation of construction, the City will submit an application "non-contiguous City-owned territory for municipal purposes" (GC Section 56742) to LAFCO for consideration. Section 56742 of the Government Code allows annexations of city-owned non-contiguous territory as follows:

(a) Notwithstanding Section 56741 (territory within the same county), upon approval of the commission a city may annex non-contiguous territory not exceeding 300 acres if the territory meets all of the following requirements:

  (1) It is located in the same county as this in which the city is situated.
  (2) It is owned by the City.
  (3) It is used for municipal purposes at the time commission proceedings are initiated.

(b) Territory which is used by a city for the reclamation, disposal, and storage of treated wastewater may be annexed to the city pursuant to this section without limitation as to the size of the territory.

(c) If territory is annexed pursuant to this section, the annexing city may not annex any territory not owned by the city, not used for municipal purposes, and not contiguous to the city, although the territory is contiguous to the territory annexed pursuant to this section.

As previously discussed under Section 1.0, INTRODUCTION, the City of Alturas intends to apply for funding through the State Water Resources Control Board (SWRCB) Clean Water State Revolving Fund (CWSRF) Program, partially funded by the U.S. Environmental Protection Agency (USEPA). Upon receipt of funding through the CWSRF Program, the City will initiate property procurement and pre-zoning activities as noted above. Once the City approves a pre-zoning ordinance for the subject parcel, a formal application to amend the City's SOI will be submitted to LAFCO for consideration and action.

## 2.5 Revised Project (2024)

The revised project remains the same as the approved project with the following additions and revisions (see Figure 2-9, REVISED PROJECT):

- *Headworks*: Screening is performed using a bar screen that is self-cleaning instead of the screw press screen. Following the screen with be a grit removal process to remove heavy inorganic materials such as sand and grit. This will be followed by a flow meter to measure inflows. Wastewater from the headworks is directed to the pump station.
- *Denitrification:* Effluent from the treatment ponds will pass through a denitrification process. This process consists of in-ground concrete cells utilizing a mixed bed bioreactor (MBBR) for conversion of nitrate to nitrogen gas.
- *Effluent Disposal:* After the nitrogen removal process, the treated effluent flows to a lined storage pond, approximately one acre in size and eight feet deep. Water depth in this storage pond can be up to six feet deep with two feet of freeboard, and the storage volume is up to 1.5 million gallons. An irrigation pump directs the flow primarily to a previously cultivated non-irrigated field where the water is disposed of via a subsurface drip system. The effluent from the storage pond can also be disposed of via sprinkler irrigation in another area during the late spring through early fall time period. As a backup, a three-acre percolation and evaporation pond is available adjacent to the storage pond if needed.
- *Horizontal Directional Drilling:* From the headworks, the raw wastewater will be pumped via a force main that will be constructed using horizontal directional drilling (HDD). The force main will pass under the Pit River to County Road 54 and continue within the road right-of-way to the treatment ponds on APN 022-130-042. All construction would occur within the existing County Road 54 right-of-way. No in-water work would be required.

### Documentation and References

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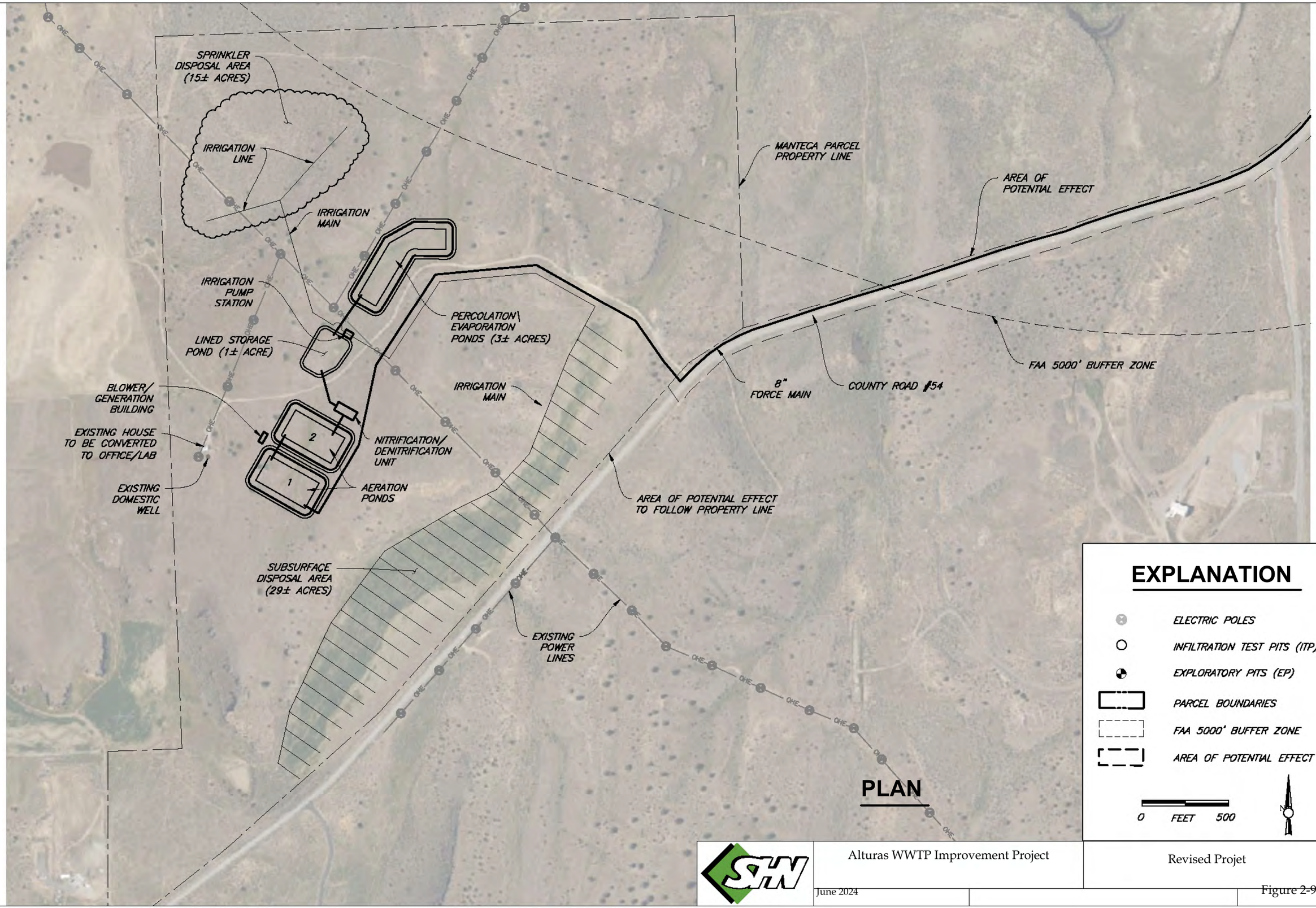


# PLAN

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| SHN | Alturas WWTP Improvement Project | Revised Projet | |
| | June 2024 | | Figure 2-9 |

# Section 3.0 – Environmental Impacts & Mitigation Measures

This section of the Addendum provides an evaluation of the potential environmental impacts of the proposed Alturas Wastewater Treatment Plant Improvement Project located in the City of Alturas and unincorporated Modoc County, as well as the Mandatory Findings of Significance required by the California Environmental Quality Act (CEQA). A discussion of cumulative impacts is included at the end of this chapter. The issue areas evaluated in this Addendum include:

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology & Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology & Water Quality
- Land Use & Planning
- Mineral Resources
- Noise
- Population & Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities & Service Systems
- Wildfire

This Addendum identifies several potentially significant environmental effects related to the proposed project. Some effects are mitigated by implementation of existing provisions of law and standards of practice related to environmental protection. Such provisions are considered in the environmental impact analysis, and the degree to which they would reduce potential environmental effects is discussed. Additional mitigation measures are specifically identified, when necessary, to avoid potential environmental effects or to reduce them to a level that is less than significant.

The modified checklist items are based on CEQA's Appendix G Environmental Checklist Form. It is modified to evaluate the proposed project changes for which an environmental impact report has previously been completed to assist in the determination of the need for supplemental environmental documents, in this case, a Supplemental MND or an Addendum under Public Resources Code 21166 and Guideline Sections 15162, 15163, and 15164, respectively. For purposes of this study, references to "the project" in the left-hand column questions refer to the proposed modifications (revised project) as compared to the Alturas Wastewater Treatment Plant Improvement Project evaluated in the 2022 MND.

The first four columns to the right of the modified checklist questions identify whether the revised project modifications would result in new impacts, and if so whether these impacts would be less than significant, less than significant with mitigation from the 2022 MND incorporated, or potentially significant.

The fifth column asks whether the impacts associated with proposed project, if any, were sufficiently disclosed in the previous environmental documents.

Finally, the last column indicates whether or not a Supplemental MND is needed. A Supplemental MND would be needed if there were new significant unmitigated or substantially more severe impacts, which would result from the proposed project and which were not sufficiently disclosed in the previous environmental document.

## Format of the Environmental Analysis

Pursuant to CEQA, an addendum is the appropriate environmental document for analyzing a project revision if only minor technical changes or additions to the analysis are necessary. From an environmental perspective, the Lead Agency must demonstrate the following with respect to the revised project:

- That the revised project will not have one or more significant effects not discussed in the previous MND;
- That the revised project would not create effects that result in an increase of the severity of significant effects already identified in the previous MND;
- That all feasible mitigation measures are accepted and adopted; and

- That no additional mitigation measures are required to reduce one or more significant effect or, if these are required, that they are imposed as part of the environmental assessment.

This Addendum is an environmental analysis for the revised project described in Section 2.0 Project Description. Each topical section of this Addendum is organized into the following subsections:

- *Environmental Setting.* The environmental settings present the existing environmental conditions, in accordance with CEQA Guidelines Section 15125. The subsection describes the baseline conditions against which the environmental impacts associated with the revised project are assessed.

- *Regulatory Setting.* The regulatory settings describe the laws, regulations, and policies that affect the resource or the assessment of impacts on the specific resource. Where appropriate, the regulatory setting subsection establishes the regulatory framework for the analysis of each resource.

- *Impact Analysis.* The impact analysis presents thresholds of significance used and discusses potential effects of the revised project on the existing environmental conditions compared to the approved 2022 Final MND (in accordance with CEQA Guidelines sections 15126.2(a) and 15143).

- *Mitigation Measures.* Mitigation measures provide measures to reduce potentially significant effects associated with the revised project to the extent feasible (in accordance with CEQA Guidelines sections 15002(a)(3), 15021(a)(2), and 15091(a)(l)).

- *Findings.* This subsection is presented in accordance with CEQA Guidelines Section 15091(a)(1), 15092(b)(2)A), and 15126.2(b), which require identification of impacts capable of avoidance or mitigation, as well as those that cannot be avoided.

# I. Aesthetics

This section of the Addendum describes the existing visual environment in and around the project area. The analysis assesses the potential for aesthetics impacts using accepted methods of evaluating visual quality, as well as identifying the type and degree of change the revised project would have on the character of the surrounding area.

## Environmental Setting

Scenic vistas are defined as expansive views of highly-valued landscapes from publicly accessible viewpoints. Scenic vistas include views of natural features such as topography, water courses, outcrops, and natural vegetation, as well as human-caused scenic structures. The project study area is located in the eastern portion of central Modoc County and extends from the City's existing wastewater treatment plant (WWTP), along County Road 54 to APN 022-130-042 (a distance of approximately 1.4 miles). The County has not designated specific scenic vistas in the immediate project area as a part of the Modoc County General Plan (Modoc, 1998).

California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. According to Caltrans' California Scenic Highway Program and the National Scenic Byways Program, the proposed project is not located near a highway which has been listed as a State or federal Scenic Highway or as an Eligible State Scenic Highway-Not Officially Designated (Caltrans, 2018; FHWA, 2018).

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Aesthetics* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of aesthetics impacts include the following:

### *California Building Code*

The California Building Code, Part 2 of Title 24 in the California Code of Regulations (CCR) includes standards for outdoor lighting that are intended to improve energy efficiency and reduce light pollution and glare by regulating light power and brightness, shielding, and sensor controls.

### *City of Alturas Zoning Ordinance Article 4*

The City's zoning ordinance Article 4 Section 28.44 provides lighting standards within the City. Exterior parking and building lighting are regulated to eliminate light spillover and glare for safety considerations. All new construction projects are required to submit a lighting plan detailing locations, size, height, and design of all outdoor lighting. Lighting is required to be shielded and directed downward and away from adjacent properties.

## Impact Analysis

Degradation of the visual character of a site is usually addressed through a qualitative evaluation of the changes to the aesthetic characteristics of the existing environment and the proposed project-related modification that would alter the visual setting. In order to analyze the potential impacts of visual resources, as seen from potential public scenic views, and to document potential change in character or quality within the project area, the existing visual conditions as seen from County Road 54 has been evaluated.

The following includes an analysis of environmental parameters for the revised project related to *Aesthetics* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Aesthetics*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Have a substantial adverse effect on a scenic vista? | | | X | | Yes | No |

*2022 Final MND Findings*

As noted above, the County has not designated specific scenic vistas in the immediate project area as a part of the Modoc County General Plan and there is no designated State or federal scenic highways or scenic highway corridors in the vicinity of the proposed project. The proposed project consists of decommissioning the existing WWTP and moving treatment to a new offsite location where new aeration ponds would treat wastewater. Project features include the decommissioning of the existing WWTP and creating a new headworks, installation of a new influent pump station, construction of a new force main wastewater line within County Road 54, and construction of new aeration and evaporation and percolation ponds.

The proposed project would include construction along County Road 54 through rural and grazing lands and along County Road 54, from which long-distance views are available and construction activities may result in minor temporary disruptions to views. Viewers such as travelers to and from Canby and Alturas would notice alterations in scenic resources during construction activities. However, the pipeline would be installed below grade and within the roadway right-of-way through trenching and directional drilling. Construction effects along the pipeline route would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. The localized and temporary disruption of long-distance views associated with construction activities would not be considered a substantial, adverse effect on long-distance views in the area.

The new headworks and pump station at the existing WWTP facility would have structure heights that would not exceed 15 feet above ground surface. To minimize visual impacts, the percolation and evaporation ponds would be constructed below grade with a 3:1 slope. The pipeline would be installed underground and no permanent effects to scenic resources would occur as a result of the project. The project would not introduce new structures that would be dissimilar to nor located adjacent to nearby receptors such that development at either end of the proposed project would preclude long-distance views. Due to these factors, the project would result in a less than significant impact and would not substantially have a substantial adverse effect on a scenic vista. No mitigation measures are required.

*Revised Project Impacts*

Implementation of the revised project would include the disposal of treated effluent through subsurface land discharge within APN 022-130-042. Similar to the approved project, the revised project would not introduce new structures that would be dissimilar to nor located adjacent to nearby receptors such that development would preclude long-distance views. Due to these factors, the revised project would result in a less than significant impact and would not substantially have a substantial adverse effect on a scenic vista.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? | | | | X | Yes | No |

*2022 Final MND Findings*

As described in the 2022 Final MND, all roadways in Modoc County are considered to be scenic according to the General Plan, however there are no officially designated scenic roadways, ridgeways, or vista points within the County (Modoc, 1988). The approved project would not impede any scenic vistas or disrupt any larger scenic views and no impact would occur.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not disrupt any scenic vistas or views. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

The project site is located within unincorporated Modoc County, southwest of the City of Alturas. Non-urbanized grazing areas are present within the project study area, including the pipeline route along County Road 54. According to the Modoc County General Plan, all county roads are considered to be scenic (Modoc, 1988). As discussed above, the project may temporarily degrade the existing visual character or quality of the site during construction. The pipeline would be installed within the roadway right-of-way and below grade adjacent to rural grazing lands. As a result, project construction may temporarily hinder views for travelers along County Road 54 during construction activities. However, upon completion of construction, all disturbed areas along the pipeline route would be returned to pre-project conditions. As a result, the pipeline component would not substantially degrade the existing visual character or quality of the area and would not be considered to conflict with zoning or other regulations related to the protection of views along county roads.

New structures at the exiting WWTP facility would be constructed adjacent to existing uses and facilities constructed at APN 022-130-042 included percolation and evaporation ponds and the repurposing of an existing residential structure to support facility operations. To minimize visual impacts, the percolation and evaporation ponds would be constructed below grade with a 3:1 slope. As a result, the proposed project would not introduce new structures that would be dissimilar to nor located adjacent to nearby receptors such that development at either end of the proposed project would preclude long-distance views. The Final 2022 MND found that the project would not conflict with applicable zoning or regulations regarding scenic quality and would be subject to City review requirements. Impacts were determined to be less than significant.

*Revised Project Impacts*

Compared to the approved project, implementation of the revised project would include the disposal of treated effluent through subsurface land discharge within APN 022-130-042. Similar to the approved project, the revised project would not

conflict with applicable City or County zoning or regulations regarding scenic quality. Impacts would remain less than significant for the revised project.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | | | | X | Yes | No |

*2022 Final MND Findings*

As described in the 2022 Final MND, the approved project would not include substantial additional sources of light or glare and would be subject to Article 4, Section 28.44, *Outdoor Lighting Standards*, of the City's zoning ordinance. The approved project would include partial decommissioning of existing WWTP facilities as well as the construction of percolation and evaporation ponds and associated force mains within an existing county-maintain road. In addition, the approved project would continue to provide localized lighting in and around the existing WWTP site after decommissioning for safety, but this would not create a significant new light source. Some new security lighting would be required at the new WWTP but similar to the existing WWTP facility, lighting would be angle down and towards the proposed facilities such that substantial spillover of artificial light or night lighting would not occur. Further, the approved project would not introduce new windows or highly reflective materials or structures. Along the pipeline route, project components would be located below grade and would not result in additional lighting or glare along the entirety of the route. As a result, the 2022 Final MND found this impact to be less than significant.

*Revised Project Impacts*

Implementation of the revised project would not require additional exterior lighting beyond that analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the revised project will have a less than significant impact with respect to *Aesthetics*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2014. *City of Alturas General Plan*. November 2014.
Alturas. 2019. *City of Alturas Zoning Ordinance Article 4 Site Planning and Development Standards, Section 28.44 – Outdoor Lighting Standards*. 2019.
Caltrans (California Department of Transportation). 2018. *California Scenic Highway System*. [Online]: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed January 10, 2021.

FHWA (Federal Highways Administration) National Scenic Byways Program. 2018. [Online]: https://www.fhwa.dot.gov/byways/states/CA. Accessed January 10, 2021.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies and Action Program.* September 1988.

National Wild and Scenic Rivers System. 2018. [Online]: https://www.rivers.gov/california.php. Accessed January 10, 2021.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# II. Agricultural Resources

The purpose of this section is to determine the extent to which the project contributes to the physical deterioration of agricultural resources. This section describes the agricultural resources within the project study area, and the applicable regulations that govern those resources.

## Environmental Setting

The existing wastewater treatment plan (WWTP) site is primarily developed or intensively disturbed. Although some sagebrush scrub habitat is present in places. Disturbed ruderal habitats and some intact sagebrush scrub habitat are present in the road right-of-way along County Road 54. The disposal site (APN 022-130-042) consists of a large, previously leveled, and irrigated terrace near County Road 54, as well as rolling terrain with a very weedy, grazed, sagebrush scrub community (ENPLAN, 2020). The Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) maps and classifies farmland. Classifications are based on a combination of physical and chemical characteristics of the soil and climate that determine the degree of suitability of the land for crop production. The classifications under the FMMP are as follows:

- *Prime Farmland*—land that has the best combination of features for the production of agricultural crops;
- *Farmland of Statewide Importance*—land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops, but that has more limitations than Prime Farmland, such as greater slopes or less ability to store soil moisture;
- *Unique Farmland*—land of lesser quality soils used for the production of the State's leading agricultural cash crops;
- Farmland of Local Importance—land of importance to the local agricultural economy;
- *Grazing Land*—existing vegetation that is suitable for grazing;
- *Urban and Built-Up Land*—land occupied by structures in density of at least one dwelling unit per 1.5 acres;
- *Land Committed to Nonagricultural Use*—vacant areas; existing land that has a permanent commitment to development but has an existing land use of agricultural or grazing lands; and
- *Other Land*— land not included in any other mapping category, common examples of which include low-density rural developments, brush, timber, wetland, and vacant and nonagricultural land surrounded on all sides by urban development.

CEQA Section 21095 and CEQA Guidelines Appendix G, together, define Prime, Unique, and Farmland of Statewide Importance as "Important Farmland," whose conversion may be considered significant. According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2020), seven soil units have been mapped within the project study area (refer to Table 3-1, SUMMARY OF ONSITE SOIL UNITS). As noted in Table 3-1, the principal soil type in the project study area is the Ladd sandy loam, 2 to 9 percent slopes. This soil located classification is present on an approximate 25-acre portion of the proposed wastewater disposal property (APN 022-130-042) and is considered "Prime Farmland if Irrigated." Portions of the existing WWTP facility is comprised of "Farmland of Statewide Importance" and "Prime" soils. In addition, the DOC's Farmland Mapping and Monitoring Program for Modoc County identifies portions of the project study area as Farmland of Local Importance and Grazing Lands (DOC, 2018).

**Table 3-1**
**SUMMARY OF ONSITE SOIL UNITS**

| Map Symbol | Soil Unit Name | Farmland Classification |
|---|---|---|
| 103 | Alturas loam | Farmland of Statewide Importance |
| 109 | Bieber gravelly loam, 0 to 9 percent slopes | Not Prime Farmland |
| 112 | Buntingville clay loam, 0 to 2 percent slopes | Prime Farmland |
| 118 | Casuse sandy loam, 2 to 9 percent slopes | Not Prime Farmland |
| 151 | Ladd sandy loam, 2 to 9 percent slopes | Prime Farmland if Irrigated |
| 193 | Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes | Not Prime Farmland |
| 194 | Tuff outcrop-Cause, eroded complex, 30 to 50 percent slopes | Not Prime Farmland |

The California Land Conservation Act of 1965, commonly known as the Williamson Act, allows local governments to form contracts with private landowners to restrict specific parcels of land to agricultural or open space use. There are no parcels under active Williamson Act contact within the project vicinity.

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Agricultural Resources* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of agricultural resource impacts include the following:

### *California Farmland Mapping and Monitoring Program*

The California Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the State's farmland to and from agricultural use, relies on information from the NRCS soils surveys, NRCS land inventory and monitoring criteria, and land use and water availability. Topography, climate, soil quality, and available irrigation water all factor into the FMMP farmland classifications. The FMMP was established by the California DOC, under the Division of Land Resource Protection. Important Farmland Maps are compiled by the FMMP pursuant to §65570 of the California Government Code. The FMMP is an informational service only and does not constitute state regulation of local land use decisions. Under the FMMP, "Important Farmland Categories" are established based on soils characteristics that have significant agricultural production values.

### *California Land Conservation Act*

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code §51200-51297.4. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts.

### *Farmland Security Zone Contract*

The DOC passed the Farmland Security Zone legislation (Govt. Code §51296) in 1998. The Farmland Security Zone allows counties to establish an additional program for farmlands to enter into contracts with the State. This legislation allows landowners whose land is under a Williamson Act contract to petition to the county board of supervisors to annul the Williamson Act contract for a Farmland Security Zone Contract. A Farmland Security Zone Contract is a 20-year contract that allows the property owner to receive 35 percent more in tax savings than a Williamson Act contract. Both of these contracts require that lands be within an established Agricultural Preserve. Agricultural lands that are not in a preserve face the greatest threat of conversion, as they are assessed higher property taxes due to their proximity to urbanization.

### *Forest Land and Timberland*

Public Resources Code section 12220(g) defines Forest Land as *"land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."* Public Resources Code Section 4526 defines timberland as *"land, other than land owned by the federal government, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."* Government Code section 51104(g) defines Timberland Production Zone (TPZ) as *"an area which has been zoned pursuant to [Government Code] Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h)."*

#### Impact Analysis

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment (LESA) Model (1997, as updated) prepared by the California DOC as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest

resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection (CAL FIRE) regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

The following includes an analysis of environmental parameters for the revised project related to *Agricultural Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Agricultural Resources*.

| | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| Would the Project: | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Convert Prime Farmland, Unique Farmland, or 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? | | | | X | Yes | No |

*2022 Final MND Findings*

As described in the 2022 Final MND, APN 022-130-042 consists of approximately 270.4 acres of land currently used for livestock grazing, however approximately 70 acres will be converted for purpose of implementing the proposed project. Approximately 25 acres of APN 022-130-042 is comprised of the Ladd sandy loam soil classification and has been actively farmed (Figure 3-1). This area of the site is considered Prime Farmland as identified by the DOC's Important Farmland Series Mapping and Monitoring Program. To minimize impacts to Prime Farmland soils, the proposed project has been designed to utilize existing dirt access roads for onsite pipeline placement and disposal ponds have been sited to the north on non-prime farmland soils (refer to Figure 2-7, PROPOSED SITE PLAN).

The approved project would also include pipeline construction through rural and grazing lands and along County Road 54. However, the pipeline would be installed below grade and within the existing roadway right-of-way through trenching and directional drilling. Construction effects along the pipeline route would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. As a result, no impacts to prime, unique or farmlands of statewide importance would occur from pipeline construction.

Decommissioning also includes termination of raw wastewater flows to the existing facility. Decommissioning of portions of the existing facility consists of removal of all existing mechanical equipment (pumps, motors, screens, etc.); the existing structures will remain in-place; however, to facilitate wastewater transfer from this facility to the proposed new facility on APN 022-130-042, a new headwall structure and pump station will be constructed on an area previously by the existing WWTP. The remaining facility will be retained by the City for repurposing for other uses. The area of impact from decommissioning is anticipated to be approximately 0.5 acres, all of which has been previously disturbed by development and use of the existing WWTP. Although the existing WWTP facility is comprised of soils considered to be Prime and Farmland of Statewide Importance, these soils have been highly disturbed by the existing facility and decommissioning activities do not have the potential to convert prime soils to non-agricultural uses. No impact would occur in this regard.

*Revised Project Impacts*

Implementation of the revised project would result in the installation of an irrigation pump system that directs effluent to a previously cultivated non-irrigated field for disposal via a subsurface drip system. The effluent from the storage pond will also be disposed of via a sprinkler irrigation system, north of the treatment ponds during the late spring through early fall time period. The U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) completed a Farmland

Conversion Impact Rating Form that concluded that the revised project would result in a negligible loss of designated farmland within Modoc County because the size of farmland is minimal to the remaining designated farmland within the County. Additionally, less than 10 percent of the designated farmland within the entire project boundary would be converted, leaving over 90 percent available for future farmland use. Therefore, the potential impacts to farmland and agricultural land would not be greater than previously analyzed in the 2022 Final MND. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract? | | | | X | Yes | No |

*2022 Final MND Findings*

Lands impacted by the approved project are not under a current Williamson Act contract, Farmland Security Zone contract or within an agricultural preserve. The 2022 Final MND found that project implementation would not result in conflicts with existing agricultural zoning. No impact would occur in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not conflict with existing zoning for agricultural use or a Williamson Act Contract. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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 PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | | | | X | Yes | No |

*2022 Final MND Findings*

The 2022 Final MND found that the project site, including the pipeline alignment, are not zoned as either forest land or timberland and therefore would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. No impact would occur in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | | | | X | Yes | No |

*2022 Final MND Findings*

As described in the 2022 Final MND, the approved project is not located within existing forest land and therefore would not result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

Refer to impact discussion under Section II.a, above. In addition, the approved project is not located within or within close proximity to existing forest land. No impact would occur in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not result in the loss of forest land or result in the conversion of forest land to non-forest use. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the revised project will have a less than significant impact with respect to *Agricultural Resources*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

DOC (California Department of Conservation). 2020. *Farmland Mapping and Monitoring Program*. [Online]: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed January 10, 2021.

DOC. 2019. *Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance, Modoc County*. January 23, 2019.

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Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

NRCS (Natural Resources Conservation Service). 2020. *Custom Soil Resource Report for Modoc County, California Alturas Area*. 2020.

NRCS. 2024. *Farmland Conversion Impact Rating Form*. February 7, 2024.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# III. Air Quality

This section examines the air quality in the project area, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed project. Air quality impacts were assessed in accordance with methodologies recommended by the U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), and the Modoc County Air Pollution Control District (MCAPCD). Where quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod).

## Environmental Setting

Modoc County and the City of Alturas are located in the Northeast Plateau Air Basin (NPAB). The NPAB is composed of Siskiyou, Modoc, and Lassen counties and has a climate that is distinct from the rest of California. The NPAB includes part of the Klamath Mountains to the west and the Cascade Range and Modoc Plateau, plus a portion of the Great Basin, along its eastern edge. The climate of NPAB has sharply defined seasons that follow a continental, rather than marine, pattern. Winters are cold and snowy, summers warm and dry (Carle, 2006).

The predominant wind pattern in the Alturas area is from the west from March to October and from the south from October to March (WRCC, 2002). The average wind speed in the Alturas area is 5.5 miles per hour (WRCC, 2006). The average maximum temperature in the Alturas area in July is 88.2$^{o}$F and the average minimum temperature in January is 16.5$^{o}$F (WRCC, 2016). The average annual rainfall in the Alturas area is approximately 12.3 inches with the majority falling between November and May. The project area receives no transported air pollution from major urban areas. The NPAB, including Modoc County, is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (CARB, 2018-2019).

Sensitive receptors (e.g., children, senior citizens, and acutely or chronically ill people) are more susceptible to the effect of air pollution than the general population. Land uses that are considered sensitive receptors typically include residences, schools, parks, childcare centers, hospitals, convalescent homes, and retirement homes. The project sites are located southwest of the City of Alturas amidst agricultural and grazing lands. The nearest known potential sensitive receptors to the proposed project sites (parcels 003-260-010 and 022-130-042) includes a residence approximately 0.3 miles northeast of the existing WWTP site (003-260-010) and a residence approximately 0.27 miles southwest of the new WWTP site (022-130-042).

Odors generally are regarded as a nuisance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., anger or anxiety) to physiological (e.g., circulatory, and respiratory effects, nausea, vomiting, or headache). The ability to detect odors varies considerably among the population and the odor interpretation is subjective. Some individuals have the ability to smell small 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. An odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. Unfamiliar odors are detected more easily than familiar odors and are more likely to be offensive. 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, then the person is describing the quality of the odor. Intensity refers to the strength of the 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 intensity of the odor weakens and eventually becomes so low that detection or recognition of the odor is 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 person (Siskiyou County, 2017). Odors currently present on a periodic basis in the project area are generated from the existing Alturas WWTP, nearby grazing operations, and County Road 54.

## Regulatory Setting

This section summarizes the laws, ordinances, regulations, and standards that are applicable to the proposed project. The following is a description of federal, State, and local environmental laws and policies that are relevant to the CEQA review process for this project.

## *Criteria Air Pollutants*

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants (also known as "criteria air pollutants") (USEPA, 2018). Concentrations of criteria air pollutants are used as indicators of ambient air quality conditions. The USEPA has established a maximum concentration (air quality standard) for each criteria air pollutant, above which adverse effects on human health may occur. When an area does not meet the air quality standard for one of the criteria air pollutants, it may be subject to the formal rule-making process, which designates it as nonattainment.

The CAA further classifies ozone, carbon monoxide (CO), and particulate matter ($PM_{10}$ and $PM_{2.5}$) nonattainment areas based on the magnitude of criteria air pollutant exceedances in a given area (42 U.S. Code Section 7401 et seq.). Nonattainment classifications may be used to specify what air pollution reduction measures an area must adopt and when the area must reach attainment. The technical details underlying these classifications are described in the Code of Federal Regulations (CFR) "Protection of Environment" (40 CFR Section 81).

The USEPA has established primary and secondary NAAQS for criteria air pollutants. The primary standards are concentrations developed by the USEPA through review of extensive scientific research and are intended to be protective against human health impacts. The secondary standards were developed to protect elements of human welfare vulnerable to degraded air quality such as visibility of air, agriculture, buildings, infrastructure, and livestock.

Adverse health impacts associated with exposure to air pollution have varying degrees of severity depending on the receptor (i.e., each persons' sensitivity) exposed. For example, infants, children, the elderly, and those with preexisting cardiovascular and respiratory disease (e.g., asthma) experience more severe symptoms in response to acute and chronic exposure. However, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety.

In 1959, California enacted legislation requiring the state Department of Public Health to establish air quality standards. California law continues to mandate California ambient air quality standards (CAAQS), which are often more stringent than the NAAQS (CARB, 2019). The California Air Resources Board (CARB) is responsible for setting standards and adopting regulations to achieve the maximum degree of emissions reduction possible from vehicular and other mobile sources at the state level, as well as for state implementation of the CAA.

Air pollutants come from various sources, both anthropogenic (i.e., vehicle exhaust, power generation, natural gas-fired electricity generation, and the operation of certain equipment in construction and industry) and biogenic (i.e., vegetation, animals, and even the earth itself). Exhaust emissions from vehicles vary according to driving speed, type of engine (e.g., gasoline or diesel), length of use, and horsepower. Emissions from stationary sources (e.g., fossil fuel burning power plants, food processing plants) are estimated by the amount of natural gas and electricity consumption. Construction and industrial equipment generate pollutant emissions that are highly variable by type and technology of specific equipment. Vegetation emits volatile organic compounds (VOCs) which are ozone precursors.

A brief description of each criteria air pollutant (i.e., source types, health effects, and future trends) is provided below.

- *Ozone.* Ozone ($O_3$) is a photochemical oxidant - a substance whose oxygen combines chemically with another substance in the presence of sunlight. In the lower atmosphere, ozone is the primary component of smog. Ozone is not emitted directly into the air but is formed through complex chemical reactions between certain emissions, known as "precursor emissions," in the presence of sunlight. The precursor emissions for ozone are reactive organic gases (ROG) and nitrogen oxides ($NO_X$). ROGs are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. Common sources of ROG emissions include solvents, pesticides, the burning of fuels, and organic wastes. $NO_X$ is a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. Common sources of $NO_X$ emissions include emissions from burning of fuel in cars, trucks, buses, power plants, and off-road equipment (USEPA, 2018).

Ozone located in the upper atmosphere (stratosphere) shields the earth from harmful ultraviolet radiation emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. As described below, breathing ozone can trigger a variety of health problems, particularly for children, elderly, and people of all ages who have lung disease such as asthma. Ground level ozone can also have harmful effects on sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. Ozone can cause damage during the growing season (USEPA, 2018).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as people with asthma and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 parts per million (ppm) for one or two hours has been found to substantially alter lung function by increasing respiratory rate and pulmonary resistance, decreasing tidal volume, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to these adverse health effects, ozone exposure can cause an increase in the permeability of respiratory epithelia (i.e., the thin tissue forming the outer layer of the body's respiratory system); such increased permeability leads to an increase in the respiratory system's responsiveness to challenges and the inhibition of the immune system's ability to defend against infection (Godish, 2004). These effects may lead to increased school absences, medication use, visits to doctors and emergency rooms, and hospital admissions.

Meteorology and terrain play a key role in ozone formation in the troposphere (i.e., at ground level). Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation; therefore, summer generally is the peak ozone season. Peak ozone concentrations often occur far downwind from the precursor emissions due to the time it takes for reactions to complete. Therefore, ozone is a regional pollutant that often affects large areas. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry.

- *Carbon Monoxide.* Carbon monoxide (CO) is a colorless, odorless, and poisonous gas, produced by incomplete burning of carbon in fuels, primarily from internal-combustion engines used for transportation. In fact, 77 percent of nationwide CO emissions are from transportation. The other 23 percent of emissions are from wood-burning stoves, incinerators, and industrial sources.

  CO enters the bloodstream through the lungs by combining with hemoglobin, a component of red blood cells, which normally carries oxygen to the red blood cells. CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include symptoms such as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (USEPA, 2018).

  The highest CO concentrations generally are associated with the cold, stagnant weather conditions that occur in winter. In contrast to ozone, which tends to be a regional pollutant, CO tends to cause localized problems.

- *Nitrogen Dioxide.* Nitrogen Dioxide ($NO_2$) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of $NO_2$ are combustion devices, such as boilers, gas turbines, and reciprocating internal-combustion engines (mobile as well as stationary). Combustion devices emit primarily nitric oxide (NO), which reacts with oxygen in the atmosphere to form $NO_2$ (USEPA, 2018). The combined emissions of NO and $NO_2$ are referred to as $NO_X$, which is reported as equivalent $NO_2$. Since $NO_2$ is formed and depleted by reactions associated with photochemical smog (ozone), the $NO_2$ concentration in a particular geographical area may not be representative of the local $NO_X$ emission sources.

  Inhalation is the most common form of exposure to $NO_2$, with the principal site of toxicity being the lower respiratory tract. The severity of adverse health effects depends primarily on the concentration of $NO_2$ inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation, during or shortly after exposure. After approximately 4 to 12 hours of exposure, an individual may experience chemical pneumonitis or pulmonary edema, with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic $NO_2$

intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment, including symptoms such as chronic bronchitis and decreased lung function.

- *Sulfur Dioxide.* Sulfur dioxide ($SO_2$) is produced by stationary sources like coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with $SO_2$ exposure relate to the upper respiratory tract. $SO_2$ is a respiratory irritant, with constriction of the bronchioles occurring with inhalation of $SO_2$ at 5 ppm or more. On contact with the moist mucous membranes, $SO_2$ produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is the most important determinant of respiratory effects. Exposure to high $SO_2$ concentrations may result in edema of the lungs or glottis and respiratory paralysis (USEPA, 2018).

- *Particulate Matter.* Particulate matter (PM) is a mixture of solid particles and liquid droplets found in air. PM that is small enough to be inhaled has a diameter of 10 microns or less is referred to as $PM_{10}$. $PM_{10}$ consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, natural windblown dust, and can be formed in the atmosphere by condensation or transformation of $SO_2$ and ROG (USEPA, 2018). PM2.5 includes a subgroup of finer particles that have a diameter of 2.5 microns or less.

  Generally, adverse health effects associated with $PM_{10}$ may result from both short-term and long-term exposure to elevated concentrations, and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (USEPA, 2018). The adverse health effects associated with $PM_{10}$ depend on the specific composition of the particulate matter. For example, health effects may be associated with adsorption of metals, polycyclic aromatic hydrocarbons, and other toxic substances onto fine particulate matter (referred to as the "piggybacking effect"), or with fine dust particles of silica or asbestos. $PM_{2.5}$ poses an increased health risk when compared to $PM_{10}$ because the particles can deposit deep in the lungs and are more likely to contain substances that are particularly harmful to human health.

- *Lead.* Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions historically have been mobile and industrial sources. Due to the phase-out of leaded gasoline, as discussed below, metal processing currently is the primary source of lead emissions. The highest levels of lead in the atmosphere generally are found near lead smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers.

  Twenty years ago, mobile sources (e.g., motor vehicles using leaded fuel) were the main contributor to ambient lead concentrations in the air. In the early 1970s, the USEPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. USEPA banned the use of leaded gasoline in highway vehicles in December 1995 (USEPA, 2018).

  Due to USEPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily airplanes, now contribute to only 13 percent of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (USEPA, 2018).

  Similarly, lead emissions and ambient lead concentrations have decreased dramatically in California over the past 25 years. The phase-out of lead in gasoline began during the 1970s, and subsequent CARB regulations have eliminated virtually all lead from gasoline now sold in California. All areas of the state currently are designated as attainment for state lead standard (USEPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. Therefore, CARB has identified lead as a TAC.

## *State Implementation Plan*

Federal clean air laws require areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain national ambient air quality standards (NAAQS). The 1990 amendments to the federal Clean Air Act set deadlines for attainment based on the severity of an area's air pollution problem. SIPs are not single documents. They are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations and federal controls (CARB, 2021).

State law makes CARB the lead agency for all purposes related to the SIP. Many of California's SIPs rely on the same core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. Plans and corresponding documents developed by CARB for statewide efforts include the following (CARB, 2021):

- State Strategy (2018, 2016, 2012, 2011, 2007, 2003, 1994)
- Mobile Source Strategy (2020, 2016)
- Statewide SIP Emissions Inventories
- Infrastructure SIP
- Regional Haze
- California-Mexico Border Activities

Local air districts prepare SIP elements primarily focused on controlling emissions from stationary sources and submit them to CARB for review and approval. CARB forwards SIP revisions to the U.S. Environmental Protection Agency (U.S. EPA) for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items which are included in the California SIP (CARB, 2021).

The project site is located in Modoc County and project activities are subject to the authority of the MCAPCD and the CARB. Modoc County is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (AAQS) (CARB, 2018-2019). Due the excellent air quality in the MCAPCD, the District has not prepared any non-attainment air quality plans for the purpose of ensuring compliance with federal and State AAQS. The MCAPCD rules and regulations portion of the California SIP has been approved by the EPA and CARB. These regulations include, but are not limited to, permit requirements for stationary sources and prohibitions on activities with the potential to impact air quality.

## *Significance Thresholds*

As noted above, the project is located in the NPAB and is within the MCAPCD. In determining whether a project has significant air quality impacts on the environment, CEQA practitioners typically apply the local air district's thresholds of significance to projects in the environmental review process. Modoc County is in attainment or unclassified for all criteria air pollutants and the MCAPCD has not adopted CEQA significance thresholds for project-level review.

However, for the purposes of assessing air quality impacts in CEQA documents, MCAPCD Rule 2.8e (Standards for Permits to Construct), which contains thresholds for operational emissions from new stationary sources, is commonly used as a significance threshold for project-level review. Although these stationary source emissions thresholds do not directly apply to land use and infrastructure projects, they provide a reference point for levels of emissions that would trigger MCAPCD requirements for best available control technology and/or mitigation off-sets. Per Rule 2.8e, criteria air pollutants from the operation of stationary sources are considered significant if they exceed the following thresholds (USEPA, 2017).

- 250 pounds per day for $NO_X$, reactive organic gases (ROG), $PM_{10}$, $PM_{2.5}$, $SO_X$
- 2,500 pounds per day for carbon monoxide (CO)

In using MCAPCD Rule 2.8e as a threshold in this document, the Lead Agency is exercising its discretion to formulate CEQA significance criteria based in part on the MCAPCD rules, as they reflect the best available expert judgment regarding what constitutes significant levels of air pollution within the NPAB and Modoc County.

## Impact Analysis

The following includes an analysis of environmental parameters related to *Air Quality* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

According to the CEQA Checklist, a project may be deemed to have a potentially significant adverse impact on the environment if it would conflict with or obstruct implementation of the applicable air quality plan, result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard, expose sensitive receptors to substantial pollutant concentrations, result in other emissions (such as those leading to odors), adversely affecting a substantial number of people.

This section analyzes the short-term air quality impacts associated with construction activities as well as the long-term operational impacts that may result due to development of the proposed project. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Air Quality*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | | | | X | Yes | No |

### *2022 Final MND Findings*

As noted in the Environmental Setting, the NPAB, including Modoc County, is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (AAQS) (CARB, 2018-2019). Due to the excellent air quality in the MCAPCD, the District has not prepared any non-attainment air quality plans for the purpose of ensuring compliance with federal and State AAQS. As such, the proposed project would not conflict or obstruct implementation of an applicable air quality plan. Therefore, the proposed project would result in no impact on this resource category.

### *Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not conflict or obstruct implementation of an applicable air quality plan. Therefore, the revised project would result in no impact on this resource category.

### *Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard? | | | X | | Yes | No |

*2022 Final MND Findings*

As noted above, the proposed project is located in Modoc County, which is within the NPAB. The NPAB, including Modoc County, is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (CARB, 2018-2019). Therefore, the project region has excellent air quality, and it is not anticipated that the proposed project would result in significant emissions of criteria air pollutants that would alter the attainment status of the NPAB or Modoc County. However, for the purposes of this analysis, the construction and operational emissions from the proposed project are compared to the stationary source thresholds in MCAPCD Rule 2.8e to determine whether the project would result in a cumulatively considerable net increase of any criteria air pollutant (USEPA, 2017).

As with any new development project, the proposed project has the potential to generate pollutant concentrations during both construction activities and long-term operation. Both construction and operational emissions for the proposed project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria pollutant emissions associated with both construction and operation of a variety of land use projects (CAPCOA, 2017). The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data is available, such data should be input into the model. Project-specific information input into the model was derived from project description at the beginning of this document, from the Preliminary Engineering Report (SHN, 2020), and from supplemental information provided by the project engineer related to the size of proposed structures and equipment, area of grading and site preparation, area of paving, equipment that will be used for construction, number of days for each construction activity, the quantity of demolition debris that will be exported, and information on the proposed standby generator.

The results of the proposed project's emissions estimations were compared to the MCAPCD thresholds of significance for stationary sources (Rules 2.8e) (USEPA, 2017). Tables 3-1 and 3-2 below show the MCAPCD Rule 2.8e thresholds compared to the proposed project's maximum daily construction and operational emissions (unmitigated).

**Table 3-1**
**MAXIMUM DAILY CONSTRUCTION EMISSIONS (UNMITIGATED)**

| Criteria Pollutants | Emissions (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| | ROG | NOx | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
| **Maximum Daily Emissions** | 15.1 | 21.6 | 26.1 | 0.04 | 2.2 | 1.3 |
| **Significant Threshold** | 250 | 250 | 2,500 | 250 | 250 | 250 |
| **Exceeds Significance Threshold?** | No | No | No | No | No | No |

Source: USEPA, MCAPCD, CalEEMod Version 2016.3.2.

**Table 3-2**
**MAXIMUM DAILY OPERATIONAL EMISSIONS (UNMITIGATED)**

| Criteria Pollutants | Emissions (pounds per day) | | | | | |
|---|---|---|---|---|---|---|
| | ROG | NOx | CO | $SO_x$ | $PM_{10}$ | $PM_{2.5}$ |
| **Maximum Daily Emissions** | 0.1 | 0.1 | 0.3 | 0.00 | 0.07 | 0.02 |
| **Significant Threshold** | 250 | 250 | 2,500 | 250 | 250 | 250 |
| **Exceeds Significance Threshold?** | No | No | No | No | No | No |

Source: USEPA, MCAPCD, CalEEMod Version 2016.3.2.

As indicated in Tables 3-1 and 3-2, the maximum daily construction and operational emissions from the proposed project would be well below the MCAPCD Rule 2.8e stationary source thresholds (USEPA, 2017). As such, the proposed project would not result in a cumulatively considerable increase of any criteria air pollutant. Therefore, the proposed project would result in a less than significant impact on this resource category.

*Revised Project Impacts*

To determine the potential air quality impacts of the revised project, both construction and operational emissions for the revised project were estimated using CalEEMod, The updated modeling results are provided in Appendix E. As indicated in Appendix E, the unmitigated maximum daily construction and operational emissions from the revised project would remain well below the MCAPCD Rule 2.8e stationary source thresholds (USEPA, 2017). For example, the unmitigated maximum daily emissions of NOx from construction activity would be 36.5 pounds per day, which is well below the significance threshold of 250 pounds per day. As such, the revised project would not result in a cumulatively considerable increase of any criteria air pollutant. Therefore, the revised project would result in a less than significant impact on this resource category.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| **Would the Project:** | **Potentially Significant Impact** | **Less Than Significant with 2022 Mitigation** | **Less Than Significant Impact** | **No Impact** | **Impacts Disclosed?** | **Subsequent or Supplemental MND Required?** |
| c) Expose sensitive receptors to substantial pollutant concentrations? | | **X** | | | Yes | No |

*2022 Final MND Findings*

This discussion addresses whether construction and operation of the proposed project would expose sensitive receptors to substantial concentrations of criteria air pollutants or toxic air contaminants (TACs) including asbestos, diesel particulate matter (diesel PM) from construction equipment and vehicle traffic, and fugitive dust from construction activity.

High concentrations of criteria air pollutants and TACs can result in adverse health effects to humans. Some population groups are considered more sensitive to air pollution than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, such as asthma and bronchitis. Sensitive land uses are facilities that generally house more sensitive people (e.g., schools, hospitals, nursing homes, residences, etc.). The area surrounding the proposed project sites (parcels 003-260-010 and 022-130-042) is sparsely populated with few sensitive land uses. The nearest known potential sensitive receptors to the proposed project sites includes a residence approximately 0.3 miles (1,580 feet) northeast of the existing WWTP site (003-260-010) and a residence approximately 0.27 miles (1,420 feet) southwest of the new WWTP site (022-130-042).

*Construction Impacts*

The following discussions reflect the anticipated emissions associated with project construction activities:

- *Criteria Air Pollutants*. The construction activities proposed by the project would result in the emission of criteria air pollutants. As indicated in Table 3-2, the construction emissions from the Proposed Project are well below the MCAPCD stationary source thresholds. These thresholds were developed by the MCAPCD, and approved by the CARB and USEPA, to ensure that stationary sources would not contribute to an exceedance of federal and state ambient air quality standards in the region. As discussed in the Regulatory Setting, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety. Since the construction emissions

from the proposed project would not exceed the MCAPCD thresholds, the project would not expose sensitive receptors to substantial concentrations of criteria air pollutants.

- *Asbestos*. The U.S. Geological Survey (USGS, 2011) has published mapping identifying areas that are known to contain naturally occurring asbestos (NOA). The mapping indicates that there are no locations within Modoc County that are known to contain NOA. The project sites are located southwest of the City of Alturas and are not identified as being in close proximity to areas that contain NOA. Therefore, the project site does not contain NOA that could be released during construction activities such as site preparation, grading, and trenching.

- *Diesel PM*. The use of diesel-powered equipment during construction activity would result in emissions of diesel PM, which is a known carcinogen. The majority of heavy diesel equipment used during construction activity would occur during grading of the project sites. Exhaust fumes from construction equipment will be isolated to areas immediately surrounding the sources and will dissipate rapidly. Concentrations of mobile source emissions of diesel PM are typically reduced by 60 percent at a distance of approximately 300 feet (Zhu et al., 2002) and 70 percent at a distance of approximately 500 feet (CARB, 2005). It is estimated that grading activity for the project would occur over an approximately 60-day period. Residents located within the vicinity of the project site would be exposed to construction contaminants only for the duration of construction activity. These brief exposure periods, and the distance to the nearest residences (1,420 to 1,580 feet), would substantially limit exposure to hazardous emissions.

  In addition, any relevant vehicle or equipment use associated with construction of the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulations: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System, DOORS) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies, VDECS (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation (CARB, 2011).

- *Fugitive Dust*. Fugitive dust has the potential to be generated during construction from activities including site preparation, grading, and trenching. Construction-related dust emissions typically vary from day to day, depending on the level and type of activity, silt content of construction site soil, and weather conditions. Fugitive dust generated from construction activity can result in nuisances and localized health impacts. Considering the type of project and the area that will require site preparation, grading, and trenching, there is a potential for the generation of significant quantities of fugitive dust. To reduce potential impacts from fugitive dust generation during construction activity, Mitigation Measure AQ-1 has been included for the project, which requires the implementation of dust control measures.

With the implementation of Mitigation Measure AQ-1, the limited duration of construction activities, and the distance of the project site from known sensitive receptors, the proposed project construction will not expose sensitive receptors to substantial concentrations of fugitive dust.

*Operational Impacts*

The project proposes improvements to the existing Alturas WWTP, which itself is not considered a sensitive receptor. Although a wastewater treatment facility has the potential to emit odors, it is not generally considered to be a land use that emits substantial quantities of toxic emissions. Any emissions currently being emitted by operation of the existing WWTP would be considered part of the existing baseline conditions. Since the proposed project would not increase the capacity of the WWTP, it would not result in any significant increases in operational emissions.

As indicated in Table 3-3, the operational emissions from the proposed project are well below the MCAPCD stationary source thresholds. These thresholds were developed by the MCAPCD, and approved by the CARB and USEPA, to ensure that stationary sources would not contribute to an exceedance of federal and state ambient air quality standards in the region. As discussed in the Regulatory Setting, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety. Since the operational emissions from the proposed project would not exceed the MCAPCD thresholds, operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations.

Based on the project location, design, and implementation of Mitigation Measure AQ-1, construction and operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, impacts from the proposed project would be less than significant with mitigation incorporated.

*Revised Project Impacts*

The revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Development of the revised project would also be subject to Mitigation Measure AQ-1, which would reduce potential fugitive dust impacts from the additional construction activities proposed as part of the revised project. Impacts would remain less than significant with mitigation incorporated.

*Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. The following measures from the 2022 Final MND are also applicable to the revised project. Any modifications to the original measures are shown in ~~strikethrough~~ for deleted text and underlined for new inserted text.

*Mitigation Measure AQ-1.* The following dust control measures shall be implemented during construction activities to minimize fugitive dust generation.

- All active construction areas (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered a minimum of two times per day during the dry season.
- Limit traffic speeds to 15 mph on unpaved access roads.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
- Enclose, cover, water, or apply non-toxic soil binders to open materials stockpiles.
- Dust-generating activities shall be limited during periods of high winds (over 15 mph).
- Suspend excavation and grading activity when winds exceed 25 mph.
- All haul trucks transporting soil, sand, or other loose material, likely to give rise to airborne dust, shall be covered.
- All vehicle speeds shall be limited to 15 miles per hour within the construction area.
- Promptly remove earth or other tracked out material from paved streets onto which earth, or other material has been transported by trucking or earth-moving equipment.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| d) Result in other emissions (such as those leading to odors or dust) affecting a substantial number of people? | | | X | | Yes | No |

*2022 Final MND Findings*

The construction phase of the proposed project will include several activities that have the potential to result in odors. Construction of the project would require the use of a variety of gasoline- or diesel-powered equipment that would emit exhaust fumes. The paving proposed by the project also would result in odors from the application of hot asphalt. In addition, the application of architectural coatings (paint) has the potential to result in odors. Odors from these activities may be considered objectionable, however, these odors would be isolated to areas immediately surrounding their sources and would dissipate rapidly. Furthermore, the generation of odors will be temporary and subside once project construction is concluded. Since the project sites are in a sparsely populated area to the southwest of the City of Alturas, there are limited sensitive receptors in the project area. The nearest known sensitive receptors to the proposed project include residential uses, which are over a quarter mile to the northeast and southwest of the project sites. Therefore, a substantial number of people would not be adversely affected by odors from construction of the proposed project.

Operation of the Alturas WWTP is a type of land use that would generally be considered to result in odor impacts. The odors currently generated by the WWTP are part of the existing baseline condition. As discussed above, the project does not propose to increase the capacity of the WWTP and, therefore, does not have the potential to result in significant new sources of odors during operation. Therefore, operation of the proposed project would not result in odors that would adversely affect a substantial number of people.

Therefore, the proposed project would result in a less-than-significant impact on this resource category.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would have impacts similar to the existing baseline condition and would not result in other emissions affecting a substantial number of people. Therefore, the revised project would result in a less-than-significant impact on this resource category.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation, impacts associated with the revised project related to *Air Quality* were found to be less than significant with implementation of mitigation measures from the approved 2022 Final MND.

## Documentation and References

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# IV. Biological Resources

This section of the Addendum describes the affected environment for biological resources and is based upon the *Aquatic Resource Delineation Report for Alturas Wastewater Treatment Plan Modoc County, California* (ENPLAN, 2020a); *Biological Study Report for the Alturas Wastewater Treatment Plant (WWTP) Improvement Project* (ENPLAN, 2020b); and the *Addendum Report: Biological Study and Aquatic Resource Screening Evaluation for the Alturas Wastewater Treatment Improvement Project* (ENPLAN, 2023). Technical documents are provided Appendix B, *Aquatic Resource Delineation Report*, and Appendix C, *Biological Study Report*, respectively. The assessments summarize the results of biological field surveys of the project area and describes the potential impacts on biological resources that would result from implementation of the proposed project. Additionally, this section provides mitigation measures that would reduce the impacts identified.

## Environmental Setting

The existing wastewater treatment plant (WWTP) site is primarily developed or intensively disturbed. Although some sagebrush scrub habitat is present in places. The project study area is comprised of disturbed ruderal habitats with some intact sagebrush scrub habitat are present in the road right-of-way along County Road 54. The proposed treatment and disposal site (APN 022-130-042) consists of a large, previously leveled, and irrigated terrace near County Road 54, as well as rolling terrain with a very weedy, grazed, sagebrush scrub community (ENPLAN, 2020a). The project area is also located near the confluence of the North and South Forks of the Pit River. The current wastewater treatment facility is located less than 100 feet from the Pit River; the proposed sewer force main to the new treatment and disposal site would cross over both forks of the Pit River.

The United States Fish and Wildlife Service (USFWS) does not identify any designated critical habitats for federally listed species within the study area. Review of the California Natural Diversity Database (CNDDB) records showed that the proposed treatment disposal site is within a pronghorn antelope kidding ground and in or adjacent to a pronghorn migration corridor. Review of the National Wetlands Inventory (NWI) maps showed that the Pit River and two intermittent streams have been mapped in the study area.

Field review confirmed the presence of the North and South Forks of the Pit River within the proposed pipeline corridor in the County Road 54 right-of-way (with the two features totaling 0.293 acres). In addition, one ephemeral stream (0.004 acres), 12 wet meadows (totaling 0.333 acres) and two seasonal wetlands (totaling 0.039 acres) were observed alongside County Road 54 (ENPLAN, 2020a; 2020b). As further documented in the *Aquatic Resource Delineation Report*, no evidence of the two intermittent streams shown on the NWI maps was observed during the field review. Other communities observed during the field study consisted of urban/ruderal habitat, a big sagebrush community, and cropland. Each of the communities is fully described in Appendix C, *Biological Study Report*. Sensitive natural communities are limited to the streams and wetlands, as well as any portions of the big sagebrush community that support pronghorn migration and kidding grounds.

Wildlife species observed at the site included American bullfrogs, western pond turtles, western fence lizards, killdeer, western kingbirds, Canada geese, black-billed magpies, American crows, turkey vultures, woodrats, Belding's ground squirrels, Nuttall's cottontails, coyote, and mule deer. Numerous cliff swallows were observed near bridges over the North Fork Pit River and South Fork Pit River in the study area. Sallow nests were observed adhered to the side of these bridges (ENPLAN, 2020b). Representative photos of the study area provided Appendix C, *Biological Study Report*). Other wildlife species are likely to inhabit the surrounding area and it is expected that there are many other bird, mammal, and amphibian species that might use the project site, if only transitionally.

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Biological Resources* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of biological resource impacts include the following:

### *Wetlands and Waters*

The United States Army Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern waters of the U.S. (including wetlands). Section 404 of the Clean Water Act (CWA), regulates the discharge of dredged or fill material into waters of the U.S. The USACE requires that a permit be obtained prior to the placement of structures within, over, or under navigable waters and/or discharges dredged or fill material into waters below the ordinary high water mark (OHWM). The USACE has established a series of nationwide permits (NWP) that authorize certain activities in waters of the U.S. Under CWA Section 401, a project requiring a USACE Section 404 permit is also required to obtain a State Water Quality Certification (or waiver) to ensure that the project will not violate established State water quality standards. The RWQCB regulates waters of the State and has a policy of no-net-loss of wetlands. The Regional Water Quality Control Board (RWQCB) typically requires mitigation for all impacts to wetlands before it will issue a water quality certification.

### *Federal Endangered Species Act*

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the federal Endangered Species Act (FESA) of 1973. Under FESA, threatened and endangered species on the federal list and their habitats are protected from "take" unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered from the lead federal agency. Under FESA, habitat loss is considered to be an impact to the species. Under Section 7 of the FESA, all federal agencies (including the USFWS and NMFS) are required to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of critical habitat.

### *Federal Migratory Bird Treaty Act*

Most bird species, (especially those that are breeding, migrating, or of limited distribution) are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918, migratory bird species, their nests, and their eggs are protected from injury or death, and any project-related disturbances during the nesting period.

### *Federal Magnuson-Stevens Fishery Conservation and Management Act*

The Magnuson-Stevens Fishery Conservation and Management Act, also known as the Sustainable Fisheries Act (Public Law 104-297), requires that all federal agencies consult with NMFS on projects authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat of commercially managed marine and anadromous fish species.

### *Federal Bald and Golden Eagle Protection Act*

This Act provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds and their occupied and unoccupied nests.

### *California Fish and Game Code §1600-1616 (Streambed Alteration)*

California Fish and Game Code §1600 *et seq.*, requires that a project proponent notify the California Department of Fish and Wildlife (CDFW) prior to any work that would divert or obstruct the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; and/or deposit or dispose of material into any river, stream, or lake. The project proponent and the CDFW must enter into a Streambed Alteration Agreement (SAA) prior to an action that would result in such an impact. The SAA will include conditions that minimize/avoid potentially significant adverse impacts to riparian habitat and waters of the state.

### *California Fish and Game Code §3503 and 3503.5 (Nesting Bird Protections)*

These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey within the State and make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Code.

### *California Endangered Species Act*

The California Endangered Species Act (CESA) prohibits the take of State-listed threatened and endangered species. Under CESA, state agencies are required to consult with the CDFW when preparing CEQA documents. The CDFW can authorize take if an incidental take permit is issued by the Secretary of the Interior in compliance with the FESA, or if the director of the CDFW issues a permit under §2080 in those cases where it is demonstrated that the impacts are minimized and mitigated.

### *California Native Plant Protection Act*

The California Native Plant Protection Act (NPPA) (California Fish and Game Code §1900 – 1913) includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under the CESA. The NPPA states that no person will take, possess, sell, or import into the state, any rare or endangered native plant, except in compliance with provisions of the act.

### *City of Alturas General Plan*

The City's General Plan Conservation and Opens Space Element includes the following policies that apply to the proposed project:

1. Support the efforts of responsible public agencies to protect and manage wildlife on public lands.
2. Preserve and protect the valuable wildlife resources on private lands wherever practical and economically feasible.
3. Include wildlife protection in the review and approval of any land development proposal.

### *Modoc County General Plan*

The County's General Plan Conservation and Opens Space Element includes the following policies that apply to the proposed project:

1. Support the efforts of public land management agencies to protect wildlife habitat on public lands.
2. Maintain countywide consistency in the types of fish and wildlife protection measures for mitigating adverse impacts on critical or sensitive wildlife habitats on a case-by-case basin. Similar consistency is desirable for protection measures for threatened or endangered species.
3. Specific requirements to be considered for mitigating adverse impacts on critical or sensitive wildlife habitats, including habitat important to threatened or endangered species, shall be a case-by-case basis with adequate consideration given to the landowner.
4. Protect officially listed rare and endangered plants in Modoc County which contribute to the natural diversity of plant life.

## Impact Analysis

Records reviewed for this evaluation consisted of a California Natural Diversity Database (CNDDB) records for special-status plants, animals, and natural communities; California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants; USFWS records for federally listed, proposed, and Candidate plant and animal species under jurisdiction of the USFWS; USFWS records for migratory birds of conservation concern; soils records maintained by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and NWI maps. The NMFS does not maintain a species list for the project quadrangle; review of the NMFS Essential Fish Habitat (EFH) Mapper determined that the project site is not within a hydrologic unit designated as EFH for Chinook salmon. The CNDDB records search covered a five-mile radius around the project site. This entailed review of records for portions of the Alturas, Big Sage Reservoir, Dorris Reservoir, Mahogany Ridge, Rattlesnake Butte, and Surprise quadrangles.

Table 1 in Appendix C, *Biological Study Report*, includes all plant species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the species. Table 2 in Appendix C includes all animal species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the

species. The potential for occurrence of those species included on the list were then evaluated based on the habitat requirements of each species relative to the conditions observed during the field surveys.

The following includes an analysis of environmental parameters related to *Biological Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Biological Resources*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Have a substantial 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? | | X | | | Yes | No |

*2022 Final MND Findings*

The following evaluation of potential impacts on special-status species is based on records searches and field studies is documented in the Biological Study Report prepared for the proposed project (ENPLAN, 2020b) (also refer to Appendix C, *Biological Study Report*). The study includes an assessment of the following:

- Natural Communities
- Special-Status Species
- Migratory Birds and Potential for Birds of Conservation Concern (October 2020)
- California Natural Diversity Database RareFind Query Summary (October 2020)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants Query Summary (October 2020)
- U.S. Fish and Wildlife Service List of Threatened and Endangered Species (October 2020)
- List of Vascular Plant Species Observed

To determine the presence or absence of special-status plant and animal species, a botanical and wildlife survey was conducted on May 20, July 13, and September 26, 2020. Some of the special-status species potentially occurring in the study area would not have been evident at the time the fieldwork was conducted. However, determination of their potential presence could readily be made based on observed habitat characteristics.

*Special-Status Plant Species*

Review of the USFWS species lists (refer to Appendix C, *Biological Study Report*) for the study area identified two federally listed plant species, Greene's tuctoria and slender Orcutt grass, as potentially being affected by the proposed project. The study area does not contain designated critical habitat for federally listed plant species.

A review of CNDDB records showed that two special-status plants, Macdougal's lomatium and Lilliput lupine, have been reported in or adjacent to the study area. In May 1994 over 100 individuals of Macdougal's lomatium were observed on both sides of a road (primarily on the north side) about 0.2 miles south of the confluence of the North and South Forks of the Pit River. The population was reported to occur on private lands and Modoc National Wildlife Refuge (MNWR) lands, on nearly barren volcanic gravels. Two occurrences of Lilliput lupine were reported in August 1993 and another in May 1994, on private lands on both sides of County Road 54 south of its intersection with Westside Road (County Road 60). The populations were in tall sagebrush habitat on gravelly volcanic hills and consisted of 10 plants, over 100 plants, and 10-20 plants. A fourth occurrence of less than 100 plants was mapped in August 1993, on private land south of County Road 54 near the proposed treatment/disposal site.

CNDDB records also show that the following 15 special-status plants have been reported within a five-mile radius of the project site: Boggs Lake hedge-hyssop, doublet, eel-grass pondweed, falcate saltbush, grass alisma, Great Basin downingia, Intermountain lupine, Janish's beardtongue, Liddon's sedge, Nuttall's ribbon-leaved pondweed, prostrate buckwheat, rayless mountain ragwort, Sheldon's sedge, water star-grass, and wheat sedge. The CNPS Inventory (Appendix C, *Biological Study Report,* Table 2) identifies two additional (non-status) plants within the Alturas quadrangle: Mexican mosquito fern and Modoc Plateau milk-vetch.

The potential for each special-status plant species to occur on the project site is evaluated in Appendix C, *Biological Study Report*, Table 3. As documented in Table 3, none of these or any other special-status plant species were observed during the botanical survey. The described habitat and location for Macdougal's lomatium appears to be primarily or entirely outside the County Road 54 right-of-way. Suitable intact habitat capable of supporting Lilliput lupine was observed in the County Road 54 right-of-way in the vicinity of the previous reports, but no individuals were present. Given lack of access rights, no attempt was made to survey suitable habitats outside the road right-of-way. With construction work in the County Road 54 corridor confined to the road right-of-way, no impacts on special-status plants are anticipated.

*Special-Status Wildlife Species*

Review of the USFWS species list for the study area (refer to Appendix C, *Biological Study Report*) identified the following federally listed animal species as potentially being affected by the proposed project: gray wolf, North American wolverine, and yellow-billed cuckoo. The USFWS species list does not identify designated critical habitat in the study area for any federally listed animal species.

Review of CNDDB records showed that two special-status animal species, gray wolf and Swainson's hawk, have been reported in the study area; gray wolf is broadly mapped to include the project site and Swainson's hawk is broadly mapped to include the current WWTP site. Thirteen special-status animals have been reported within a five-mile radius of the project site: American badger, bank swallow, golden eagle, greater sage-grouse, greater sandhill crane, hardhead, northern leopard frog, Oregon spotted frog, prairie falcon, tricolored blackbird, western pond turtle, and western whitetailed jackrabbit. One non-status animal species, the North American porcupine, has been mapped within the five-mile search radius.

The potential for each special-status animal species to occur on the project sites is evaluated in Table 3 of Appendix C, *Biological Study Report* (ENPLAN, 2020b) As documented in Table 3, western pond turtles and greater sandhill cranes were observed during the survey. Other special-status wildlife species that could potentially be present in the study area include Swainson's hawks and hardhead.

- *Hardhead*. As previously mentioned above, the project area is located near the confluence of the North and South Forks of the Pit River. The current wastewater treatment facility is located less than 100 feet from the Pit River; the proposed sewer main to the new treatment/disposal site would cross over both forks of the Pit River. The UC Davis PISCES website shows that the extant range of the hardhead extends upstream to the confluence of the North and South Forks of the Pit River, and then has a several-mile gap. The County Road 54 bridge sites are excluded from the current range of the species, perhaps due to the silty substrate. Nonetheless, it is likely that hardhead move through the project area.

  Hardhead would not be directly affected by the proposed project because no instream work is planned; instead, the sewer main would be attached to the two bridges over the Pit River. Nonetheless, project construction could potentially result in indirect impacts to hardhead and other aquatic species if sediments or other pollutants enter the river and degrade the water quality in the study area and/or downstream. However, with Best Management Practices (BMPs) for the control of erosion and sedimentation, there would be no significant indirect effects on hardhead.

  In addition, the City is required to obtain coverage under the SWRCB's NPDES permit for *Discharges of Storm Water Runoff Associated with Construction Activity* (Order No. 2009-009-DWQ) by submitting a Notice of Intent to the SWRCB. The permitting process requires the development and implementation of an effective Stormwater Pollution Prevention Plan (SWPPP) that includes BMPs to control erosion and sedimentation and prevent damage to streams, watercourses, and aquatic habitat. BMPs may include, but are not limited to, limiting construction to the dry season; use of straw wattles, silt fences, and/or gravel berms to prevent sediment from discharging to the

river; and revegetating temporarily disturbed sites upon completion of construction. Compliance with the SWPPP will ensure that Hardhead and other aquatic species are not indirectly adversely affected by project implementation. Further, it should be noted that the current wastewater facility discharges treated effluent into the Pit River. With the proposed treatment/disposal system, all effluent would be discharged to uplands. Because the proposed project would improve water quality in the Pit River, the project is expected to result in a long-term benefit to hardhead and other aquatic species.

- *Greater Sandhill Crane*. During the survey greater sandhill cranes were identified by call; however, visual confirmation of the presence of greater sandhill cranes did not occur as their estimated distance was over a half-mile from the project site. The onsite wet meadows and riparian vegetation surrounding the Pit River do not provide suitable nesting habitat for sandhill cranes, due to their relatively small size and proximity to human activity. Therefore, greater sandhill cranes are not expected to be present, and the project would not adversely affect greater sandhill cranes.

- *Western Pond Turtle*. Numerous western pond turtles were observed in the Pit River during the field survey. The pond turtles are also likely to use suitable upland habitats surrounding the river for nesting and overwintering. The study area includes suitable upland habitat for pond turtle nesting and overwintering near the current WWTP site; the remaining portions of the project site are unsuitable. Additionally, while the force main would cross the Pit River at two locations, all construction would occur within the road right-of-way in heavily modified, marginal habitat.

  The current WWTP sits less than 100 feet from the Pit River and North Fork Pit River. Although a chain-link fence surrounds most of the current WWTP site, western pond turtles could potentially utilize habitat outside of the fenced area. Construction activities could potentially disturb western pond turtles or their nests/eggs if pond turtles move into the project site to nest or overwinter.

  Direct construction impacts can be avoided/minimized by erecting temporary exclusionary fencing around the unfenced portion of the current WWTP site. Prior to the commencement of construction activities at the current WWTP site, a qualified biologist would then conduct a pre-construction survey, with any pond turtles encountered relocated to a safe location outside of the fencing. Additionally, if western pond turtles are encountered within the exclusionary fencing during project construction, the qualified biologist would be contacted and construction activities within 50 feet of the turtle would be halted until the turtle has left the area or is relocated by the qualified biologist.

  Construction activities could result in indirect effects on western pond turtles if sediments or other pollutants enter the river and degrade pond turtle habitat in the study area and/or downstream. However, with BMPs for the control of erosion and sedimentation, there would be no significant indirect effects on the western pond turtle. Further, as discussed above with respect to hardhead, because wastewater would no longer be discharged into the Pit River, the project is expected to result in a long-term benefit to western pond turtles and other aquatic species due to improved water quality.

- *Gray Wolf*. While CNDDB records indicate that gray wolves were observed in the study area, this observation dates back to 1911. Gray wolves were previously extirpated from California in the 1920s; the first modern sighting of gray wolves in California occurred in 2011 in Siskiyou County. Currently, the only known established wolf pack in California is in the Lassen/Plumas County area. Although gray wolves could potentially travel through the project area, given the extent of human activity, they would not den in the study area; therefore, no impacts to the gray wolf are expected.

- *Swainson's Hawk*. In northeastern California, Swainson's hawks nest in riparian areas, oak savannahs, and juniper-sage flats. As the study area contains juniper-sage flats, suitable habitat for Swainson's hawks is present. According to CNDDB records, a pair of Swainson's hawks nested in a juniper just west of the confluence of the North and South Forks of the Pit River in 1972 and again in 1980. No nests or adults were observed in 1981 or 1982. The hawks are occasionally observed at the Modoc National Wildlife Refuge but have not been reported to nest there. Given the known presence of Swainson's hawks in the general area and the presence of potentially suitable nest trees,

Swainson's hawks could potentially nest in the study area in future years. However, with the implementation of mitigations for nesting birds (see below), no significant effects to Swainson's hawk would occur.

*Revised Project Impacts*

*Special-Status Plant Species*

The botanical survey was conducted on June 12, 13, and 14, and July 12 and 13, 2023. The study focused on the 200 acres added to the proposed treatment/disposal site, but also included review of the previously addressed 70-acre treatment/disposal area and spot-checks of intact habitats (those mostly likely to support special-status plant species) along the proposed pipeline corridor. The updated plant list is provided in Appendix C.

Over 70 additional plant species were observed during the 2023 surveys, bringing the total number of plant species observed in the study area to nearly 200. No special-status plant species were observed. However, one species assigned to California Rare Plant Rank 4.3 (Plants of Limited Distribution; Not Very Threatened in California) was observed. This species, *Astragalus iodanthus* var. *diaphanoides* (snake milk-vetch), is scattered throughout the site. The species has been previously reported in Modoc County on only one other occasion, but is more common in Lassen County, and occurs outside California in Nevada, Oregon, and Idaho. It is generally recommended that CRPR 4 plant populations should be avoided if feasible. Given the scattered distribution of plants on the site, full avoidance is not possible, but it is highly likely that a portion of the occurrence will be avoided. No mitigation measures are warranted with respect to this species.

In addition to *Astragalus iodanthus* var. *diaphanoides*, 2023 observations included *Mimetanthe pilosa*, an annual monkeyflower that has been previously reported in Modoc County on only one other occasion, in 1988; *Polypogon interruptus* (ditch beardgrass), an introduced weed that has been reported in Modoc County on only one other occasion, in 1949; and *Euphorbia maculate* (spotted spurge), an introduced weed that has not previously been reported in Modoc County.

*Special-Status Wildlife Species*

As part of the *Addendum Report: Biological Study and Aquatic Resource Screening Evaluation for the Alturas Wastewater Treatment Improvement Project* (ENPLAN, 2023), biological records maintained by the California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS), and the U.S. Fish and Wildlife Service (USFWS) were reviewed and compared with the 2020 records search. The updated records and summary tables are provided in Appendix C. Review found that one special-status species has been added and one has been removed from the lists. Specifically, the monarch butterfly has been added to the USFWS list as a federal Candidate for listing, and the rayless mountain aster has been removed from the CNDDB list.

The monarch butterfly relies on milkweeds for breeding and on a wide range of floral resources as a food source. No milkweeds were observed on the project site during the 2020 or 2023 botanical surveys. Further, due to grazing, land clearing, and other activities, the site does not support an abundance of floral resources that would attract monarchs. Although monarchs may migrate through the region, they would not depend on the project site as breeding or foraging habitat. The species would not be adversely affected by project implementation and no mitigation is warranted.

It should be noted that the northwestern pond turtle was recently proposed for federal listing as a threatened species, although is not included on the current USFWS list. As noted in the 2020 Biological Report (ENPLAN, 2020b), numerous northwestern pond turtles were observed in the Pit River during the field surveys. The study area also includes a small amount of upland habitat near the current WWTP site that could potentially be used for pond turtle nesting and overwintering. No other suitable habitat locations for northwestern pond turtles are present within the original or revised project boundary. Mitigation Measures BIO-1 was included in the 2022 Final MND and adopted by the City of Alturas to avoid the potential for adverse effects to the northwestern pond turtle and would be implemented as part of the revised project.

As with the approved project evaluated in the 2022 Final MND, no in-water work would occur as part of the revised project. BMPs would be deployed to prevent indirect effects via sediments or pollutants entering the onsite waters (refer to Section X, HYDROLOGY AND WATER QUALITY). With implementation of Mitigation Measure BIO-1, including use of horizontal

directional drilling to install the pipeline under the Pit River, the revised project is not expected to affect the northwestern pond turtle. Prior to commencement of construction activities, the City will consult with the USFWS to obtain a No Effect determination for the northwestern pond turtle.

*Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. The following measures from the 2022 Final MND are also applicable to the revised project. Any modifications to the original measures are shown in ~~strikethrough~~ for deleted text and underlined for new inserted text.

*Mitigation Measure BIO-1.* Western pond turtles, a State Species of Special Concern, are present in the Pit River in and adjacent to the study area and may nest and/or overwinter in portions of the study area. Potential impacts to western pond turtles shall be avoided and/or minimized through implementation of the following measures:

- Prior to commencement of construction activities ~~E~~exclusionary fencing shall be erected around the unfenced portions of the current WWTP site to prevent access to the site by nesting and overwintering pond turtles. Exclusionary fending shall be wildlife friendly and constructed per the following specifications:

    - All fences shall be three-strand horizontal wire, barbed wire allowed as noted, total height preferably no more than 40 inches, not to exceed 42 inches, no hog wire or non-horizontal standing (chain link prohibited).
    - Post spans shall not be less than 12 feet.
    - No more than two stays between fence posts.
    - All new fences shall have flagging tied to the top wire between posts to improve visibility of the new hazard.
    - Pronghorn may become accustomed to the new fence by the time the flagging deteriorates. Grey "camouflage" steel posts shall be avoided.
    - The bottom wire shall be smooth and 18 to 20 inches above ground; the second wire, barbed, spaced 6 to 10 inches above the first, and the third wire, smooth, spaced 12 inches above the second.

- Prior to commencement of construction activities at the current WWTP site, a qualified biologist shall conduct a pre-construction survey for western pond turtles and shall relocate any western pond turtles encountered to a safe location outside of the exclusionary fencing. In the unlikely event that any turtles stray into the project area, the project biologist would consult with USFWS staff prior to moving the turtles.

- If western pond turtles are encountered within the exclusionary fencing at any time during construction, construction personnel shall contact the qualified biologist and halt construction activities within 50 feet of the turtle until the turtle has left the area or is relocated by the qualified biologist.

- To prevent the inadvertent entrapment of wildlife, the construction contractor shall ensure that, at the end of each workday, trenches, and other excavations that are over one foot deep have been backfilled or covered with plywood or other hard material. If backfilling or covering is not feasible, one or more wildlife escape ramps constructed of earth fill or wooden planks shall be installed in the open trench. Pipes shall be inspected for wildlife prior to capping, moving, or placing backfill over the pipes to ensure that animals have not been trapped, If animals have been trapped, that shall be allowed to leave the area unharmed.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local of regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? | | X | | | Yes | No |

*2022 Final MND Findings*

As previously described above under *Environmental Setting*, the USFWS does not identify any designated critical habitats for federally listed species within the study area; however, CNDDB records show that the proposed treatment disposal site is within a pronghorn antelope kidding ground and in or adjacent to a pronghorn migration corridor.

The North and South Forks of the Pit River cross the proposed pipeline corridor at County Road 54 (with the two features totaling 0.293 acres). In addition, one ephemeral stream (±0.004 acres), 12 wet meadows (totaling 0.333 acres) and two seasonal wetlands (totaling 0.039 acres) were observed alongside County Road 54 (ENPLAN, 2020a; 2020b). Other communities observed during the field study consisted of urban/ruderal habitat, a big sagebrush community, and cropland. Each of the communities is fully described in Appendix C, *Biological Study Report*, and summarized below. Sensitive natural communities are limited to the streams and wetlands, as well as any portions of the big sagebrush community that support pronghorn migration and kidding grounds. Refer to Figures 3-1a, b, and c, WATERS OF THE U.S. AND/OR STATE.

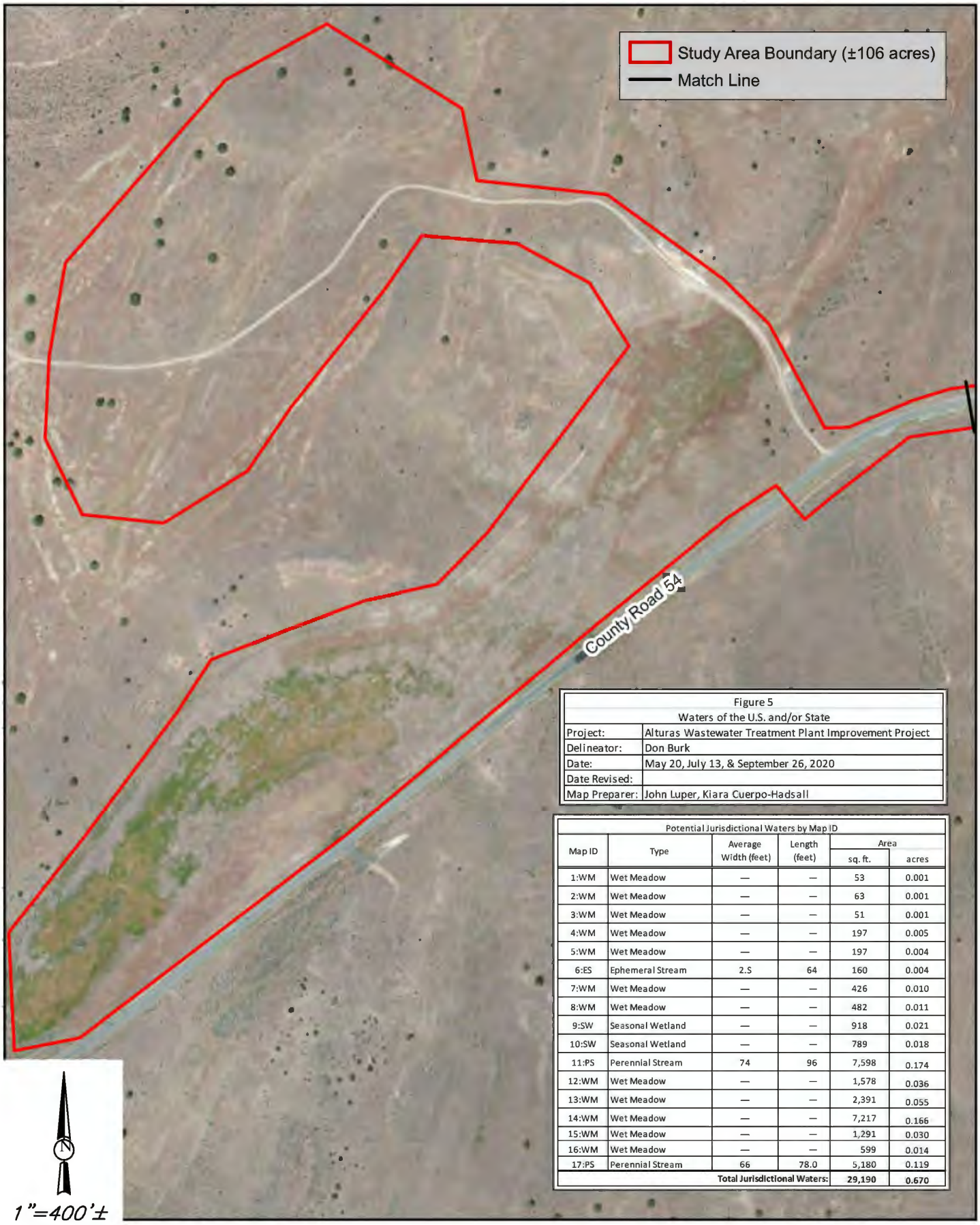
*Riverine*

In the study area, the Pit River supports various fish, waterfowl, and invertebrates, and provides suitable foraging and dispersal habitat for frogs, toads, turtles, and other species. Fish species expected to occur in this reach of the Pit River include hardhead, Sacramento sucker, Sacramento pikeminnow, Pit sculpin, speckled dace, and rainbow trout. Due to its limited flow duration, the ephemeral stream has negligible value for wildlife.

It is anticipated that the sewer force main would be attached to the two bridges over the Pit River reaches. Although no in-water work would occur, construction activities could result in indirect effects to the Pit River and downstream habitats if or other pollutants enter the onsite drainages and degrade habitat in the study area and/or downstream. However, with BMPs for the control of erosion and sedimentation, there would be no significant effect on the aquatic habitats.

As previously described in Section 2.0, *Project Description*, the existing City of Alturas WWTP currently discharges treated effluent to the Pit River. The proposed project entails discharge to new percolation and evaporation ponds in lieu of discharge to the Pit River. Under the City's existing NPDES permit, the WWTP is prohibited from contributing more than five percent (5%) of the in-stream flow in the Pit River. With regards to the relocation of the existing WWTP as proposed by this project, a technical memorandum was prepared to analyze the effect to Pit River flows as a result of removing the WWTP discharge (SHN, 2021). Refer to *Technical Memorandum - City of Alturas Wastewater Treatment Plant Hydrologic Analysis for Wastewater Discharge Reduction,* dated September 16, 2021, contained in Appendix A.

Data collected by the City of Alturas WWTP between January 2017 and June 2021 provides a daily record of dilution ratios (shown as a percentage of discharge to in-stream flow) (refer to Appendix A). The maximum percentage of in-stream flows represented by the WWTP discharge is 5% (1:20), and a mean value of 0.36% (1:277).




| Figure 5 Waters of the U.S. and/or State | |
|---|---|
| Project: | Alturas Wastewater Treatment Plant Improvement Project |
| Delineator: | Don Burk |
| Date: | May 20, July 13, & September 26, 2020 |
| Date Revised: | |
| Map Preparer: | John Luper, Kiara Cuerpo-Hadsall |

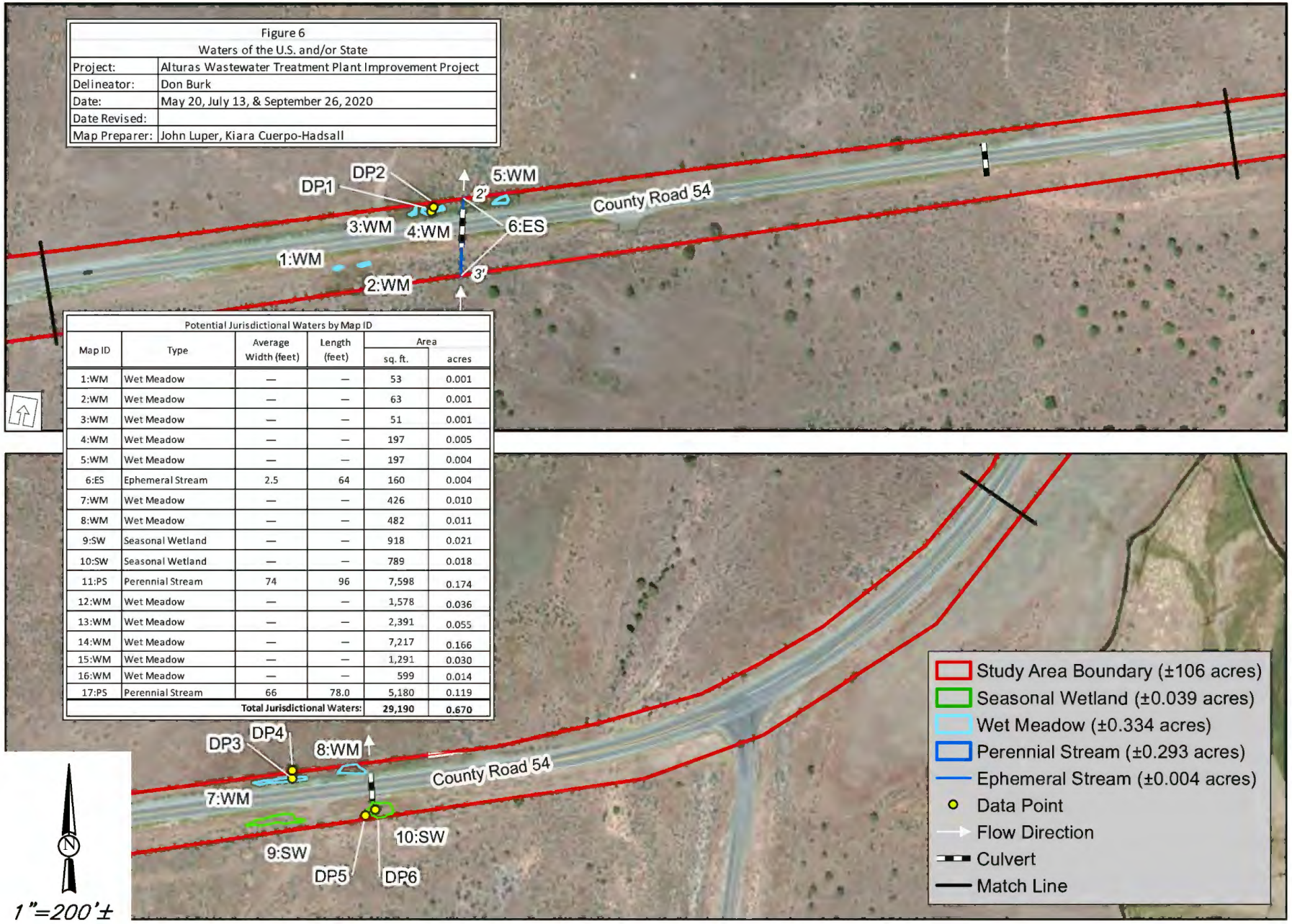
Potential Jurisdictional Waters by Map ID

| Map ID | Type | Average Width (feet) | Length (feet) | Area | |
|---|---|---|---|---|---|
| | | | | sq. ft. | acres |
| 1:WM | Wet Meadow | — | — | 53 | 0.001 |
| 2:WM | Wet Meadow | — | — | 63 | 0.001 |
| 3:WM | Wet Meadow | — | — | 51 | 0.001 |
| 4:WM | Wet Meadow | — | — | 197 | 0.005 |
| 5:WM | Wet Meadow | — | — | 197 | 0.004 |
| 6:ES | Ephemeral Stream | 2.5 | 64 | 160 | 0.004 |
| 7:WM | Wet Meadow | — | — | 426 | 0.010 |
| 8:WM | Wet Meadow | — | — | 482 | 0.011 |
| 9:SW | Seasonal Wetland | — | — | 918 | 0.021 |
| 10:SW | Seasonal Wetland | — | — | 789 | 0.018 |
| 11:PS | Perennial Stream | 74 | 96 | 7,598 | 0.174 |
| 12:WM | Wet Meadow | — | — | 1,578 | 0.036 |
| 13:WM | Wet Meadow | — | — | 2,391 | 0.055 |
| 14:WM | Wet Meadow | — | — | 7,217 | 0.166 |
| 15:WM | Wet Meadow | — | — | 1,291 | 0.030 |
| 16:WM | Wet Meadow | — | — | 599 | 0.014 |
| 17:PS | Perennial Stream | 66 | 78.0 | 5,180 | 0.119 |
| | | | Total Jurisdictional Waters: | 29,190 | 0.670 |

\\kfalls\projects\2018\518004-Alturas-WW\500-ENVIRONMENTAL\Dwgs, SAVED: 8/5/2021 4:44 PM SAKTURAN, PLOTTED: 8/5/2021 4:45 PM, AKTURAN, SUYAR

| | | |
|---|---|---|
| | Alturas WWTP Improvement Project | Waters of the U.S. and/or State |
| June 2024 | Source: Enplan, October 2020 | Figure 3-1a |

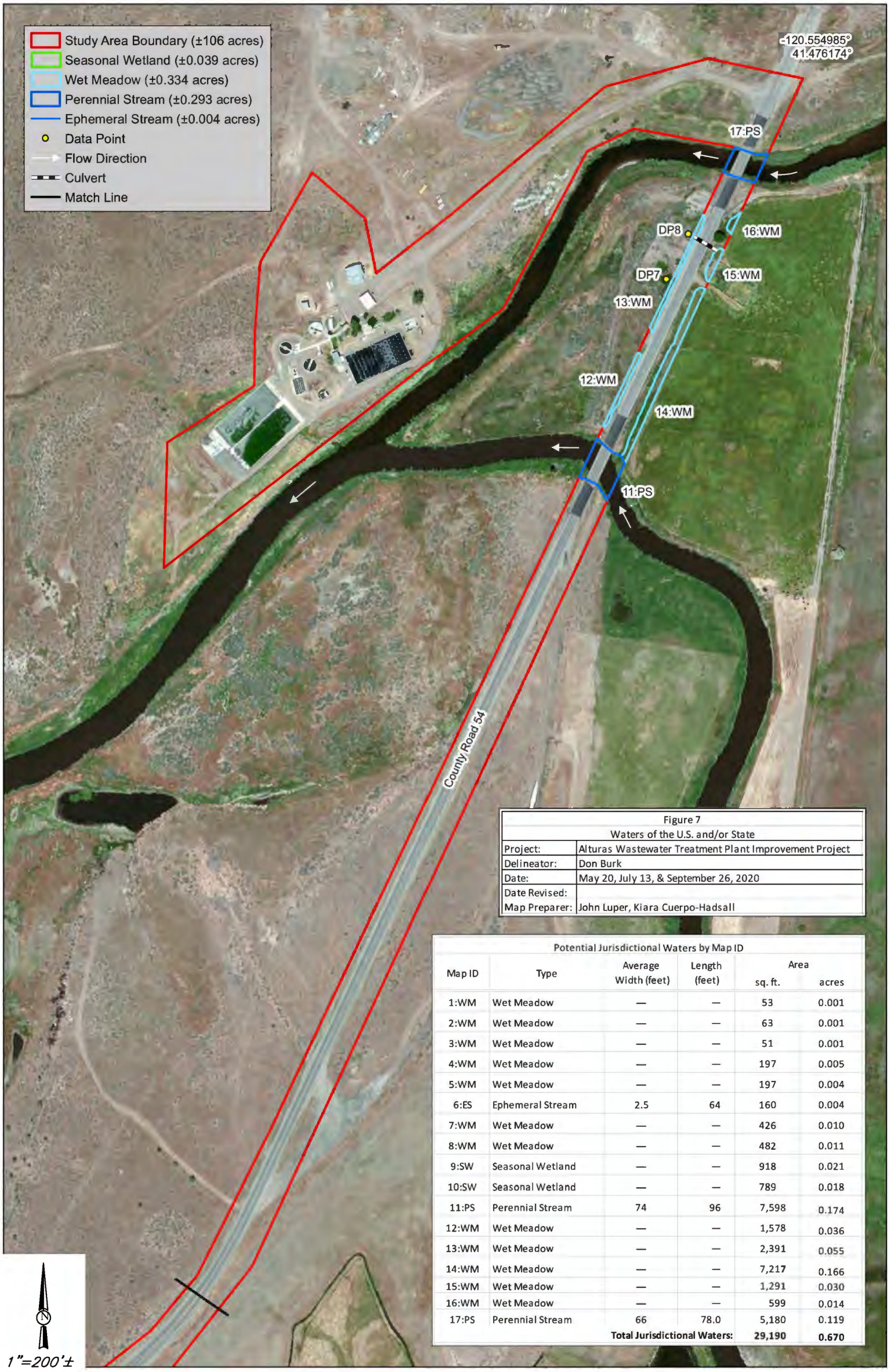
| Figure 6 | |
|---|---|
| Waters of the U.S. and/or State | |
| Project: | Alturas Wastewater Treatment Plant Improvement Project |
| Delineator: | Don Burk |
| Date: | May 20, July 13, & September 26, 2020 |
| Date Revised: | |
| Map Preparer: | John Luper, Kiara Cuerpo-Hadsall |




Potential Jurisdictional Waters by Map ID

| Map ID | Type | Average Width (feet) | Length (feet) | Area | |
|---|---|---|---|---|---|
| | | | | sq. ft. | acres |
| 1:WM | Wet Meadow | — | — | 53 | 0.001 |
| 2:WM | Wet Meadow | — | — | 63 | 0.001 |
| 3:WM | Wet Meadow | — | — | 51 | 0.001 |
| 4:WM | Wet Meadow | — | — | 197 | 0.005 |
| 5:WM | Wet Meadow | — | — | 197 | 0.004 |
| 6:ES | Ephemeral Stream | 2.5 | 64 | 160 | 0.004 |
| 7:WM | Wet Meadow | — | — | 426 | 0.010 |
| 8:WM | Wet Meadow | — | — | 482 | 0.011 |
| 9:SW | Seasonal Wetland | — | — | 918 | 0.021 |
| 10:SW | Seasonal Wetland | — | — | 789 | 0.018 |
| 11:PS | Perennial Stream | 74 | 96 | 7,598 | 0.174 |
| 12:WM | Wet Meadow | — | — | 1,578 | 0.036 |
| 13:WM | Wet Meadow | — | — | 2,391 | 0.055 |
| 14:WM | Wet Meadow | — | — | 7,217 | 0.166 |
| 15:WM | Wet Meadow | — | — | 1,291 | 0.030 |
| 16:WM | Wet Meadow | — | — | 599 | 0.014 |
| 17:PS | Perennial Stream | 66 | 78.0 | 5,180 | 0.119 |
| | | | Total Jurisdictional Waters: | 29,190 | 0.670 |

| | | | |
|---|---|---|---|
| | Alturas WWTP Improvement Project | Waters of the U.S. and/or State | |
| | June 2024 | Source: Enplan, October 2020 | Figure 3-1b |




| Figure 7 | |
|---|---|
| Waters of the U.S. and/or State | |
| Project: | Alturas Wastewater Treatment Plant Improvement Project |
| Delineator: | Don Burk |
| Date: | May 20, July 13, & September 26, 2020 |
| Date Revised: | |
| Map Preparer: | John Luper, Kiara Cuerpo-Hadsall |

Potential Jurisdictional Waters by Map ID

| Map ID | Type | Average Width (feet) | Length (feet) | Area sq. ft. | Area acres |
|---|---|---|---|---|---|
| 1:WM | Wet Meadow | — | — | 53 | 0.001 |
| 2:WM | Wet Meadow | — | — | 63 | 0.001 |
| 3:WM | Wet Meadow | — | — | 51 | 0.001 |
| 4:WM | Wet Meadow | — | — | 197 | 0.005 |
| 5:WM | Wet Meadow | — | — | 197 | 0.004 |
| 6:ES | Ephemeral Stream | 2.5 | 64 | 160 | 0.004 |
| 7:WM | Wet Meadow | — | — | 426 | 0.010 |
| 8:WM | Wet Meadow | — | — | 482 | 0.011 |
| 9:SW | Seasonal Wetland | — | — | 918 | 0.021 |
| 10:SW | Seasonal Wetland | — | — | 789 | 0.018 |
| 11:PS | Perennial Stream | 74 | 96 | 7,598 | 0.174 |
| 12:WM | Wet Meadow | — | — | 1,578 | 0.036 |
| 13:WM | Wet Meadow | — | — | 2,391 | 0.055 |
| 14:WM | Wet Meadow | — | — | 7,217 | 0.166 |
| 15:WM | Wet Meadow | — | — | 1,291 | 0.030 |
| 16:WM | Wet Meadow | — | — | 599 | 0.014 |
| 17:PS | Perennial Stream | 66 | 78.0 | 5,180 | 0.119 |
| | | **Total Jurisdictional Waters:** | | **29,190** | **0.670** |

Alturas WWTP Improvement Project

Waters of the U.S. and/or State

June 2024

Source: Enplan, October 2020

Figure 3-1c

The Pit River experiences annual fluctuations in depth ranging between two feet and eight feet (data provided by USGS water monitoring station of the Pit River 11348500 near Canby, CA). According to the USGS water monitoring station, the average flow is 61 cubic feet per second (cfs). Figure 2 of the Technical Memorandum illustrates that the Pit River has an average depth of 2.8 feet of which the discharged effluent contributes, on average, a depth of 0.12 inches. Analysis of the Pit River at its minimum depth of 2 feet shows that the release of treated water to the Pit River contributes minimally to the total flow.

The maximum allowable dilution ratio is 5% which means that the Pit River flow must be a minimum of 20 times the effluent flow. The measured dilution ratio approaches this value when the Pit River is experiencing its minimum flow rate. In this case, maximum discharge from the WWTP equates to a height of approximately 1.2 inches in contribution to the depth of the river.

Lastly, it should be noted that the measured dilution ratios between January 2017 – June 2021 infrequently exceed 2.6% (less than 10% of days measured during the 54-month time period). The dilution ratio only exceeds 2.6% when the Pit River experiences its lowest flows in the winter months.

Based on this data, the new proposed wastewater treatment process would result in an insignificant reduction in total flow in the Pit River. The flow reduction would only occur for a relatively short duration and biological systems have an inherent resiliency to handle changes in flow volumes. It should be noted that the reduction in flow volume can be considered to be offset, in part, by the improvement in water quality associated with the proposed project. Less than significant impacts are anticipated in this regard.

*Wetlands*

As further documented in the *Aquatic Resources Delineation Report* (Appendix B), wetlands in the study area consist of wet meadows and seasonal wetlands. Wet meadows generally have a dense cover of grasses and grass-like species and may be in areas with a high ground water table. Characteristic plant species in the onsite wet meadows include reed canary grass, salt grass, alkali ryegrass, Baltic rush, and smooth scouring rush. Seasonal wetlands are saturated or inundated during the winter wet season and dry during the dry season. They generally have a sparse to moderate cover of forb species and are subject to long-term surface ponding. The dominant plant species in the onsite seasonal wetlands is cognate popcorn flower.

The onsite wetlands are all adjacent to County Road 54, which reduces their overall wildlife value (e.g., birds are less likely to nest in the wet meadows, grazing mammals are less likely to forage in the wetlands, and carnivores are less likely to use the wetlands for hunting). Nonetheless, the wet meadows provide food and shelter for garter snakes, tree frogs, toads, voles, and other small animals, while the seasonal wetlands support aquatic macroinvertebrates, which serve as a food source for waterfowl and other species.

The USACE must authorize construction activities expected to affect wetland or riverine communities; thus, depending on final design a Section 404 Permit may be required from the USACE. Construction activities resulting in fill also require a Section 401 Water Quality Certification from the RWQCB. Potential impacts to jurisdictional waters would be reduced through compliance with the regulatory process (i.e., Section 404 Permit and 401 Certification). In addition, impacts to wetland or riverine communities would also be subject to CDFW permitting requirements. Standard conditions of the permits require that the pre-existing ground contours be restored following construction, appropriate erosion control measures be implemented, aquatic life movement not be substantially disrupted, floodplain management requirements be met, etc. With implementation of standard permit conditions (Mitigation Measure BIO-2), temporary impacts on the stream and wetland features would be less than significant.

*Big Sagebrush*

The big sagebrush scrub community is abundant in the study area and vicinity. It occurs around the periphery of the WWTP, outside the County Road 54 road prism, and, with the exception of the leveled lower terrace, throughout the planned treatment/disposal area. The onsite sagebrush community is generally characterized by relatively open stands of big sagebrush, scattered western junipers, and an open to dense herbaceous layer.

At the proposed treatment and disposal site, which has historically supported grazing, the shrub layer is open, and the herbaceous layer is extremely weedy. Dominant herbaceous species include downy brome and red-stemmed filaree; other common weeds include Mediterranean sage, bull thistle, alyssum, tumble-mustard, and flixweed. In intact sagebrush scrub habitats along the road corridor, the understory includes many native species, including cushion pussytoes, cold-desert phlox, and panicled zigadene.

The big sagebrush community is not identified as a sensitive natural community by CDFW. Therefore, loss or disturbance of the habitat type is not generally considered a significant impact. Nonetheless, it should be noted that CDFW mapping shows the project site as being in a pronghorn kidding ground and adjacent to a pronghorn migration corridor. Richard Shinn, CDFW Wildlife Biologist – Modoc County, was contacted to determine if the proposed project would adversely affect these important habitat elements. He commented that he has not observed pronghorn in the project area (ENPLAN, 2020b). Further, the relatively small size of the project area and its proximity to the City of Alturas, coupled with the large home ranges maintained by pronghorn, would reduce any potential impact of the proposed project on pronghorn to less than significant (pers. comm. R. Shinn, CDFW). Therefore, the onsite big sagebrush community does not provide special wildlife values that would elevate it to a sensitive level.

*Noxious Weeds*

The introduction and spread of noxious weeds during construction activities has the potential to impact natural habitats. A noxious weed is a plant that has been defined as a pest by federal or State law. In California, the California Department of Food and Agriculture (CDFA) maintains a list of plants that are considered threats to the wellbeing of the state. Each noxious weed identified by the CDFA receives a rating that reflects the importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest within the State. Below is a description of ratings categories that apply to the study area:

- *Category A.* A pest of known economic or environmental detriment and is either not known to be established in California or it is present in a limited distribution that allows for the possibility of eradication or successful containment. A-rated pests are prohibited from entering the State because they have been determined to be detrimental to agriculture.

- *Category B.* A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. B-rated pests are eligible to enter the State if the receiving county has agreed to accept them.

- *Category C.* A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the State as long as the commodities with which they are associate conform to pest cleanliness standards when found in nursery stock shipments.

One Category A noxious weed (Scotch thistle), three Category B noxious weed (Mediterranean sage, heart-podded hoary cress, and lens-podded hoary cress) and four Category C noxious weeds (bull thistle, Russian-thistle, bindweed, and puncture vine) were observed in the study area during the botanical survey. A number of other weeds rated as invasive by the California Invasive Plant Council were also observed in the area, including herb sophia, summer-cypress, Canada thistle, downy brome, red stemmed filaree, Eurasian water-milfoil, Fuller's teasel, poison hemlock, and tansy.

Construction activities have a high potential to export weeds outside of the project area and/or to import additional weed species into the area. The potential for introduction and spread of noxious weeds can be avoided/minimized by using only certified weed-free erosion control materials, mulch, and seed; limiting any import or export of fill material to material that is known to be weed free; and requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering and upon leaving the work site. Implementation of Mitigation Measure BIO-3 would reduce impacts associated with the spread of noxious weeds during construction to less than significant levels.

*Revised Project Impacts*

*Natural Communities*

The approximate 200-acre project site extension to accommodate the new wastewater treatment plant facility consists primarily of the big sagebrush community with emergent junipers. A minor amount of urban/ruderal habitat is present as

well and includes one single-family residence and associated outbuildings. Two seasonal ponds and several seasonal drainages that do not support any woody riparian species are also present; these features provide minimal ecological value and are best treated as inclusions in the big sagebrush community. As documented in the 2020 Biological Study Report (ENPLAN, 2020b), neither the big sagebrush nor urban/ruderal communities are identified as sensitive natural communities by CDFW. Regardless of their ecological value, the seasonal ponds and drainages are waters of the State (as addressed below); although they are not expected to be affected by the revised treatment/disposal activities, any discharge of fill in these features would be subject to regulation by the State Water Board and possibly CDFW.

*Wetlands*

As a result of the 2023 Biological Study Report (ENPLAN, 2023), four water features were mapped on the expanded treatment/disposal site. These features are depicted in Figure 3-2, ONSITE WATERS: TREATMENT/DISPOSAL SITE ADDENDUM. None of the identified features is subject to federal jurisdiction because the features have no direct connection to downstream waters. However, all four features are or may be subject to State jurisdiction pursuant to the Porter-Cologne Act and the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*.

In addition to the four mapped features, the site contains a number of shallow, erosional rills, mostly in the northern third of the site. Soils in this area are primarily mapped as Tuff outcrop – Casuse, eroded complex, 2 to 15 percent slopes; the soil unit is not hydric nor does it contain hydric inclusions. The rills form on steep slopes where vegetative cover has been reduced or eliminated due to grazing and/or other human-induced activities. The rills are very braided in their upper reaches and have no fixed channels. The rills terminate where the slope becomes gentler. The only rill that is directly tributary to a developed channel is the side channel mapped as part of Feature 4. All of the other rills terminate at slope breakpoints. With the possible exception of the mapped side channel, the erosional rills are not “surface waters” and are not subject to State or federal jurisdiction.

Construction of the proposed spray-field system would not result in any direct or indirect impacts to the mapped waters, nor would spray-field runoff be allowed to enter water features. Therefore, the revised project would not adversely affect any waters of the State at the proposed treatment/disposal site.

Other elements of the proposed project, including the existing WWTP and the proposed pipeline corridor, were addressed in our 2020 Aquatic Resource Delineation Report (ENPLAN, 2020a). A total of ±0.670 acres of waters were delineated on the site in 2020, including two perennial streams, five wet meadows in the floodplain of the Pit River, seven isolated wet meadows, two isolated seasonal wetlands, and one ephemeral stream. The delineation map was verified by the ACOE in October 2022.

Although federal jurisdiction over waters has been substantially reduced since the 2020 aquatic resources delineation was verified by the ACOE, the boundaries of the waters have not changed. Under current regulations, the ACOE would retain jurisdiction over the two branches of the Pit River and adjacent wetlands but would not have jurisdiction over other waters/wetlands that have no direct connection to the Pit River. Given that the State retains jurisdiction over all of the mapped waters, the change in federal jurisdiction has minimal effect on the permitting process and mitigation requirements. Therefore, similar to the approved project, Mitigation Measure BIO-2 is applicable for the proposed revised project. Impacts are considered less than significant in this regard.

*Noxious Weeds*

The 2020 botanical survey identified the presence of several noxious weeds in the study area (ENPLAN, 2020b). The presence of these weeds was confirmed during the 2023 surveys. Implementation of Mitigation Measure BIO-3 as presented in the 2022 Final MND adopted by the City of Alturas would avoid/minimize the potential for the introduction and spread of noxious weeds. The revised project would not result in greater impacts than that analyzed in the 2022 Final MND. Impacts are considered less than significant in this regard.


Figure 3-2

**On-site Waters:**
**Treatment/Disposal Site Addendum**

*Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. The following measures from the 2022 Final MND are also applicable to the revised project. Any modifications to the original measures are shown in ~~strikethrough~~ for deleted text and underlined for new inserted text.

*Mitigation Measure BIO-2.* Prior to issuance of a grading permit affecting any jurisdictional waters, including wetlands, as identified in the *Aquatic Resources Delineation Report* (Appendix B), the City shall obtain the following resource agency permits from the USACE, CDFW, RWQCB, or any other applicable agency (i.e., USFWS) identified through the permitting process:

- Prior to any discharge of dredged or fill material into "waters of the U.S.," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For any features determined to not be subject to the USACE jurisdiction during the verification process, authorization to discharge (or a waiver from regulation) shall be obtained from the RWQCB. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of, or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFW; and, if required, a 1602 streambed alteration agreement shall be obtained by the City.
- The City shall achieve the mitigation for the permanent loss of streams, wetlands, and other waters through the purchase of mitigation credits at an agency-approved mitigation bank at a minimum 1:1 ratio, or through onsite/offsite habitat restoration at a minimum 3:1 ratio All measures contained in the permits or associated with any agency approvals shall be implemented to the satisfaction of the lead regulatory agency.

*Mitigation Measure BIO-3.* The potential for introduction and spread of noxious weeds shall be avoided/minimized by the following:

- Using only certified weed-free erosion control materials, mulch, and seed;
- Limiting any import or export of fill material to material that is known to be weed free; and
- Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering and upon leaving the job site.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | **X** | | | Yes | No |

*2022 Final MND Findings*

Impacts would be less than significant with implementation of standard permit conditions from the USACE, CDFW, and RWQCB.

*Revised Project Impacts*

Refer to impact discussion under Section IV.b, above. Impacts would be less than significant with implementation of standard permit conditions from the USACE, CDFW, and RWQCB. The revised project would not result in greater impacts than that analyzed in the 2022 Final MND.

*Mitigation Measures*

Implement Mitigation Measure BIO-2 from the 2022 Final MND.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | X | | | Yes | No |

*2022 Final MND Findings*

Wildlife movement patterns can be disrupted by barriers (e.g., dams, reservoirs, highways, altered stream flows, urban development, habitat conversion, etc.) that impede the movement of migratory fish, birds, deer, and other wildlife species. In addition, during construction, increased human activity in the project area may impede the movement of wildlife.

*Aquatic Species*

As discussed under Section IV.a, above, BMPs for the control of erosion and sedimentation would be deployed to ensure no significant indirect effects on the western pond turtle or Hardhead would occur. Further, because wastewater would no longer be discharged into the Pit River, the project is expected to result in a long-term benefit to aquatic species due to improved water quality. No structures would be constructed that could permanently impeded the movement of any aquatic species.

*Terrestrial Wildlife Species*

Sagebrush communities provide habitat for a number of wildlife species including lagomorphs, squirrels, rats, mice, sage grouse, and various other birds. The sagebrush community in and adjacent to the study area may also support habitat for large game species such as pronghorn antelope and mule deer. Indirect impacts to wildlife species could occur if the project damaged or removed essential breeding and foraging habitat, or disrupted migration patterns. As previously discussed under Section IV.b, CDFW staff has stated that the onsite big sagebrush community does not provide special wildlife values that would elevate it to a sensitive level (ENPLAN, 2020b). Impacts are considered less than significant in this regard.

*Migratory Birds*

The USFWS identified the following migratory *Birds of Conservation Concern* as potentially affected by the proposed project: bald eagle, Brewer's sparrow, Clark's grebe, golden eagle, long-billed curlew, sage thrasher, tricolored blackbird, willet, and willow flycatcher. The sage thrasher, Brewer's sparrow, and long billed curlew have some potential to nest on the project site (ENPLAN, 2020b).

Cliff swallow nests were observed in the study area, attached to two bridges where County Road 54 crosses the North Fork Pit River and South Fork Pit River. Cliff swallows are expected to use the bridges as nesting sites on an annual basis. Given the abundance of suitable nesting habitat elsewhere in the study area, it is likely that other birds also nest in the study area. Nesting birds could be directly or indirectly affected by construction activities.

Direct effects could include mortality resulting from construction equipment operating in an area containing an active nest with eggs or chicks. Indirect effects could include nest abandonment by adults in response to loud noise levels or human encroachment, or a reduction in the amount of food available to young birds due to changes in feeding behavior by adults.

In the local area, most birds nest between February 1 and August 31. As required by Mitigation Measure BIO-4, the potential for adversely affecting nesting birds can be greatly minimized by removing vegetation and conducting construction activities either before February 1 or after August 31. If construction occurs during the bird nesting season, a nesting survey would be conducted within one week prior to removal of vegetation and/or the start of construction.

If active nests are found in the project area, the City would consult with the CDFW and USFWS to determine what actions are required to comply with the Migratory Bird Treaty Act and California Fish and Game Code §3503. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.

Therefore, because construction activities that may impede the movement of wildlife are a temporary impact that would cease at completion of the project, and Mitigation Measure BIO-4 would reduce the potential for adversely nesting birds, the proposed project would have a less than significant impact on the movement of any migratory fish or wildlife species and would not impact migratory wildlife corridors or impede the use of native wildlife nursery sites.

It should be noted that cliff swallows are likely to return to the bridges and attempt to nest on the structures. While it is possible to cover the bridges with sheeting or other materials to discourage nesting, these methods are not entirely reliable. To ensure that nest construction is not completed, routine monitoring and removal of incipient nests would be necessary. Implementation of Mitigation Measure BIO-4 would result in less than significant impacts.

*Revised Project Impacts*

As previously mentioned above, biological records maintained by the California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS), and the U.S. Fish and Wildlife Service (USFWS) were reviewed and compared with the 2020 records search.

With respect to migratory birds, extensive revisions were made to the USFWS list of “Birds of Conservation Concern” that could potentially occur on the project site. Eleven species have been added to the list (American white pelican, marbled godwit, olive-sided flycatcher, evening grosbeak, western grebe, lesser yellowlegs, black tern, California gull, Franklin’s gull, Lewis’s woodpecker, and Cassin’s finch) and four have been removed (Brewer’s sparrow, long-billed curlew, tri-colored blackbird, and willow flycatcher).

The wildlife survey was conducted concurrently with the botanical survey, on June 12, 13, and 14, and July 12 and 13, 2023. One special-status species was observed, Swainson’s hawk (*Buteo swainsoni*). Swainson’s hawk is listed as a Threatened species by the State of California but has no federal status. The hawk was observed on July 12 and 13. On July 12, a single Swainson’s hawk was observed in flight near the southern end of the study area. On July 13, a single hawk was observed perched on top of a juniper near the western boundary of the site north of the residence. Although no nests were observed, it is possible that Swainson’s hawks nest on or near the project site.

CNDDB records show that Swainson’s hawks were previously observed roughly a mile southeast and about a half-mile northeast of the treatment/disposal site. A pair of hawks was observed at the southeastern location in May 1994; although several suitable nests were in the immediate vicinity, the pair exhibited no evidence of nesting behavior. At the northeastern site, hawks successfully nested in a juniper in 1972, but nesting failed in 1980; no adults or nests were observed in 1981 or 1982. Swainson’s hawks are occasionally observed at the Modoc National Wildlife Refuge just north of the treatment/disposal site but are not known to nest there.

As noted in the 2020 Biological Report (ENPLAN, 2020b), given the known presence of Swainson’s hawks in the general area and the presence of potentially suitable nest trees, Swainson’s hawks could potentially nest in or near the study area in future years. The hawks could be adversely affected if active nests are disrupted by project construction activities, if suitable nest trees are removed from the project site, or if there is a loss of foraging habitat as a result of project implementation. The 2020 Biological Report (ENPLAN, 2020b) included a requirement for a pre-construction nesting bird survey to ensure that nesting Swainson’s hawks are not adversely affected by project implementation. CDFW subsequently requested that the measure be amended to incorporate a more intensive pre-construction survey. In response to CDFW’s request, the following measure was included in the 2020 Final MND adopted by the City of Alturas as part of Mitigation Measure BIO-4. No additional mitigation is warranted.

*Swainson's Hawk Specific Surveys.* The surveys shall also be conducted according to methods recommended in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. If ground-disturbing activities will take place during the Swainson's hawk nesting season (March 1 through September 15), and pre-construction surveys find active nests, a minimum no-disturbance buffer of 0.5-mile be delineated around active nests. If "take" of Swainson's hawk cannot be avoided during project activities, a CEQA Incidental Take Permit must be obtained pursuant to FGC Section 2080 et seq.

With respect to nesting migratory birds, none of the species added to the "Birds of Conservation Concern" list would nest on the subject site (as further documented in Table 4, Appendix C). In any case, implementation of Mitigation Measure BIO-4 of the 2022 Final MND would ensure that nesting migratory birds are not adversely affected by project implementation. The revised project would not result in greater impacts than that analyzed in the 2022 Final MND.

*Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. The following measures from the 2022 Final MND are also applicable to the revised project. Any modifications to the original measures are shown in ~~strikethrough~~ for deleted text and underlined for new inserted text.

*Mitigation Measure BIO-4.* In order to avoid impacts to nesting birds, including raptors, protected under the federal Migratory Bird Treaty Act and California Fish and Game Code §3503 and §3503.5, including their nests and eggs, one of the following shall be implemented:

- Vegetation removal and other ground-disturbance activities associated with construction shall occur between September 1 and January 31 when birds are not nesting; or

- If vegetation removal or ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area.

  Surveys shall begin prior to sunrise and continue until vegetation and nests have been sufficiently observed. The survey shall take into account acoustic impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds.

  At a minimum, the survey report shall include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed in the area, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have impacted the survey results (e.g., weather conditions, excess noise, the presence of predators, etc.). The results of the survey shall be submitted to the CDFW upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the preconstruction survey, the site shall be resurveyed.

  If active nests are found, the City shall contact the CDFW and the USFWS regarding appropriate action to comply with the Migratory Bird Treaty Act and California Fish and Game Code §3503. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.

  *Swainson's Hawk Specific Surveys.* The surveys shall also be conducted according to methods recommended in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.* If ground-disturbing activities will take place during the Swainson's hawk nesting season (March 1 through September 15), and pre-construction surveys find active nests, a minimum no-disturbance buffer of 0.5-mile be delineated around active nests. If "take" of Swainson's hawk cannot be avoided during project activities, a CEQA Incidental Take Permit must be obtained pursuant to FGC Section 2080 et seq.

  *Cliff Swallow Specific Surveys*. If the installation of the sewer force main outside of the nesting season in not feasible, any existing unoccupied and inactive nest shall be removed from the crossing structure prior to March 1 of the

construction year. Removal of empty or unfinished nests shall be repeated daily or as frequently as necessary to prevent nest completion until swallows cease trying to construct nests, or sewer force main installation activities are completed. If swallows are allowed to complete nest building the nests shall not be destroyed or removed until after September 1 or after any successful nests have fledged their young, as determined through monitoring by a qualified biologist.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | | X | | | Yes | No |

*2022 Final MND Findings*

As discussed under *Regulatory Setting* above, the City of Alturas and Modoc County General Plans address the need to preserve unique and important plant communities as well as aquatic, fish, and wildlife habitats, for their biological resource and ecological values, as well as for their direct and indirect benefits to citizens. Mitigation Measures BIO-1 through BIO-4 are included to ensure consistency with local policies and objectives; therefore, impacts are less than significant.

*Revised Project Impacts*

The revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Development of the revised project would also be subject to Mitigation Measure BIO-1 through BIO-4, to ensure consistency with local policies and objectives. Impacts would remain less than significant with mitigation incorporated.

*Mitigation Measures*

Implement Mitigation Measure BIO-1 through BIO-4 from the 2022 Final MND.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the FESA. A Natural Community Conservation Plan (NCCP) is a State planning document administered by CDFW. There are no HCPs, NCCPs or other habitat conservation plans that apply to the proposed project. Therefore, there would be no impact.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not interfere with any adopted HCP or NCCP. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation, impacts associated with the revised project related to *Biological Resources* were found to be less than significant with implementation of mitigation measures from the approved 2022 Final MND.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

Alturas. 2014. *City of Alturas General Plan*. November 2014.

ENPLAN. 2023. *Addendum Report: Biological Study and Aquatic Resource Screening Evaluation for the Alturas Wastewater Treatment Improvement Project*. November 20, 2023.

ENPLAN. 2020a. *Aquatic Resource Delineation Report, Alturas Wastewater Treatment Plant, Modoc County, California*. October 2020.

ENPLAN. 2020b. *Biological Study Report, Alturas Wastewater Treatment Plant (WWTP) Improvement Project*. October 2020.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

SHN. 2021. *Technical Memorandum - City of Alturas Wastewater Treatment Plant Hydrologic Analysis for Wastewater Discharge Reduction.* September 16, 2021.

# V. Cultural Resources

The purpose of this section is to identify any potential cultural resources within or adjacent to the proposed project, and to assist the Lead Agency, in this case the City of Alturas, in determining whether such resources meet the office definitions of "historical resources," as provided in the California PRC, in particular under the California Environmental Quality Act (CEQA). The analysis in this section has been prepared in accordance with Section 15064.5 of the State CEQA Guidelines, which considers the potential impacts on prehistoric, historic, and paleontological resources. This section describes the potential cultural resources within the project study area, and the applicable regulations that govern those resources.

## Environmental Setting

The physical location with the potential for impact to archaeological resources is designated as the Area of Potential Impacts (API). The Environmental Study Limits (ESL) for the project area constitutes an additional 0.25-mile radius around the API (Figures 3-3a and 3-3b, AREA OF POTENTIAL IMPACTS AND ENVIRONMENTAL STUDY LIMITS). For the revised project, all 209 acres of the project constitute the API. The API consists of the location of the existing WWTP, the proposed location of the new wastewater treatment facility, and the segment of County Road 54 connecting these sites.

In advance of conducting the field survey, background historical research for the API and vicinity were completed at the Northeast Information Center of the California Historic Resources Information System. The review indicated six previously recorded resources within the API (P-25-000562, P-25- 000563, P-25-002274, P-25-002281, P-25-003094, and P-25-003095) and four within the quarter-mile ESL. The records showed eight previous surveys completed within the ESL, four of which occurred partially within the present API. A Sacred Lands File Search request resulted in a statement of positive results from the Native American Heritage Commission, indicating the presence of a sacred resource within the API. Overall, the geo-archaeological research conducted for this survey indicated a moderate potential for buried prehistoric resources, a low potential for buried historic resources, and a high potential for prehistoric and historical resources to be found at the surface within the API.

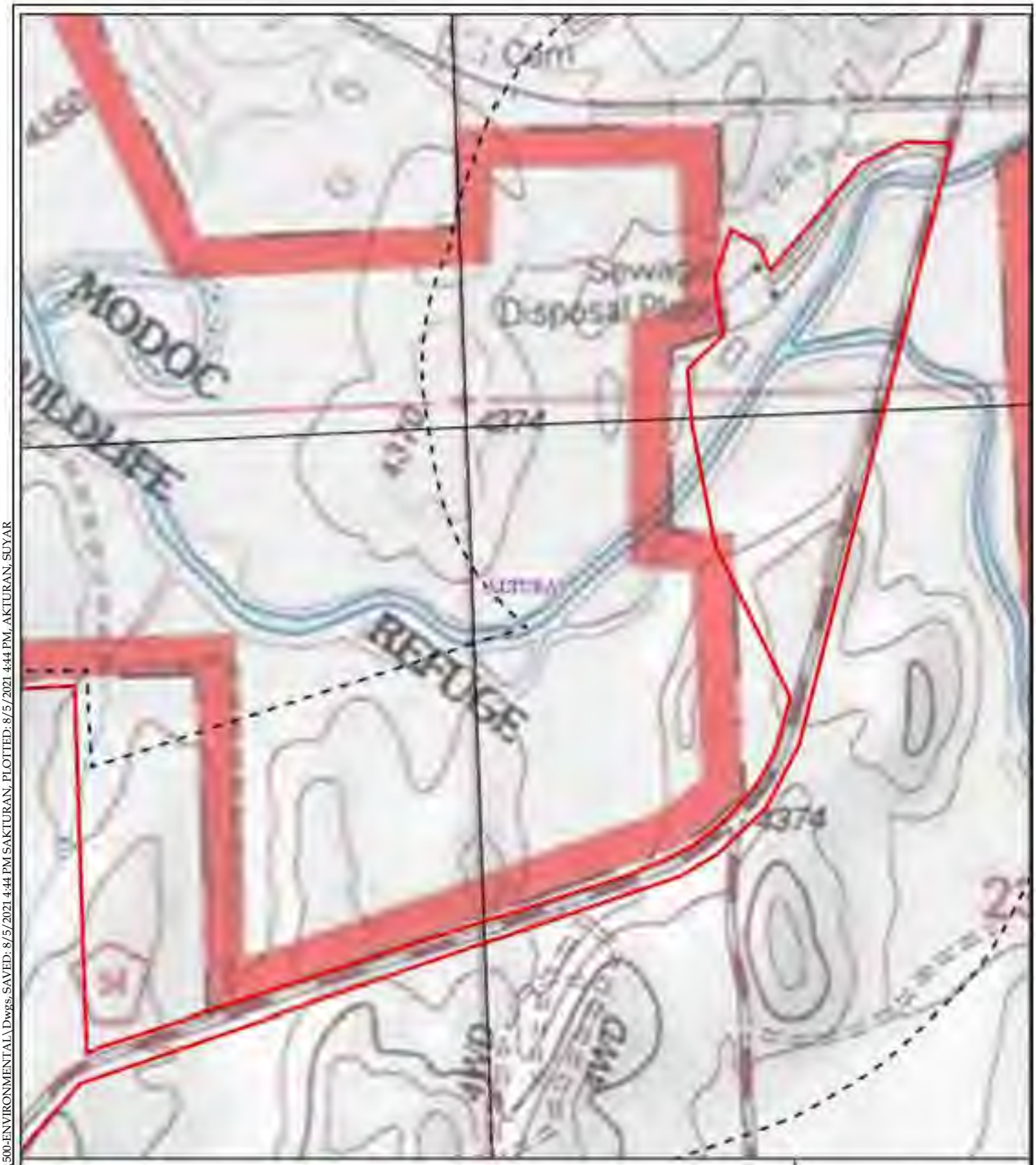
## Regulatory Setting

The purpose of the *Cultural Resource Inventory* (DZC, 2020; DZC, 2024) is to satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA), Section 106 of the National Historic Preservation Act of 1966 (NHPA), and CEQA (all as amended). The City of Alturas is the CEQA Lead Agency providing regulatory oversight for the permitting process under the CEQA. The California State Water Resources Control Board is acting on behalf of the United States Environmental Protection Agency (EPA) providing regulatory oversight for the CEQA-Plus permitting process, subject to NEPA.

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Section 21084.1). If it can be demonstrated that a project will cause damage to resources Eligible for or Listed in the California Register of Historic Resources (CRHR), Tribal Cultural Resources (TCRs) and other resources on local County or Local lists, or those determined by the lead agency to be significant. The lead agency may require reasonable efforts be made to permit any or all of the resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

PRC Section 5024.1 requires an evaluation of historical resources to determine their eligibility for listing in the CRHR. The purpose of the register is to maintain listings of the state's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), enumerated below. According to PRC Section 5024.1(c) (1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.




Not to Scale

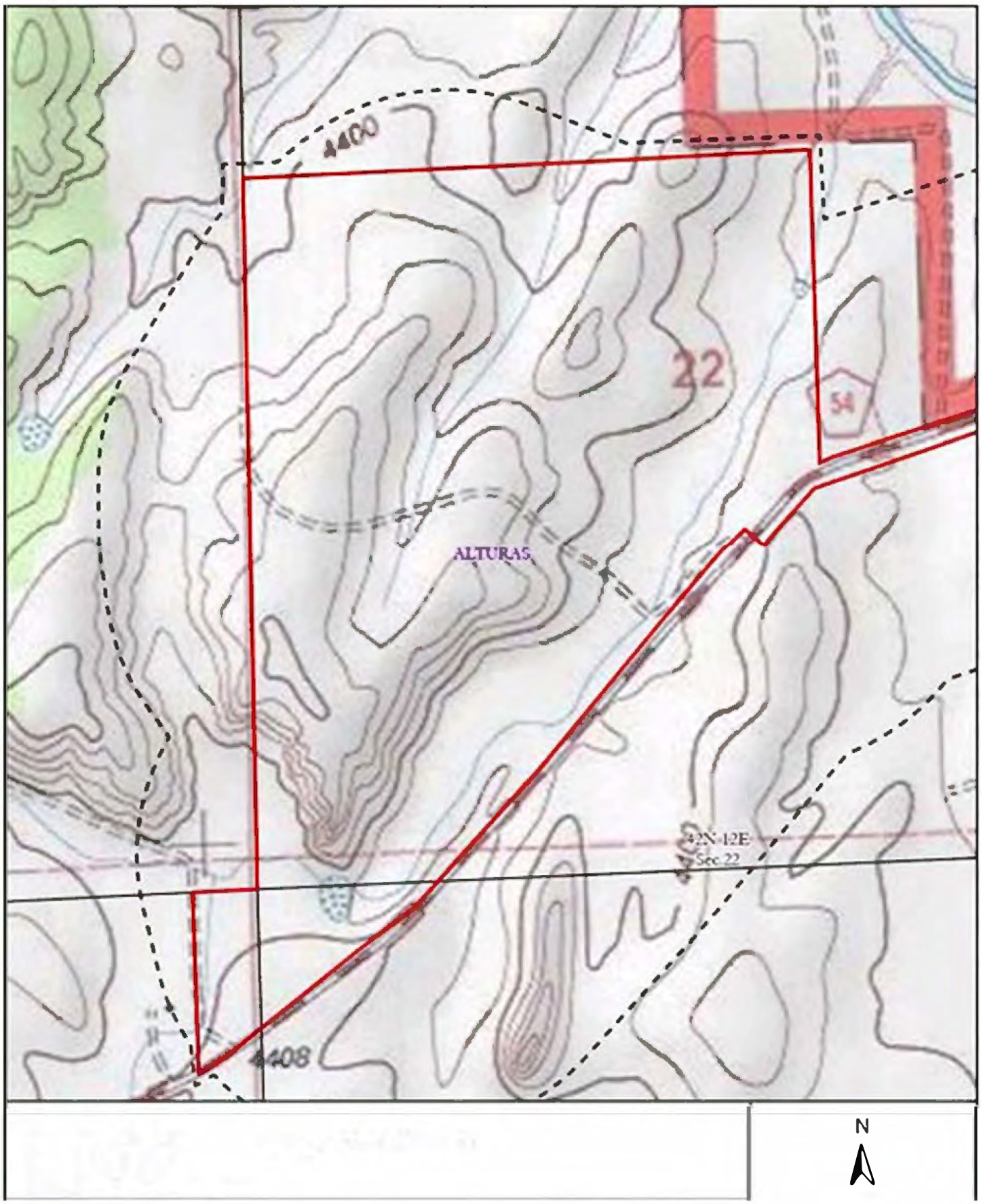
Alturas WWTP Improvement Project

Area of Potential Impacts and Environmental Study Limits

June 2024

Source: DZC, June 2024

Figure 3-3a




Not to Scale

| | | |
|---|---|---|
| SHN | Alturas WWTP Improvement Project | Area of Potential Impacts and Environmental Study Limits |
| | June 2024 | Source: DZC, June 2024 | Figure 3-3b |

A historical resource is a resource listed in, or determined to be eligible for listing, in the CRHR (Section 21084.1), a resource included in a local register of historical resources (Section 15064.5[a][2]), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (Section 15064.5[a][3]).

DZC Archaeological and Cultural Resource Management (DZC) completed a cultural resource inventory report for the API in December 2020 (DZC, 2020) and the expanded API and APE in October 2023 and April 2024 (DZC, 2024). The cultural resources review was completed to satisfy the requirements of the. It was conducted at a level which also satisfies the requirements of the NEPA and Section 106 of the NHPA, as amended. As part of this evaluation an archival research, Sacred Lands Search, and a review of previous surveys adjacent to and within the study area were documented.

## Impact Analysis

The following includes an analysis of environmental parameters related to *Cultural Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Cultural Resources*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? | | | | **X** | Yes | No |

### *2022 Final MND Findings*

Based on the result of the *Cultural Resource Inventory Report* (DZC, 2020) there are no NRHP, CRHR sites, California Historical Landmarks, California Points of Historical Interest, or historical bridge structures located within the API or ESL that would call for the retention of the historical structure or listing. Therefore, no impacts to historical resources would occur with implementation of the proposed project.

### *Revised Project Impacts*

Based on the result of the *Cultural Resource Inventory Report* (DZC, 2024) there are no NRHP, CRHR sites, California Historical Landmarks, California Points of Historical Interest, or historical bridge structures located within the API or ESL that would call for the retention of the historical structure or listing. Therefore, no impacts to historical resources would occur with implementation of the revised project. The revised project would not result in greater impacts than that analyzed in the 2022 Final MND.

### *Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | | **X** | | | Yes | No |

*2022 Final MND Findings*

A total of 106 acres of the API site was intensively surveyed in transects of 30 meters or less (DZC, 2020). Six previously recorded resources were re-visited and updated as a result of survey efforts. The following considerations are made concerning resources P-25-000562, P-25-000563, P-25-002274, P-25-002281, P-25-003094, and P-25-003095:

- *P-25-000562 (Ethnographic Village of Kosole'kta)*. Survey efforts of DZC confirmed that the 5% of this site within the project API is heavily disturbed. However, previous site records and research indicates that the larger portion of this site (95%) outside of the API is located within the boundaries of the Modoc National Wildlife Refuge (MNWR), in a significantly less disturbed location. Overall, 95% of this resource appears to retain integrity with regard to location, setting, materials, design, feeling, association, and workmanship. The remaining 5%, which rests within the boundary of the wastewater facility, appears to retain integrity only in regard to location. Although a formal evaluation of this resource was not conducted, a preponderance of the historical research has revealed this pre-contact-era resource is likely eligible for inclusion on the NRHP or the CRHR. As previously noted, this resource is partially located within the existing WWTP which is scheduled to have mechanical equipment disturbance while structures will remain. The Pit River Tribe of California has requested a Native American Monitor representing the Kosalektawi Band be present during all ground disturbing activities within the boundary of this resource. With implementation of Mitigation Measure CR-1 impacts would be less than significant.

- *P-25-000563*. Initially plotted within the project API, the two grave markers associated with P-25-000563 were not re-identified despite intensive efforts during this survey. A commemorative stone monument and interpretive kiosk depicting the events of the Battle of the Infernal Caverns and acknowledging Lt. Madigan was placed by the Bureau of Land Management (BLM) approximately 150 feet west of County Road 54, also outside of the API.

  Although the actual grave markers are mapped by the CHRIS system as within the API, several versions of locational data within the resource record indicates that it is not within the API and rests in the tuff outcrop just west of the API and outside of the wastewater facility boundary, which is outside the area proposed for mechanical disturbance. The monument is noting the grave markers located well off County Road 54, and outside of the API. Should the markers be found during project activities, inadvertent discovery protocols shall be implemented (refer to Mitigation Measure CR-2) Less than significant impacts are anticipated in this regard.

- *P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse)*. This recorded site exhibits a modest but varied array of lithic deposition including a variety tool types. Additionally, it is situated in close proximity to other substantial and extensive pre-contact era archaeological sites. As such, this resource appears indicative of long-term settlement and use patterns for the immediate region and therefore may contribute to broad patterns of pre-contact national or state history and cultural heritage; however, does not indicate this resource to be associated with figures of historical significance. Based on historical research and information contained in the site records, it is likely this resource will yield information important in prehistory or history.

  Overall, this resource appears to retain integrity with regard to location, setting, materials, association, and workmanship. Conversely, it does not appear to retain integrity with regard to design or feeling. Although a formal evaluation is outside the scope of this project, a preponderance of the historical research has revealed this pre-contact-era resource is likely eligible for inclusion on the NRHP or the CRHR. The Pit River Tribe of California has requested a Native American Monitor representing the Kosalektawi Band be present during all ground disturbing activities within the boundary of this resource. With implementation of Mitigation Measure CR-1 impacts would be less than significant.

- *P-25-002281 (Precontact Lithic Concentration)*. Survey efforts by DZC on July 28, 2020, did not re-identify any portion of P-25-002281 within the project API. It is possible that the eastern terminus of this site has been impacted by the extension of the County Road 54 road prism which occurred between 1984 and 2020. The majority (98%) of this previously recorded resource is situated on the west side of County Road 54, across the MNWR fence and is untouched by road improvements. P-25-002281 exhibits a modest but varied array of lithic deposition including a variety tool types. Additionally, it is situated in close proximity to other substantial and extensive pre-contact era archaeological sites. As such, this resource appears indicative of long-term settlement and use patterns for the immediate region and therefore may contribute to broad patterns of pre-contact national or state history and

cultural heritage. However, research does not indicate this resource to be associated with figures of historical significance. Based on historical research and information contained in the site records, it is likely this resource will yield information important in prehistory or history.

Although mapped within the API by the CHRIS, survey efforts did not observe the resource within the API. It is likely that the previously observed constituents were obscured by the expansion of the road prism. As it cannot be determined if the resource has been obliterated or covered by this action, there remains a possibility for the discovery of the resource during project activities. The Pit River Tribe of California has requested a Native American monitor representing the Kosalektawi Band be present during all ground disturbing activities within the boundary of this resource. In addition, should this resource be observed within the API during project activities, inadvertent discovery protocols shall be implemented. With implementation of Mitigation Measure CR-1 and Mitigation Measure CR-2 impacts would be less than significant.

- *P-25-003094*. Loci A-D and Locus I have been formally evaluated for eligibility on the NRHP. Locus I is located within the project API. Research indicates that this resource is merely a minor transportation route connecting Alturas with public and private land. These lands have likely been used as grazing lands since the settling of Modoc County in the late 19th century and have not been important in the larger history of Modoc County or the state. In addition, this road was a "low frequency linear feature" in that its use was minor in the larger web of roads connecting other roads, communities, and the larger region (DZC, 2020). Therefore, it does not appear to contribute to broad patterns of pre-contact national or state history and cultural heritage. The resource records indicate that Locus I of P-25-003094 is not associated with figures of historical significance and is no more than a typical example of road construction and does not embody a particular method of construction, represent the work of an important creative individual, and does not initially appear to possess high artistic value. In addition, previous test excavations at Locus I revealed no evidence of important information potential that could yield information important in prehistory or history. Overall, this resource does not retain integrity with regard to location, setting, materials, workmanship, design, feeling, or association and based on this evidence has been determined ineligible for inclusion on the NRHP or the CRHR. Therefore, no mitigation measures are required.

- *P-25-003095*. Initially recorded as a small lithic and historic debris scatter, survey efforts noted that three of the four constituents recorded in 1993 are no longer extant or have otherwise been obscured. Just one crumpled hole-in-top milk can was re-identified and based on this information this resource was determined to be an isolate (DZC, 2020). This isolated resource does not contain information which contributes to the broader patterns of national, state, or cultural heritage and research does not indicate this isolate to be associated with figures of historical significance. In addition, this isolate does not contain distinctive characteristics of a type, period, and region, nor does it embody a particular method of construction or represent the work of an important creative individual and does not initially appear to possess high artistic value. Based on historical research and information contained in the site records, it is unlikely that this resource will yield information important in prehistory or history.

  Overall, this resource does not retain integrity with regard to location, setting, materials, workmanship, design, feeling, or association and based on this evidence has been determined ineligible for inclusion on the NRHP or the CRHR. Additionally, this isolated historic-era artifact is determined to be located well outside of the API. Therefore, related to P-25-003095 no mitigation measures are required.

As noted above under resource evaluations for P-25-000562 (Ethnographic Village of Kosole'kta), P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse), and P-25-002281 (Precontact Lithic Concentration) there is a possibility that cultural resources, including buried archaeological materials, could exist in the area and may be uncovered during construction. Therefore, if any resources are found during the construction of the proposed project, they will be mitigated through implementation of Mitigation Measure CR-1 and Mitigation Measure CR-2. Adherence to protocols established by both Mitigation Measure CR-1 and Mitigation Measure CR-2 would serve to avoid impacts that would result in a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5. Impacts would be less than significant with mitigation incorporated.

*Revised Project Impacts*

Due to an expansion of the API, archaeological survey occurred during two separate periods (July 28, 2020, and October 2-6, 2023). The combined survey efforts resulted in complete coverage over 283.5 acres of the 290-acre API (DZC, 2024). In addition, the engineering design aspect of the revised project required verification of the type, density, and characteristics of the soils within the APE. The following provides a summary of field investigations, testing, and updates that have occurred since adoption of the 2022 Final MND.

*Geological Investigations*

A total of sixteen geotechnical test-pits (GTPs) were completed. Due to the archaeological sensitivity of the area, both a SOI qualified archaeologist and a Native American Monitor (Mr. Chris Brown, Kosealekte, Pit River Tribe) monitored the excavations.

GTPs 14, 15, and 16 all occurred within the boundaries of previously recorded cultural sites, specifically P-25-002274 (GTP 15 and 16) and P-25-002281 (GTP 14). Resource P-25-002274 has undergone extensive evaluation testing at four Loci (A-D) by King and Waetcher (2015). Their evaluation determined that Loci C and D were minimally disturbed and contributing elements to the historical significance of the resource. Loci A and B were highly disturbed and did not meet the valuation criteria for significance. Therefore, GTPs 15 and 16 occurred only within the ROW and the boundaries of Loci A and B at P-25-002274. The excavation of GTP 14 at P-25-002281 also occurred within the site boundary and the ROW. All sixteen GPTs were negative for the presence of cultural constituents.

The second instance of geotechnical testing occurred within the grounds of the Alturas wastewater treatment facility and the ROW and occurred within the resource boundaries of P-25-00562 and P-25-002274, respectively. All samples occurred within the boundaries of previously evaluated and determined not Eligible resources, and all borings were negative for the presence of subsurface resources.

*Updates to Previously Recorded Resources*

- *P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse)*. The precontact portion of this multi-component resource was recommended eligible for the NRHP by J. Coleman in 2013 based on site condition and potential for intact precontact era deposits that may contain diagnostic items or archaeological features with data potential. The last update/record occurred on July 14, 2015, by J. King of Far Western Anthropological Group. Fieldwork in 2015 consisted of surface walkover of the site, mapping and surface constituent collection, systematic sampling, description of historic loci, excavation of thirty-one surface transect units, four control units, and geoarchaeological trenching. A varied assemblage of precontact-era tools was recovered as a result of 2015 field efforts.

  Subsurface testing concluded that Loci C and D were contributing elements to the eligibility of the resources, while Loci A and B were not. Two test pits were conducted within the boundaries of the resource near Loci A and B during the 2023 field season. Both were negative for the presence of any cultural material.

  While the API and ROW bisect the resource as a whole, the API passes only through Loci A which has undergone Phase 3 data recovery and is determined to be a non-contributing element regarding the eligibility of the resource. Therefore, there is no effect to the contributing constituents of this resource by the project activities. The Pit River Tribe of California has requested a Native American Monitor representing the Kosalektawi Band be present during all ground disturbing activities within the boundary of this resource. With implementation of Mitigation Measure CR-1 impacts would continue to be less than significant.

- *P-25-002281 (Precontact Lithic Concentration).*

  The majority (98%) of this previously recorded resource is situated on the west side of Co. Rd. 54, across the wildlife refuge fence and is untouched by road improvements. Survey efforts by DZC on July 28, 2020, did not re-identify any portion of P-25-002281 within the API. Given the physical placements and attributes of the ROW, DZC surmised

that the eastern terminus of this site was impacted by the extension of the Co. Rd. 54 road prism which occurred between 1984 and 2020.

In October 2023, XP1 testing was conducted at P-25-002281. A total of nine STPs were placed within the intersection of the site boundary and the ROW. All were negative for the presence of cultural material. As there is no surface or subsurface evidence of the resource in the ROW, DZC will submit a boundary adjustment to the NEIC, reflecting the presence of the resource as outside of the ROW. Therefore, there are no management considerations or requirements for this Project regarding this resource. However, should cultural material be observed within the API during project activities, inadvertent discovery protocols shall be implemented in accordance with Mitigation Measure CR-3.

*Isolated Artifacts and Features of the Expanded API*

The newly recorded isolated artifacts and features within the expanded wastewater treatment plan area include both precontact and historic-era artifacts. The prehistoric artifacts indicate lithic tool production, likely from localized obsidian and chert sources. The historic-era isolated can and metal fragments are likely in a secondary depositional location as these are easily transported across this landscape by the strong winds of the area. Neither the historic-era can isolates, nor the glass fragments constituting a single bottle, are associated with any features. The four historic-era features within the API are all related to agricultural-ranching practices. While the recorded isolates characterize past land use within the API, none meet the criteria of to qualify as a historic property (as defined by NHPA) nor as unique archaeological resources, tribal cultural resources, or historic resource (as defined by CEQA). Implementation of Mitigation Measure CR-2 would ensure impacts to previously undiscovered resources would be less than significant.

*Newly Recorded Resources*

Based on the criteria outlined in above in the *Regulatory Setting* subsection, the following considerations are made concerning two newly recorded resources within the API (P-25-00XXX1 and P-25-00XXX2).

- *P-25-00XXX1 (Wandering Flakes; Sparse Lithic and Historical Refuse Scatter).*

  The sparse flake scatter component is typical of many flake scatters found in the immediate region. This resource contains extremely nominal information which does not significantly contribute to the broader patterns of national, State, or cultural heritage. Research does not indicate this resource is associated with figures of historical significance. In addition, this resource does not contain distinctive characteristics of a type, period, and region, nor does it embody a particular method of construction or represent the work of an important creative individual and does not initially appear to possess high artistic value. Based on the type and materials of the resource constituents, there is little potential for this resource to yield information important in prehistory or history.

  The prehistoric components of this resource appears to retain integrity with regard to location, setting, materials, workmanship, design, feeling, and association. However, as this scatter contains neither a diversity of materials and tool types, nor any depth, it represents lithic “background noise” on the landscape when compared to much more robust sites within one mile, such as P-25-000563 and P-25-002274, which are dense and extensive in both prehistoric and historic deposits. As a formal evaluation is outside the scope of this project, it will be treated as Eligible for the NRHP and protected from project effects.

  The historic components of this resource appears to retain integrity with regard to location, setting, and materials, but lack workmanship, design, feeling, or association and as such the historic-era portion of the resource appears ineligible for inclusion on the NRHP or the CRHR. While this resource is within the API, it is not at risk for direct or indirect impacts from project activities. The site boundary will be flagged, and the area avoided in accordance with Mitigation Measure CR-2. The revised project would not result in greater impacts than that analyzed in the 2022 Final MND.

- *P-25-00XXX2 (Wayside Vista; Sparce Lithic and Moderately Dense Historical Refuse Scatter).*

  The historic component represents domestic household glass, metal, and ceramic items from the 1890s-1930's in two concentrated loci (1 and 2) with additional artifacts dispersed. There are no associated features. With regard to the prehistoric component, the site is limited to the deposition of debitage. However, the location overlooks a seasonal draw which would have been ideal as a hunting platform/natural blind. Although it cannot be proven at this time, just below the bluff on which this site is located are several small natural pads that, when compared with the surrounding area, contain an unusual number of rocks and cobbles which may represent the remnants of hunting blinds.

  The historic artifacts of locus 1 and 2 indicate manufacture and use ranges between 1880 and 1931, with the majority pointing to a use period of 1900-1931. And although this site represents both industrial and domestic waste, the embellished glass and ceramics indicate a household that could afford objects that exceeded strictly utilitarian function. Lastly, the family may have had an association or preference for Bavarian related or produced products in that the makers mark on the fine porcelain was from Austria and the company that produced Krank cold cream was also of Bavarian origin. A review of historic maps and aerial photos did not reveal a structural habitation nearby that could be associated with this refuse concentration.

  Based on the immediate evidence, as observed in October of 2023, this site does not appear to be eligible for listing in the CRHR nor the NRHP. It is highly likely that site P-25-001354, located SE across CR 54, was once the uppermost portion of this site. Also, it is believed that the majority of the metal debris outside of locus 1 and locus 2 are in a secondary deposition due to scouring winds.

  The prehistoric components of this resource appear to retain integrity with regard to location, setting, materials, workmanship, design, feeling, or association. As a formal evaluation is outside the scope of this project, it will be treated as Eligible for the NRHP and protected from project effects.

  The historic components of this resource appear do note retain integrity of location, setting, materials, workmanship, design, feeling, or association and as such the historic-era portion of the resource appears ineligible for inclusion on the NRHP or the CRHR. While this resource is within the API, it is not at risk for direct or indirect impacts from project activities. The site boundary will be flagged, and the area avoided in accordance with Mitigation Measure CR-2. The revised project would not result in greater impacts than that analyzed in the 2022 Final MND.

### *Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. The following measures from the 2022 Final MND are also applicable to the revised project. Any modifications to the original measures are shown in ~~strikethrough~~ for deleted text and <u>underlined</u> for new inserted text.

*Mitigation Measure CR-1.* A Native American Monitor shall be present during ground disturbing activities within the boundaries of know precontact sites within the API. This measure is applicable to the following resources:

- P-25-000562 (Ethnographic Village of Kosole'kta)
- P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse)~~, and~~
- ~~P-25-002281 (Precontact Lithic Concentration).~~

<u>*Mitigation Measure CR-2.* The following resources are withing the area of potential impact, but are not within, nor adjacent to an area of direct impacts. Prior to the commencement of construction activities, the following resources boundaries shall be flagged for identification and avoided during project activities:</u>

- <u>P-25-00XXX1 (Wandering Flakes; Sparse Lithic and Historical Refuse Scatter)</u>
- <u>P-25-00XXX2 (Wayside Vista; Sparce Lithic and Moderately Dense Historical Refuse Scatter)</u>

*Mitigation Measure CR-~~23~~.* If cultural resources, such as chipped or ground stone, or bone are inadvertently discovered during ground-disturbance activities, work shall be stopped within 50 feet of the discovery, as required by the California Environmental Quality Act (CEQA; January 1999 Revised Guidelines, Title 14 California Code of Regulations [CCR] 15064.5 (f)). Work near the archaeological finds shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the material, and offered recommendations for further action.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| c) Disturb any human remains, including those interred outside of formal cemeteries? | | X | | | Yes | No |

*2022 Final MND Findings*

There are no known burial sites on or immediately adjacent to the proposed project site. If human remains are unearthed during future development of the site, the provisions of California Health and Safety Code Section 7050.5 shall apply. Under this Section, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition, pursuant to California Public Resources Code Section 5097.98. Impacts are considered less than significant with mitigation incorporated.

*Revised Project Impacts*

Similar to the approved project evaluated within the 2022 Final MND, the proposed revised project would not impact any known burial sites. Impacts are considered less than significant with implementation of Mitigation Measure CR-4. Therefore, the revised project would not result in greater impacts than that analyzed in the 2022 Final MND.

*Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. The following measures from the 2022 Final MND are also applicable to the revised project. Any modifications to the original measures are shown in ~~strikethrough~~ for deleted text and underlined for new inserted text.

*Mitigation Measure CR-~~34~~.* If In the event that previously unidentified evidence of human burial or human remains are discovered during project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5) the Modoc County Coroner must be informed and consulted, per State law. If the coroner determines the remains to be Native American, he or she shall contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent. The most likely descendent will be given an opportunity to make recommendations for means of treatment of the human remains and any associated grave goods. when the commission is unable to identify a descendant or the descendants identified fail to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the descendants and the mediation provided for in subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance. Work in the area shall not continue until the human remains are dealt with according to the recommendations of the County Coroner, Native American Heritage Commission and/or the most likely descendent have been implemented.

## Findings

In the course of the above evaluation, impacts associated with the revised project related to *Cultural Resources* were found to be less than significant with implementation of mitigation measures from the approved 2022 Final MND.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

DZC (DZC Archaeological and Cultural Resource Management). 2020. *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California.* December 2020.

DZC. 2024. *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California.* June 2024.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# VI. Energy

The purpose of the section of the Initial Study is to analyze the potential direct and indirect environmental impacts associated with the project's projected energy consumption. Such impacts can include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.). Analyses of emissions of air quality and GHG pollutants during both the construction and long-term operational phases of the project are analyzed in Section III, AIR QUALITY, and Section VIII, GREENHOUSE GAS EMISSIONS.

## Environmental Setting

In Modoc County, energy is used as a transportation fuel and as electrical and heat energy in homes, businesses, industries, and agriculture. Electric service in Modoc County is provided by Surprise Valley Electrification Corporation (SVEC) and Pacific Power. SVEC serves 7,650 square miles covering Summer Lake, Oregon, south to Ravendale, California, west to Day, California, and east to Vya, Nevada. SVEC does not serve the downtown areas of Alturas, Lakeview, Cedarville, and New Pine Creek, as these areas are served by Pacific Power (SVEC, 2021). According to the 2019 Power Content Label for SVEC, their power mix consisted of approximately 85 percent large hydroelectric, 11 percent nuclear, and 4 percent unspecified sources of power. According to the 2019 Power Content Label for Pacific Power, the power mix consisted of approximately 55.1 percent coal, 17.9 percent natural gas, 11.8 percent unspecified sources of power, 11.7 percent eligible renewables, and 3.4 percent large hydroelectric (Pacific Power, 2019).

Modoc County contains several geothermal energy resource areas. The geothermal energy potential of Modoc County has been known since the earliest days of its settlement. Hot springs, warm wells, and the volcanic geology of the County provide evidence of the heat energy lying beneath the earth's surface. A number of small-scale, isolated direct heating applications have been undertaken in the County over the last 50 years (Modoc, 1988).

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Energy* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to energy consumption include the following:

### *California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24)*

The California Code of Regulations Title 24, California's energy efficiency standards for residential and non-residential buildings, was established by the CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy efficiency standards for residential and non-residential buildings. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and took effect on January 1, 2020. Under the 2019 standards, homes will use about 53 percent less energy and nonresidential buildings will use about 30 percent less energy than buildings under the 2016 Title 24 standards.

### *California Green Building Standards*

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2019 and went into effect January 1, 2020.

### *2008 California Energy Action Plan Update*

The California Public Utilities Commission and California Energy Commission *2008 Energy Action Plan Update* provides a status update to the *2005 Energy Action Plan II,* which is the State's principal energy planning and policy document. The plan continues the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are energy efficiency, demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure), and the use of renewable sources of power. If these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil-fired generation.

### *California Renewable Portfolio Standard*

In 2002, California established a Renewable Portfolio Standard (RPS) that requires a retail seller of electricity to include in its resource portfolio a certain amount of electricity from renewable energy sources, such as wind, geothermal, small hydro, and solar energy. The retailer can satisfy this obligation by using renewable energy from its own facilities, purchasing renewable energy from another supplier's facilities, using Renewable Energy Credits (RECs) that certify renewable energy has been created, or a combination of all of these. California's RPS requirements have been accelerated and expanded a number of times since the program's inception. Most recently, then-Governor Jerry Brown signed into law Senate Bill (SB) 100 in September 2018, which requires utilities to procure 60 percent of their electricity from renewables by 2030 and sets as a state policy that state agencies and end-use retail customers receive 100 percent of energy from renewable and zero-carbon resources by 2045. In addition, SB 350 requires California utilities to develop Integrated Resource Plans (IRPs) that incorporate a GHG emission reduction planning component. Compliance with the California RPS requires SVEC and Pacific Power to develop and implement an IRP that demonstrates they are on schedule to comply with the goals of providing 60 percent renewable sources by 2030. To ensure retail sellers meet their RPS requirement, the California Public Utilities Commission (CPUC) is responsible for establishing enforcement procedures and imposing penalties for non-compliance with the program (CPUC, 2018).

## Impact Analysis

The following includes an analysis of environmental parameters related to *Energy* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Energy*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | | | X | | Yes | No |

### *2022 Final MND Findings*

The following provides an analysis of short-term construction and long-term operational impacts related to the proposed project.

*Construction Impacts*

During construction of the proposed project, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project sites, construction worker travel and delivery truck trips to and from the project sites, and to operate generators to provide temporary power for lighting and electronic equipment. Construction would consist of demolition, site preparation, grading, building construction, trenching, paving, and architectural coating.

There are no unusual project characteristics that would need construction equipment or practices that would be less energy efficient than at comparable construction sites in the region or state. Construction activity would be temporary and fuel consumption would cease once construction ends. Due to the temporary nature of construction activities, the fuel and energy needed during project construction would not be considered a wasteful or inefficient use of energy. Therefore, it is expected that construction energy consumption associated with the proposed project would be comparable to other similar construction projects and would, therefore, not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction.

*Operational Impacts*

Energy use during long-term operation of the new Alturas WWTP will relate primarily to the operation of new or upgraded equipment and buildings. The energy currently used by the existing WWTP is part of the existing baseline condition. The project does not propose to increase the capacity of the WWTP and, therefore, does not have the potential to result in significant additional energy use beyond the existing baseline condition. Furthermore, the power mix that will be supplied to the new WWTP must comply with the California RPS, which requires retail sellers of electricity to provide a power mix that includes 60 percent renewable sources by 2030.

The structures proposed by the project at the new WWTP site would be required to comply with Title 24 Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6, of the California Code of Regulations), which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage. It has generally been the presumption throughout the State of California that compliance with Title 24 (as well as compliance with the federal and state regulations) ensures that projects will not result in the inefficient, wasteful, and unnecessary consumption of energy. In compliance with current regulatory requirements, the buildings that would be developed at the new WWTP site have the potential to use less energy than occurs under the existing baseline condition.

As proposed and in compliance with existing regulatory requirements, the proposed project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project operation. For the reasons noted above, the proposed project would result in a less than significant impact on this resource category during construction and operation.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. Therefore, the revised project would result in a less than significant impact on this resource category.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | | | X | | Yes | No |

*2022 Final MND Findings*

As described above, the proposed project would not increase the capacity of the WWTP and would, therefore, not result in significant additional energy use beyond the existing baseline condition. In addition, the proposed buildings would be constructed in compliance with Title 24 Building Energy Efficiency Standards and the new WWTP site would be served with an energy mix that complies with the California RPS. For the reasons noted above, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the proposed project would result in a less than significant impact on this resource category.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the revised project would result in a less than significant impact on this resource category.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the revised project will have a less than significant impact with respect to *Energy*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
CBSC (California Building Standards Commission). 2019.*California Green Building Standards Code*. January 1, 2020.
CPUC (California Public Utilities Commission). 2018. California Renewable Portfolio Standard – Annual Report. November. https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/Renewables%20Portfolio%20Standard%20Annual%20Report%202018.pdf.
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Pacific Power. 2019. *California Power Content Label*. https://www.pacificpower.net/content/dam/pcorp/documents/en/pacificpower/rates-regulation/california/PP_CA_Power_Content_Label_JAN_21.pdf.
SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.
SVEC (Surprise Valley Electrification Corporation). 2019. *Power Content Label*. http://www.surprisevalleyelectric.org/sites/svec/files/Power%20Content%20Label/2019%20SVEC%20Product%20Content%20Label.pdf.
SVEC. 2021. *Website – Welcome to Surprise Valley Electric Corp. & About Touchstone Energy Cooperatives*. http://www.surprisevalleyelectric.org/ and http://www.surprisevalleyelectric.org/content/about-touchstone-energy-cooperatives.

# VII. Geology and Soils

The purpose of this section is to describe the geologic and seismic setting of the project area, identify potential impacts associated with implementation of the proposed project, and, as necessary, recommend mitigation to reduce the significance of impacts. The issues addressed in this section are risks associated with faults, strong seismic ground shaking, seismic-related ground failure such as liquefaction, landslides, and unstable geological units and/or soils.

## Environmental Setting

Published geologic mapping and reports in the immediate vicinity of the proposed project indicates that underlying basement bedrock consists of tertiary volcanic pyroclastic rocks of the Cenozoic era (DOC, 2010b). The Preliminary Geologic Map of the Alturas 30' x 60' quadrangle indicates the Alturas Formation (Ta) and Pyroclastic flow of the Alturas Basin (Tabpf) underly the project area. The Alturas Formation is described as white, light gray, tan; fine to coarse grained with minor pumice lapilli, thin to thick bedded. Increasing lake clays and fluvial volcanic sandstones in upper part (Collins, 1999).

Active faults are defined as faults that have had surface displacement in the Holocene epoch (in the past 11,000 years) based on CCR Division 2, Title 14, also known as the Alquist-Priolo Earthquake Fault Zoning Act (A-P Act). Potentially active faults are defined by the A-P Act as faults showing surface displacement during mid to late Quaternary time (about 1.6 million years before present) that have a relatively high potential for ground rupture. In general, Quaternary faults that do not record evidence of Holocene surface displacement are not considered as being active by the State. In addition, the California Geologic Survey (CGS) evaluates the activity rating of a fault in fault evaluation reports (FER). FERs compile available geologic and seismologic data and evaluate if a fault should be zoned as active, potentially active, or inactive. If a FER evaluates a fault as active, then it is typically incorporated into a Special Studies Zone in accordance with the Alquist-Priolo Earthquake Hazards Act. The project site is not located within an Alquist-Priolo Earthquake Fault Zone and no active faults are known to pass through the project site.

Based on the most recent available data, no active or potentially active faults are reported to be present within the boundaries of the project site. Regional active faults within about 20 miles of the proposed project include the Likely fault zone, the Fitzhugh Creek fault zone, the Davis Creek fault zone, the Surprise Valley fault, as well as several unnamed Quaternary faults. There has been one disaster declaration in the County for the 1993 Klamath earthquake. There was minimal damage in the County. Areas with greatest impacts were the Tule Lake and Newell area. These areas saw ground shaking with damage to grain silos and other miscellaneous structures (Modoc, 2016). However, earthquakes in the area have been rare, and no deaths or significant structural damage have occurred as a result of an earthquake.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2020), seven soil units have been mapped within the project study area (refer to Table 3-3, SOIL TYPES AND CHARACTERISTICS, and Figure 3-1).

**Table 3-3**
**SOIL TYPES AND CHARACTERISTICS**

| Soil Name | Landform and Parent Material | Erosion Potential | Drainage | Surface Runoff | Permeability | Shrink-Swell Potential |
|---|---|---|---|---|---|---|
| Alturas loam | Terraces; alluvium derived from basic igneous rocks | Moderate | Moderately well-drained | High | Moderately low to moderately high | Moderate |
| Bieber gravelly loam, 0 to 9 percent slopes | Terraces; alluvium derived from basic igneous rocks | Moderate | Well-drained | Very High | Very low | Moderate |
| Buntingville clay loam, 0 to 2 percent slopes | Fan remnants and terraces; tuffs, andesite, basalt, and tuff breccias | Moderate | Moderately well-drained | High | Moderately low | Moderate |
| Casuse sandy loam, 2 to 9 percent slopes | Terraces, escarpments; weakly cemented residuum weathered from tuff | Moderate | Well-drained | Very High | Very low | Moderate |
| Ladd sandy loam, 2 to 9 percent slopes | Alluvial fans; alluvium derived from basic igneous rock | Moderate | Well-drained | High | Moderately high | Moderate |
| Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes | Terraces; residuum weathered from tuff | Low | Well-drained | Medium | Very low | Moderate |
| Tuff outcrop-Cause, eroded complex, 30 to 50 percent slopes | Escarpments; Residuum weathered from tuff | Low | Well-drained | High | Very low | Moderate |

Source: United States Department of Agriculture, Natural Resources Conservation Service. 2020.

The project site ranges in elevation between 4,360 and 4,490 feet above mean sea level (msl). The General Plan Safety Element noted that there is a direct relation between the degree of slope and associated land slide hazards. As slope increases, so does the potential for conditions hazardous to human life and structures situated in the area. Land having an average slope of 30 percent or greater is generally considered less suitable for intensive development because it is difficult and more costly to develop (Modoc, 2016). According to the Department of Conservations Fire Perimeters and Deep Landslide Susceptibility mapping, most of the project study area is considered to be at minimal risk for landslides (DOC, 2021). However, portions within APN 022-130-042 that generally follows the Tuff outcrop-Casuse, eroded complex, 30-50 percent slope soil classification has been identified as being susceptible to landslide risk (DOC, 2021).

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Geology and Soils* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to geology and soils include the following:

### *Alquist-Priolo Earthquake Fault Zoning Act*

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 (originally enacted as the Alquist-Priolo Special Studies Zones Act and renamed in 1994) and is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as “Earthquake Fault Zones” around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Local agencies must regulate most development projects within the zones. Projects include all land divisions and most structures for human occupancy.

### *Seismic Hazard Mapping Act*

The Seismic Hazard Mapping Act (SHMA) was adopted by the state in 1990 to protect the public from the effects of non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, seismically induced landslides, or other ground failure caused by earthquakes. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. The California Geological Survey prepares seismic hazard zone maps and provides them to local governments; these maps identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. SHMA requires responsible agencies to only approve projects within seismic hazard zones following a site-specific investigation to determine if the hazard is present, and if so, the inclusion of appropriate mitigation(s). In addition, the SHMA requires real estate sellers and agents at the time of sale to disclose whether a property is within one of the designated seismic hazard zones.

### *2019 California Building Code*

The California Building Code (CBC), which is codified in CCR Title 24, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, egress facilities, and general building stability. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all building and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable.

## Impact Analysis

The following includes an analysis of environmental parameters related to *Geology and Soils* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Geology and Soils*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:<br>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 Publications 42.<br>ii) Strong seismic ground shaking?<br>iii) Seismic-related ground failure, including liquefaction?<br>iv) Landslides? | | | X | | Yes | No |

*2022 Final MND Findings*

The project may potentially expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

*i. Rupture of a known earthquake fault:*

According to the California Geological Survey (CGS), there are no Alquist-Priolo Study Zones in the study area. The closest Special Study Zone is the Surprise Valley Fault Zone, approximately 19 miles east of the study area. Based on the distance of the study area to the Surprise Valley Fault zone, impacts are considered to be less than significant.

*ii. Strong seismic ground shaking:*

The entire northern California region is subject to the potential for moderate to strong seismic shaking due to distant seismic sources. Seismic shaking can be generated on faults many miles from the project vicinity. An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake (Modoc, 2016).

Maps indicating the maximum expectable intensity of groundshaking for the County are available through several sources. Figure 4-24 in the Modoc County *Local Hazard Mitigation Plan* (2016) depicts the expected relative intensity of ground shaking and damage in California from anticipated future earthquakes. The shaking potential is calculated as the level of ground motion that has a 2% chance of being exceeded in 50 years, which is the same as the level of ground-shaking with about a 2,500 year average repeat time. According to the map, Modoc County is located in an area of low to moderate earthquake shaking. It should be noted however that no region is immune from potential earthquake damage. Seismic shaking potential is considered minimal, and the hazard is not higher or lower at the project site than throughout the region (Modoc, 2016).

Before final design and the commencement of construction, a design-level geotechnical investigation with recommendations will be prepared. Necessary recommendations will present geotechnical engineering conclusions and specific recommendations for site preparation, foundation design, site drainage, addressing expansive soils, and pavement design to achieve compliance with the California Building Code, which would reduce risk associated with expansive soils. Impacts would be less than significant in this regard.

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

Liquefaction results from an applied stress on the soil, such as earthquake shaking or other sudden change in stress condition, and is primarily associated with saturated, cohesionless soil layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. This is most likely to occur in alluvial (geologically recent, unconsolidated sediments) and stream channel deposits, especially when the groundwater table is high. As shown in Table 3-4, above, soils in the project area include alluvium or weathered tuff deposits, and the potential for liquefaction exists; however, the site-specific geotechnical study will include recommendations for engineering design and construction methods to ensure impacts related to liquefaction are less than significant.

*iv. Landslides:*

According to the Department of Conservations Fire Perimeters and Deep Landslide Susceptibility mapping, most of the project study area is considered to be at minimal risk for landslides (DOC, 2021). Portions within APN 022-130-042 that are generally comprised of the Tuff outcrop-Casuse, eroded complex, 30-50 percent slope soil classification has been identified as being very high landslide susceptibility risk. The proposed evaporation and percolation ponds have been sited outside of this area. In addition, the project does not propose any new habitable structures at the site that might be subject to landslide issues. Impacts are considered less than significant in this regard.

*Revised Project Impacts*

Implementation of the revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. As stated, no Alquist-Priolo Earthquake Fault Zones are located onsite. Development of the revised project would also be subject to seismic design requirements identified in the California Building Code regarding minimum standards for structural design and construction. Additionally, no landslide activity has been recorded on or immediately adjacent to the project site. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Result in substantial soil erosion or the loss of topsoil? | | | X | | Yes | No |

*2022 Final MND Findings*

Earthwork, grading, and soil stockpiling activities associated with construction will be conducted in accordance with the conditions of a grading permit issued by the City of Alturas Planning and Zoning Department and a Construction Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) administered by the Central Valley Regional Water Quality Control Board (CVRWQCB). The Construction SWPPP will specify Best Management Practices (BMPs) for erosion and sediment control measures. Therefore, the potential for substantial soil erosion and loss of topsoil is considered to be less than significant.

*Revised Project Impacts*

Implementation of the revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Development of the revised project would continue to be subject to CVRWQCB requirements pertaining to the minimization of soils erosion during earthwork activities. Similar to the approved project, impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse? | | | X | | Yes | No |

*2022 Final MND Findings*

Refer to impact discussion under Section VII.a, above.

*Revised Project Impacts*

The revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Development of the revised project would also be subject to applicable California Building Code requirements pertaining to structural design and construction. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | X | | Yes | No |

*2022 Final MND Findings*

Expansive soils have high shrink-swell potential that expand when wet and shrink when dry. This can result in damage to foundations and structures. Soils at the project site present consist of sandy and clay loams that present a moderate potential for expansion. Before final design and the commencement of construction, a design-level geotechnical investigation with recommendations will be prepared. Necessary recommendations will present geotechnical engineering

conclusions and specific recommendations for site preparation, foundation design, site drainage, addressing expansive soils, and pavement design to achieve compliance with the California Building Code, which would reduce risk associated with expansive soils. Impacts would be less than significant in this regard.

*Revised Project Impacts*

The revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Development of the revised project would also be subject to applicable California Building Code requirements pertaining to structural design and construction. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project does not propose installation or operation of a new septic systems. The proposed project has an existing onsite septic system that disposes of domestic wastewater. This system would continue to be utilized for the permanent workers at the site and is not proposed to be expanded to accommodate other future onsite uses. Should the facility need to expand the system, they would be required to follow standard County procedures for septic system development as provided for by the Modoc County Department of Environmental Health. Therefore, there is no potential for septic tank wastewater to adversely affect the project site.

*Revised Project Impacts*

Implementation of the revised project would allow for surface and subsurface land disposal of treated effluent. The disposal ponds are based on a percolation value of one foot per day, which was estimated from field testing and applying a factor of safety of four. Additional discussion of the percolation test results is provided in Appendix A. Groundwater monitoring wells would be required around the percolation ponds and installed prior to construction. The revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Impacts would be less than significant in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | | | | X | Yes | No |

*2022 Final MND Findings*

No paleontological resources or unique geologic features have been identified on the proposed project site, and the potential for their occurrence is considered minimal. No impacts are anticipated in this regard.

*Revised Project Impacts*

Development of the revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Similar to the approved project, no impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the revised project will have a less than significant impact with respect to *Geology and Soils*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
CBSC (California Building Standards Commission). 2019.*California Building Standards Code*. January 1, 2020.
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DOC. 2021. *Fire Perimeters and Deep Landslide Susceptibility*. [Online]: https://Fire Perimeters and Deep-Seated Landslide Susceptibility (ca.gov). Accessed January 10, 2021.
DOC. (Grose, Egger, O'Neal) 2016. *Preliminary Geologic Map of the Alturas 30' X 60' Quadrangle, Lassen and Modoc Counties, California*. 2016.
Modoc (Modoc County). 2016. *Local Hazard Mitigation Plan*. April 2016.
Modoc. 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.
NRCS (Natural Resources Conservation Service). 2020. *Custom Soil Resource Report for Modoc County, California Alturas Area*. 2020.
SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# VIII. Greenhouse Gas Emissions

This section evaluates greenhouse gas (GHG) emissions associated with the proposed project and analyzes project compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is included in this section.

## Environmental Setting

Greenhouse gases are gases in the atmosphere that absorb and emit radiation. The greenhouse effect traps heat in the troposphere through a three-fold process, summarized as follows: short wave radiation emitted by the sun is absorbed by the earth; the earth emits a portion of this energy in the form of long wave radiation; and GHGs in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. The main GHGs in the Earth's atmosphere are water vapor, carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), $O_3$, hydrofluorocarbons (HCFs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$).

Global climate change is not confined to a particular project area and is generally accepted as the consequence of GHG emissions from global industrialization over the last 200 years. A typical project, even a large one, does not generate enough GHG emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Greenhouse Gas Emissions* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to greenhouse gases include the following:

### *California Renewable Portfolio Standard*

In 2002, California established a Renewable Portfolio Standard (RPS) that requires a retail seller of electricity to include in its resource portfolio a certain amount of electricity from renewable energy sources, such as wind, geothermal, small hydro, and solar energy. The retailer can satisfy this obligation by using renewable energy from its own facilities, purchasing renewable energy from another supplier's facilities, using Renewable Energy Credits (RECs) that certify renewable energy has been created, or a combination of all of these. California's RPS requirements have been accelerated and expanded a number of times since the program's inception. Most recently, then-Governor Jerry Brown signed into law Senate Bill (SB) 100 in September 2018, which requires utilities to procure 60 percent of their electricity from renewables by 2030 and sets as a state policy that state agencies and end-use retail customers receive 100 percent of energy from renewable and zero-carbon resources by 2045. In addition, SB 350 requires California utilities to develop Integrated Resource Plans (IRPs) that incorporate a GHG emission reduction planning component. Compliance with the California RPS requires Surprise Valley Electric Corporation and Pacific Power to develop and implement an IRP that demonstrates they are on schedule to comply with the goals of providing 60 percent renewable sources by 2030. To ensure retail sellers meet their RPS requirement, the California Public Utilities Commission (CPUC) is responsible for establishing enforcement procedures and imposing penalties for non-compliance with the program (CPUC, 2018).

### *Executive Order S-3-05*

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger established Executive Order S-3-05. This order sets forth target dates by which statewide GHG emissions would be reduced. These include by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

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

The primary legislation that has driven GHG regulation and analysis in California is the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599), which instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a greenhouse gas emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

### *Executive Order B-30-15*

In April 2015, Governor Edmund G. Brown, Jr. signed Executive Order B-30-15 in order to establish an interim GHG reduction goal for California of 40 percent below 1990 levels by 2030. This target GHG reduction by 2030 would make it possible for California to reach the ultimate goal of reducing GHG emissions by 80 percent under 1990 levels by the year 2050.

### *Senate Bill 32*

On September 8, 2016, Governor Jerry Brown signed Senate Bill 32 (Pavley - Chapter 249, Stats. of 2016), requiring California to reduce GHG emissions to 40 percent below 1990 levels by 2030. SB 32 states that: "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." SB 32 codifies the interim target created by EO B-30-15 for 2030.

### *CARB Climate Change Scoping Plan*

Pursuant to AB 32, the CARB adopted a Climate Change Scoping Plan in December 2008 outlining measures to meet the 2020 GHG reduction goals. The Scoping Plan functions as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contains the main strategies California will implement to reduce $CO_2e$ emissions by 174 million metric tons (MMT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT $CO_2e$ under a business as usual (BAU) scenario. This is a reduction of 42 MMT $CO_2e$, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.

The 2017 Scoping Plan identifies progress made to meet the near-term (2020) objectives of AB 32 and defines California's climate change priorities and activities for the next several years (CARB, 2017). The 2017 Scoping Plan identifies the 2020 emissions limit as 431 MMT $CO_2e$ and the 2020 business-as-usual forecast as 509 MMT $CO_2e$. The 2017 Climate Change Scoping Plan provides strategies for meeting the mid-term 2030 greenhouse gas reduction target set by Senate Bill (SB) 32. The plan also identifies how the State can substantially advance toward the 2050 greenhouse gas reduction target of Executive Order S-3-05, which consists of reducing greenhouse gas emissions to 80 percent below 1990 levels. The recommendations cover the key sectors, including energy and industry; transportation; natural and working lands; waste management; and water. The recommended measures in the 2017 Scoping Plan are broad policy and regulatory initiatives that will be implemented at the State level and do not relate to the construction and operation of individual projects. The initial Scoping Plan recommended that local governments achieve a 15-percent reduction below 2005 levels by 2020, which aligns with the State's goal of not exceeding 1990 emissions levels by 2020. However, the 2017 Scoping Plan does not contain a recommended reduction level or percent for local government's municipal operations.

### *California Building Energy Efficiency Standards and Green Building Standards*

Title 24 of the California Code of Regulations regulates how each new home and business is built or altered in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings, and for fire and life safety, energy conservation, green design, and accessibility in and about buildings. Two sections of Title 24 – Part 6, the California Energy Code, and Part 11, the California Green Building Standards Code or CalGreen Code – contain standards that address GHG emissions related to construction. The current 2019 Title 24 standards became effective January 1, 2020.

buildings constructed under the 2019 Title 24 standards are estimated to use about 30 percent less energy than those constructed under the 2016 Title 24 standards.

## Impact Analysis

### *Significance Thresholds*

The project site is located in the Northeast Plateau Air Basin (NPAB) and is under the jurisdiction of the Modoc County Air Pollution Control District (MCAPCD). Modoc County, the MCAPCD, and the City of Alturas have not adopted quantitative thresholds for determining the significance of greenhouse gas emissions. In addition, Modoc County and the City of Alturas do not have adopted Climate Action Plans. In the absence of quantitative thresholds or a Climate Action Plan, environmental practitioners often use thresholds and guidance provided by other air districts in the State.

One of the most commonly used thresholds in the State to analyze the impacts of construction and operational GHG emissions, is 1,100 metric tons of $CO_2e$ per year ($MTCO_2e/yr$). This threshold has been adopted by multiple air districts in northern California including the Mendocino Air Quality Management District (MCAQMD, 2010) and Sacramento Metropolitan Air Quality Management District (SMAQMD, 2020). This threshold was developed to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to GHG emissions reduction goals of AB 32, SB 32, the Scoping Plan, and Executive Orders (SMAQMD, 2018). For the reasons noted above, the threshold of 1,100 $MTCO_2e/yr$ is used to evaluate the proposed project's GHG emissions. If the threshold is exceeded, then the project would have a cumulatively considerable contribution to a significant cumulative environmental impact and would conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHG emissions.

The following includes an analysis of environmental parameters related to *Greenhouse Gas Emissions* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Greenhouse Gas Emissions*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | | | X | | Yes | No |

### *2022 Final MND Findings*

As discussed in the project description at the beginning of this document, the project proposes to decommission the existing Alturas WWTP and develop a new WWTP on parcel 022-130-042. The existing WWTP generates GHG emissions, which is part of the existing baseline condition. The new WWTP would have the same capacity as the existing WWTP and, therefore, would not result in a significant increase in GHG emissions.

Both construction and operational GHG emissions for the proposed project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria air pollutants and GHG emissions associated with both construction and operation of a variety of land use projects (CAPCOA, 2017).

As discussed in the *Regulatory Setting*, Modoc County, the MCAPCD, and City of Alturas have not adopted thresholds to analyze project-level impacts from GHG emissions. Therefore, the threshold of 1,100 $MTCO_2e/yr$ is used to evaluate the proposed project's construction and operational GHG emissions. This threshold is one of the most used thresholds in the State for analyzing the potential impacts of construction and operational GHG emissions. Table 3-4 presents the estimates

of unmitigated GHG emissions from the proposed project and compares project-related GHG emissions to the 1,100 $MTCO_2e$/yr threshold of significance. If the threshold is exceeded for either construction or operation of the proposed project, then the project would have a cumulatively considerable contribution to a significant cumulative environmental impact.

**Table 3-4**
**UNMITIGATED GHG EMISSIONS (ANNUAL METRIC TONS PER YEAR)**

| Phase | GHG Emissions ($MTCO_2e$/yr) | Threshold of Significance ($MTCO_2e$/yr) | Significant Impact? |
|---|---|---|---|
| Construction | 149.8 | 1,100 | No |
| Operation | 45.7 | 1,100 | No |
| Source: SMAQMD, MCAQMD, BAAQMD, CalEEMod Version 2016.3.2. | | | |

As shown in Table 3-4, the construction and operational GHG emissions from the proposed project are well below the threshold of significance. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment. Therefore, the proposed project would result in a less than significant on this resource category.

*Revised Project Impacts*

To determine the potential greenhouse gas impacts of the revised project, both construction and operational GHG emissions for the revised project were estimated using the California Emissions Estimator Model (CalEEMod), The updated modeling results are provided in Appendix E. As indicated in Appendix E, the unmitigated maximum annual construction and operational GHG emissions from the proposed project would remain well below the 1,100 $MTCO_2e$/yr threshold of significance. For example, the unmitigated maximum annual GHG emissions from operational activity would be less than 700 $MTCO_2e$/yr, which is well below the significance threshold of 1,100 $MTCO_2e$/yr. As such, the revised project would not have a cumulatively considerable contribution to a significant cumulative environmental impact. Therefore, the revised project would result in a less than significant impact on this resource category.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | | | X | | Yes | No |

*2022 Final MND Findings*

A GHG impact would be significant if GHG emissions from the proposed project would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. As noted in the *Regulatory Setting*, Modoc County and the City of Alturas do not have an adopted CAP. For the proposed project, it is analyzed whether the emissions obstruct compliance with the GHG emission reduction goals in Assembly Bill (AB 32), Senate Bill 32 (SB 32), and Executive Order S-3-05 (EO S-3-05). As stated in the *Regulatory Setting*, to the extent that the proposed project does not exceed the threshold of significance of 1,100 $MTCO_2e$/yr, it would not result in a conflict with GHG reduction plans.

The proposed project is subject to a myriad of State regulations applicable to project design, construction, and operation that would reduce GHG emissions, increase energy efficiency, and provide compliance with the CARB Climate Change Scoping Plan (CARB, 2017). The State of California has the most comprehensive GHG regulatory requirements in the United States, with laws and regulations requiring reductions that affect project emissions. Legal mandates to reduce GHG emissions from vehicles, for example, reduce project-related vehicular emissions. Legal mandates to reduce GHG emissions from the energy production sector that will serve the proposed project would also reduce project related GHG emissions from electricity consumption. Legal mandates to reduce per capita water consumption and impose waste management standards to reduce methane and other GHGs from solid wastes are all examples of mandates that reduce GHGs.

As discussed in the project description at the beginning of this document, the project proposes to decommission the existing Alturas WWTP and develop a new WWTP on parcel 022-130-042. The existing WWTP generates GHG emissions, which is part of the existing baseline condition. The new WWTP would have the same capacity as the existing WWTP and, therefore, would not result in a significant increase in GHG emissions. Furthermore, the power mix that will be supplied to the project sites must comply with the California RPS, which requires retail sellers of electricity to provide a power mix that includes 60 percent renewable sources by 2030. Therefore, the GHG emissions generated by the electricity supplied to the new WWTP will continue to decrease over time as the power mix transitions to a greater percentage of renewable sources.

As discussed above, GHG emissions from the proposed project's construction and operational activity are below the threshold of significance of 1,100 $MTCO_2e$/yr. As discussed in the Regulatory Setting, this threshold is one of the most used thresholds in the State for analyzing the potential impacts of construction and operational GHG emissions. Therefore, construction and operational emissions from the proposed project would be less than significant.

As proposed and in compliance with existing regulatory requirements, the proposed project would not generate GHG emissions that would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. Therefore, the proposed project would result in a less than significant impact on this resource category.

*Revised Project Impacts*

Similar to the approved project, the revised project as proposed and in compliance with existing regulatory requirements, would not generate GHG emissions that would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. Therefore, the revised project would result in a less than significant impact on this resource category.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the revised project will have a less than significant impact with respect to *Greenhouse Gas Emissions*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

BAAQMD (Bay Area Air Quality Management District). 2017. *California Environmental Quality Act Air Quality Guidelines*. https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

CAPCOA (California Air Pollution Control Officers Association). 2017. *California Emission Estimator Model (CalEEMod). Version 2016.3.2*. Model for project used on: 3/18/21.

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MCAQMD (Mendocino County Air Quality Management District). 2010. *Adopted Air Quality CEQA Thresholds of Significance*.

SMAQMD (Sacramento Metropolitan Air Quality Management District). 2018. *CEQA Guide: Chapter 6 – Greenhouse Gas Emissions*. http://www.airquality.org/LandUseTransportation/Documents/Ch6GHGFinal5-2018.pdf

SMAQMD. 2020. *SMAQMD Thresholds of Significance Table*. http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# IX. Hazards and Hazardous Materials

The purpose of this section is to identify, to the extent feasible, the potential for hazards associated with historic and current site uses, surrounding sites, and recognized environmental conditions in connection with the proposed project site and to identify potential risks to human health, including uses of the proposed project site, workers, and construction workers. Information in this section focuses on the potential for the proposed project to create a significant hazard to the public or the environment through the use, transport, disposal, or accidental release of hazardous materials. This section also addresses hazards associated with wildfires.

## Environmental Setting

Hazards are those physical safety factors that can cause injury or death, and while by themselves in isolation may not pose a significant safety hazard to the public, when combined with development of projects can exacerbate hazardous conditions. Hazardous materials are typically chemicals or processes that are used or generated by a project that could pose harm to people working at the site or on adjacent areas. Many of these chemicals can cause hazardous conditions to occur should they be improperly disposed of or accidentally spilled as part of project development or operations. Hazardous materials are also those listed as hazardous pursuant to Government Code Section 65962.5.

The Modoc County Environmental Health Department is the administering agency and the Certified Unified Program Agency (CUPA) for Modoc County with responsibility for regulating hazardous materials handlers, hazardous waste generators, underground storage tank facilities, above ground storage tanks, and stationary sources handling regulated substances. A Hazardous Materials Business Plan (HMBP) is required of businesses in Modoc County that handle, use, generate, or store hazardous materials. The primary purpose of this plan is to provide readily available information regarding the location, type, and health risks of hazardous materials to emergency response personnel, authorized government officials, and the public. Large cases of hazardous materials contamination or violations are referred to the Central Valley Regional Water Quality Control Board (RWQCB) and the California Department of Toxic Substances Control (DTSC).

Under Government Code Section 65962.5, both the DTSC and the State Water Resources Control Board (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. A search of the DTSC and SWRCB lists identified no open cases of hazardous waste violations within one-mile of the project site.

The EPA maintains the Enforcement and Compliance History Online (ECHO) program. The ECHO website provides environmental regulatory compliance and enforcement information for approximately 800,000 regulated facilities nationwide. The ECHO website includes environmental permit, inspection, violation, enforcement action, and penalty information about EPA-regulated facilities. Facilities included on the site are Clean Air Act (CAA) stationary sources; Clean Water Act (CWA) facilities with direct discharge permits, under the National Pollutant Discharge Elimination System; generators and handlers of hazardous waste, regulated under the Resource Conservation and Recovery Act (RCRA); and public drinking water systems, regulated under the Safe Drinking Water Act (SDWA). ECHO also includes information about EPA cases under other environmental statutes. When available, information is provided on surrounding demographics, and ECHO includes other EPA environmental data sets to provide additional context for analyses, such as Toxics Release Inventory data. According to the ECHO program, the project site is not listed as having a hazardous materials violation.

The California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program (FRAP) designates lands in three general classifications, “Moderate,” “High” and “Very High” Fire Hazard Severity Zones. The 2007 FRAP (updated May 2008) delineates the project site and surrounding vicinity as a part of a designated “Moderate Fire Hazard Severity Zone” (MFHSZ) (CAL FIRE, 2008). Since the site also falls within a State Responsibility Area (SRA) fire suppression for the project site and surrounding area is provided by a combination of first responders such as CAL FIRE with additional firefighting support from the nearby Alturas Fire Department main station located approximately 2 miles from the site (CAL FIRE, 2021).

The Alturas Municipal Airport is just north of the existing Alturas wastewater treatment plant and approximately one mile northeast of the proposed treatment and disposal property. In general, bird strikes by airplanes is a common occurrence and most often happens when the aircraft is less than 500 feet off the ground during take-off and landing. Based on the location of the proposed pond(s) in the proximity of the Modoc National Wildlife Refuge (MNWR) and the waterfowl that

breed, overwinter, or migrate through the area, the primary concern for bird strikes may be waterfowl and other larger water birds such as Canada Goose (*Branta canadensis*), although the Alturas Public Works director has reported that, to his knowledge, there has never been a bird strike by an aircraft at the Alturas Municipal Airport in the past ten years or so (SHN, 2018).

The Federal Aviation Administration (FAA) wildlife hazard mitigation regulations discourages the creation of new water bodies within 5,000 feet of an airport, specifically 5,000 feet from the edge of runways. The water bodies act as bird attractants and, therefore, could increase hazardous bird strikes with aircraft. As illustrated on Figure 2-7, PROPOSED SITE PLAN, in Section 2.0, PROJECT DESCRIPTION, the proposed treatment and disposal facilities are sited greater than 5,000 feet from the closest existing runway.

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Hazards and Hazardous Materials* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to hazards and hazardous materials include the following:

Hazardous materials refer generally to hazardous substances, hazardous waste, and other materials that exhibit corrosive, poisonous, flammable, and/or reactive properties and have the potential to harm human health and/or the environment. Hazardous materials are used in products (household cleaners, industrial solvents, paint, pesticides, etc.) and in the manufacturing of products (electronics, newspapers, plastic products, etc.). Hazardous materials can include petroleum, natural gas, synthetic gas, acutely toxic chemicals, and other toxic chemicals that are used in agriculture, commercial, and industrial uses; businesses; hospitals; and households. Accidental releases of hazardous materials have a variety of causes, including highway incidents, warehouse fires, train derailments, shipping accidents, and industrial incidents.

The term "hazardous materials" as used in this section includes all materials defined in the California Health and Safety Code Section 25501(n): *"A 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 unified program 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."*

The term includes chemicals regulated by the United States Department of Transportation (USDOT), the United States Environmental Protection Agency (EPA), the California Department of Toxic Substances Control (DTSC), the California Governor's Office of Emergency Services (OES), and other agencies as hazardous materials, wastes, or substances. "Hazardous waste" is any hazardous material that has been discarded, except materials specifically excluded by regulation. Hazardous materials that have been intentionally disposed of or inadvertently released fall within the definition of "discarded" materials and can result in the creation of hazardous waste. Hazardous wastes are broadly characterized by their ignitability, toxicity, corrosivity, reactivity, radioactivity, or bioactivity. Federal and State hazardous waste definitions are similar, but distinct enough that the federal Resource Conservation and Recovery Act (RCRA) hazardous wastes and State non-RCRA hazardous wastes have separate classifications. Hazardous wastes require special handling and disposal because of their potential to impact public health and the environment. Some materials are designated "acutely" or "extremely" hazardous under relevant statutes and regulations.

Hazardous materials and wastes can pose a significant actual or potential hazard to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Many federal, State, and local programs that regulate the use, storage, and transportation of hazardous materials and hazardous waste are in place to prevent these unwanted consequences. These regulatory programs are designed to reduce the danger that hazardous substances may pose to people and businesses under normal daily circumstances and as a result of emergencies and disasters.

Potential hazards and the use and transportation of hazardous substances are regulated by an overlapping set of adopted city, county, State, and federal plans, policies, and regulations. In general, federal and State legislation empowers regulation by local agencies; however, both State and federal agencies such as the FAA and RWQCBs retain a substantial direct regulatory role.

### *California Environmental Protection Agency*

One of the primary agencies that regulate hazardous materials is the Cal EPA. The state, through Cal EPA, is authorized by the EPA to enforce and implement certain federal hazardous materials laws and regulations. The California DTSC, a department of the Cal EPA, protects California and Californians from exposure to hazardous waste, primarily under the authority of the RCRA and the California Health and Safety Code. The DTSC requirements include the need for written programs and response plans, such as Hazardous Materials Business Plans. DTSC programs include dealing with cleanups of improper hazardous waste management; evaluation of samples taken from sites; enforcement of regulations regarding use, storage, and disposal of hazardous materials; and encouragement of pollution prevention.

### *California Division of Occupational Safety and Health*

Like OSHA at the federal level, the California Division of Occupational Safety and Health (Cal/OSHA) is the responsible State-level agency for ensuring workplace safety. Cal/OSHA assumes primary responsibility for the adoption and enforcement of standards regarding workplace safety and safety practices. In the event that a site is contaminated, a site safety plan must be crafted and implemented to protect the safety of workers. Site safety plans establish policies, practices, and procedures to prevent the exposure of workers and members of the public to hazardous materials originating from contaminated sites or buildings.

### *California Building Code*

The State of California provided a minimum standard for building design through the California Building Code (CBC), which is in Part 2 of Title 24 of the California Code of Regulations. Commercial buildings are plan-checked by the City for compliance with the CBC. Typical fire safety requirements of the CBC included; the installation of sprinklers, establishment of fire resistance standards for fire doors, certain building materials, and particular types of construction, and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

### *California Department of Forestry and Fire Protection*

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped fire threat potential throughout California. CAL FIRE ranks fire threat based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The rankings include no fire threat, moderate, high, and very high fire threat. CAL FIRE produced the 2010 Strategic Fire Plan for California, with goals, objectives, and policies to prepare for and mitigate the effects of fire on California's natural and built environments.

### *California Fire Code*

The California Fire Code (CFC) is Part 9 of the California Building Standards Code (California Code of Regulations, Title 24). Updated every 3 years, the CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Similar to the CBC, the CFC is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions.

### *California Vehicle Code*

The State of California regulates the transportation of hazardous waste originating or passing through the state. Common carriers are licensed by the California Highway Patrol (CHP) pursuant to the California Vehicle Code, Section 32000. This section requires licensing for every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a substantial portion of the business in the delivery of hazardous materials.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Hazards and Hazardous Materials* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Hazards and Hazardous Materials*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project includes the use of regulated materials (such as petroleum hydrocarbons, fuels, and lubricants) for the use of mechanized equipment during construction. All hazardous or regulated materials that are used on site during construction activities will be safely stored and secured to prevent access by the general public; no construction equipment fuel or lubricants will be stored onsite during the project development. No hazardous materials will be disposed of at the project site. Procedures will be followed when handling or storing hazardous materials, and all job site employees will be trained in the proper usage and storage of hazardous materials, as needed. The potential hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials is less than significant.

Businesses that store hazardous materials are subject to the County's HMBP program, which is regulated by the Modoc County Environmental Health Division as part of the Certified Unified Program. The program requires the preparation of a document that provides an inventory of hazardous materials onsite, emergency plans and procedures in the event of an accidental release, and training for employees on safety procedures for handling hazardous materials and in the event of a release or threatened release. These plans are routine documents that are intended to disclose the presence of hazardous materials and provide information on what to do if materials are inadvertently released. The proposed project is subject to preparation of a HMBP.

In addition, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented for the project. The SWPPP would describe any hazardous materials required for the project and would include best management practices for prevention of accidental spills as well as cleanup requirements for any accidental spills or releases of hazardous materials. Therefore, compliance with applicable laws and regulations would minimize the potential for the project to create a significant hazard to the public or the environment, and impacts would be less than significant. No mitigation measures are required.

*Revised Project Impacts*

The revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. The revised project would not result in significant hazards to the public or environment and would be designed and constructed in compliance with building, Fire, and other Uniform Code statutes related to the protection of the public's health and safety. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | X | | Yes | No |

*2022 Final MND Findings*

Potential construction-related hazards could be created during the course of construction given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and federal law. All hazardous materials used for operations would be appropriately stored onsite and handled in accordance with County, State, and federal regulations. Because any hazardous materials used for operations would be in small quantities, long-term impacts associated with handling, storing, and disposing of hazardous materials from project operation would be less than significant.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project could potentially result in a release of hazardous materials into the environment during construction; however, the construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | | | | X | Yes | No |

*2022 Final MND Findings*

The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impacts would occur in this regard.

*Revised Project Impacts*

There are no schools within a one-quarter mile of the revised project. Similar to the approved project, implementation of the revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

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. A search of the DTSC and SWRCB lists identified no open cases of hazardous waste violations on the project site. Therefore, the project site is not on a parcel included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DTSC, 2021; SWRCB, 2021). As a result, this would not create a significant hazard to the public or to the environment and would have no impact.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? | | | X | | Yes | No |

*2022 Final MND Findings*

The Alturas Municipal Airport is located approximately one-mile northeast of the proposed project. The proposed facilities are sited greater than 5,000 feet from the closest existing runway. In addition, the project is not located within the Alturas Municipal Airport Land Use Plan or within two miles of a private airstrip. Therefore, the project would not expose people residing or working in the project area to safety hazards or excessive noise levels.

As previously described above under *Environmental Setting*, the FAA wildlife hazard mitigation regulations discourages the creation of new water bodies within 5,000 feet of an airport, specifically 5,000 feet from the edge of runways. The water bodies act as bird attractants and, therefore, could increase hazardous bird strikes with aircraft. Based on the location of the proposed treatment and disposal ponds in the proximity of the MNWR and the waterfowl that breed, overwinter, or migrate through the area, the primary concern for bird strikes may be waterfowl and other larger water birds such as Canada Goose (*Branta canadensis*). According to the Alturas Public Works director there has not been any recorded bird strikes by an aircraft at the Alturas Municipal Airport in the past ten years (SHN, 2018). As illustrated on Figure 2-7, PROPOSED SITE PLAN, in Section 2.0, PROJECT DESCRIPTION, the proposed treatment and disposal facilities are sited greater than 5,000 feet from the closest existing runway. Impacts are considered less than significant in this regard.

*Revised Project Impacts*

As mentioned above, the project site is not located within an airport land use plan. The revised project would be located on the same project footprint as analyzed by the 2022 Final MND. Thus, development of the revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | | X | | | Yes | No |

*2022 Final MND Findings*

The proposed project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. Although a temporary increase in traffic could occur during construction and could interfere with emergency response times, construction-related traffic would be minor due to the overall scale of the construction activities. Further, construction-related traffic would be spread over the duration of the construction schedule and would be minimal on a daily basis. This impact is considered less than significant with implementation of the traffic control plan as required by Mitigation Measure TRF-1 (refer to section XVII, TRANSPORTATION, below).

*Revised Project Impacts*

The revised project would not result in greater impacts than previously analyzed in the 2022 Final MND. Although temporary lane closures will still be required, the revised project would not interfere with emergency vehicle access in the site vicinity. Impacts would remain less than significant with implementation of Mitigation Measure TRF-1.

*Mitigation Measures*

There are no changes to the previous impact assessment that require new mitigation due to the revised project. The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. Mitigation Measure TRF-1 from the 2022 Final MND is also applicable to the revised project.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project is located just south of the City of Alturas and is largely surrounded by grazing and open space lands. The project is located within an SRA and is identified as a "moderate fire hazard severity zone" (CAL FIRE 2008; 2021). The HMBP, prepared for the project, would include an emergency response plan and employee training. As such, the project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Less than significant impacts would occur in this regard. For additional information and analysis related to wildland fire hazards, refer to Section XX, WILDFIRE.

*Revised Project Impacts*

The revised project would not result in greater impacts than previously analyzed in the 2022 Final EIR. As stated, the approved project site and surrounding area have been rated as having a moderate fire potential. Like the approved project, the revised project would be developed in accordance with appropriate fire suppression based on the California Building Code and City requirements. Compliance with applicable regulations and regular inspection of project facilities would reduce wildfire risks. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation impacts associated with *Hazards and Hazardous Materials* were found to be less than significant with implementation of mitigation.

## Documentation and References

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# X. Hydrology and Water Quality

The purpose of this section is to describe the hydrologic and water quality setting of the proposed project site and surrounding area. This section also evaluates potential long-term and short-term water quality impacts associated with construction and long-term operation of the revised project.

## Environmental Setting

The project site and surrounding area is located within the Sacramento River hydrologic region of northern California within the Alturas Ground Water Basin, South Fork Pit River Subbasin (DWR, 2021a). The basin is comprised of 114,000 acres or 178 square miles. The South Fork Pit River enters the basin near the community of Likely and flows north through the South Fork Pit River Valley to its confluence with the North Fork Pit River at the City of Alturas (DWR, 2003).

Treated effluent at the City's existing wastewater treatment plant (WWTP) is currently discharged to the Pit River under Waste Discharge Requirement (WDR) Order R5-2014-0033 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078921, issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). The NPDES Permit incorporates the Basin Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The Permit includes receiving water limitations based on the Basin Plan to protect water quality in the Sacramento River.

The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand (BOD), total suspended solids (TSS), total coliform, and toxicity. A Time Schedule Order (TSO) R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued specifying interim limits for zinc, copper, and total coliform. A corresponding Cease and Desist Order (CDO) was also proposed that includes interim effluent limits for copper, zinc, total coliform, and aluminum. These new limits have been issued recently under Order R5-2020-0004. The CVRWQCB has indicated that the Pit River is a sensitive water body and would prefer to see the City use land disposal for the effluent and eliminate the permitted discharge to the river. Due to the frequency of the City's effluent exceeding regulatory levels, the CVRWQCB is concerned with the City's ability to meet the current and future effluent limits if they continue to discharge to the Pit River.

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, composed of Assembly Bill (AB) 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), collectively known as the Sustainable Groundwater Management Act (SGMA). SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline. The Alturas Ground Water Basin, South Fork Pit River Subbasin is considered a low priority groundwater basin and therefore not subject to the requirement of development and implementing a Sustainable Groundwater Plan (SGP) (DWR, 2021).

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Hydrology and Water Quality* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to hydrology and water quality include the following:

### *Clean Water Act*

The Clean Water Act (CWA) is a federal law that protects the nation's surface waters, including lakes, rivers, coastal wetlands, and "waters of the United States." The CWA specifies that discharges to waters are illegal, unless authorized by an appropriate permit. The permits regulate the discharge of dredged and fill materials, construction-related stormwater discharges, and activities that may result in discharges of pollutants to waters of the United States. If waters of the U.S. are located on a project site, a proposed project is likely to discharge to them, and if impacts on them are anticipated, the project must obtain a CWA Section 401 Water Quality Certification from the appropriate Regional Water Quality Control Board (RWQCB).

### *Federal Anti-Degradation Policy*

The federal Anti-Degradation Policy is part of the CWA (Section 303(d)) and is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

### *Safe Drinking Water Act*

Under the 1974 Safe Drinking Water Act (Public Law 93-523), most recently amended in 1996, USEPA regulates contaminants of concern to domestic water supply, which are those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are classified as either primary or secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially.

### *National Pollutant Discharge Elimination System*

The NPDES program is administered by the U.S. Environmental Protection Agency (EPA), which delegated oversight in California to the Regional Water Quality Control Boards. The NPDES program provides general permits and individual permits. The general permits are for construction projects that disturb more than one acre of land. The general permit requires the applicant to file a public Notice of Intent (NOI) to discharge stormwater and to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP includes a site map, description of proposed activities, demonstration of compliance with applicable ordinances and regulations, and a description of Best Management Practices (BMPs) that would be implemented to reduce erosion and discharge of construction-related pollutants. The CWA-established NPDES permit program regulates municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems (MS4s). Under the NPDES program, all facilities that discharge pollutants into waters of the United States are required to obtain a NPDES permit. Requirements for stormwater discharges are also regulated under this program.

### *State Water Resources Control Board Waste Discharge Requirements*

Waste discharges that can be exempted from the California Code of Regulations (CCR) requirements are issued waste discharge requirements (WDRs) and are regulated by the WDR Program. Typical discharge types include domestic or municipal wastewater, food processing related wastewater, and industrial wastewater.

### *Statewide General Construction Permit*

Construction projects of 1 acre or more are regulated under the Construction General Permit, Order No. 2012-0006-DWQ, issued by the SWRCB. Under the terms of the permit, applicants must file permit registration documents with the SWRCB prior to the start of construction, including a Notice of Intent, risk assessment, site map, SWPPP, annual fee, and signed certification statement.

### *State Anti-Degradation Policy*

In 1968, as required under the Federal Anti-Degradation Policy, the SWRCB adopted an Anti- Degradation Policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Water Board Resolution No. 68-16). Under the Anti-Degradation Policy, any actions that can adversely affect water quality in surface and ground waters must be consistent with maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial use of the water, and not result in water quality less than that prescribed in water quality plans and policies.

### *Porter-Cologne Water Quality Control Act*

The Porter-Cologne Water Quality Control Act acts in cooperation with the CWA to establish the SWRCB. The SWRCB is divided into nine regions, each overseen by an RWQCB. The SWRCB, and thus each RWQCB, is responsible for protecting California's surface waters and groundwater supplies. The Porter-Cologne Water Quality Control Act develops Basin Plans that designate the beneficial uses of California's rivers and groundwater basins. The Basin Plans also establish narrative and numerical water quality objectives for those waters. Basin Plans are updated every three years and provide the basis of determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Water Quality Control Act is also responsible for implementing CWA Sections 401-402 and 303(d) to SWRCB and RWQCBs.

### *Water Quality Control Plan, Fifth Edition, for the Sacramento and San Joaquin River Basins (Basin Plan)*

The CVRWQCB adopted a Water Quality Control Plan, Fifth Edition (revised May 2018), for the Sacramento and San Joaquin River Basins (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Waste discharge requirements (WDRs) were adopted in order to attain the beneficial uses listed for the Basin Plan area. Water quality objectives are established for numerous constituents, including bacteria; chemical constituents such as trace elements, mercury, and methylmercury; pH; dissolved oxygen; pesticides; and salinity.

### *Sustainable Groundwater Management Act*

In 2014, California enacted the Sustainable Groundwater Management Act (SGMA; Water Code Section 10720 et seq.). SGMA and related amendments to California law require all groundwater basins designated as high or medium priority in the DWR California Statewide Groundwater Elevation Monitoring (CASGEM) Program, and that are subject to critical overdraft conditions, must be managed under a new Groundwater Sustainability Plan (GSP) or a coordinated set of GSPs. High or medium priority basins that are not subject to a critical overdraft must be regulated under one or more GSPs by 2022. Where GSPs are required, one or more local Groundwater Sustainability Agencies (GSAs) must be formed to implement applicable GSPs. A GSA has the authority to require registration of groundwater wells, measure and manage extractions, require reports, and assess fees, and to request revisions of basin boundaries, including establishing new subbasins.

## Impact Analysis

The following includes an analysis of environmental parameters related to *Hydrology and Water Quality* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Hydrology and Water Quality*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project has the potential to temporarily degrade water quality due to increased erosion during Project construction; however, as previously discussed under impact Section VII.b, BMPs would be implemented to control erosion and sedimentation and prevent damage to streams, watercourses, and aquatic habitat.

As discussed in Section 2.0, PROJECT DESCRIPTION, the proposed project consists of decommissioning the existing WWTP and moving treatment to a new offsite location where new aeration ponds would treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. As a result, treated effluent discharge to the Pit River would cease, thereby eliminating existing effects to water quality aquatic species, and environmentally sensitive habitats. This is considered a long-term environmental benefit. In addition, treated wastewater is routinely monitored in accordance with the WWTP NPDES Permit to ensure that acceptable thresholds for water quality are not exceeded. Three groundwater monitoring wells will be provided onsite to monitor groundwater quality and verify that the percolated effluent does not degrade groundwater.

Therefore, because the proposed WWTP improvements would have a beneficial impact by reducing the potential to adversely affect the beneficial uses of the Sacramento River Basin, additional groundwater monitoring wells would ensure compliance with the WWTP NPDES permit, and BMPs would be implemented throughout construction, impacts would be less than significant.

*Revised Project Impacts*

The revised project would include an increased temporary impact area to support the land disposal of wastewater within the area analyzed in the 2022 Final MND. Best management practices identified in the 2022 Final MND would also apply to the revised project, and impacts would not be greater than previously analyzed in the 2022 Final MND. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin? | | | | X | Yes | No |

*2022 Final MND Findings*

The proposed project would not require new groundwater supplies for construction or operation and would not increase the amount of impervious surfaces in a manner that would prevent the infiltration of water into the soil. Within Section 28, Township 42 North, Range 12 East of the U.S Geological Survey's Alturas, 7.5-minue quadrangle there are 10 domestic water wells ranging between 200 feet and 440 feet below ground surface (DWR, 2021b). None of the proposed improvements would impact any of these existing wells. Therefore, there would be no impact on groundwater supplies and recharge.

*Revised Project Impacts*

The minor modifications to the approved project still allow for infiltration at the project site and are not anticipated to result in an increase of impervious surfaces such that a substantial decrease in groundwater supplies would occur. The revised

project would not impede sustainable groundwater management of the basin. As a result, impacts to groundwater supplies would be less than significant and would not be greater than that previously analyzed in the 2022 Final MND.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:<br>i. Result in substantial erosion or siltation on- or offsite;<br>ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;<br>iii. Create or contribute runoff water which would exceed the capacity of existing planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or<br>iv. Impede or redirect flood flows? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. *Result in substantial erosion or siltation on- or offsite:*

As previously discussed above, earthwork, grading, and soil stockpiling activities associated with new cell construction will be conducted in accordance with the conditions of a Construction SWPPP and NOI administered by the CVRWQCB. The Construction SWPPP will specify BMPs for erosion and sediment control measures. Therefore, the potential for substantial soil erosion and loss of topsoil associated with the proposed project is considered to be less than significant.

ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite:*

The new WWTP facility will be constructed to conform to existing drainage patterns. The increase in impervious surfaces would be minimal, would occur outside of flood hazard zones, and would not result in a substantial increase in the rate or amount of surface runoff. The wastewater force main would be constructed underground and would not alter existing drainage patterns or increase impervious surfaces. In addition, the project will not alter the course of or require any in-water work within the North Fork Pit River or South Fork Pit River. As a result, the proposed project does not have the potential to result in significant flooding on- or offsite. Less than significant impacts would occur in this regard.

iii. *Create or contribute runoff water which would exceed the capacity of existing planned stormwater drainage systems or provide substantial additional sources of polluted runoff:*

Refer to impact discussion under Sections X.a, X.c.i and X.c.ii, above. Impacts would be less than significant.

iv. *Impede or redirect flood flows.*

The Federal Emergency Management Agency (FEMA) has mapped the 100-year and 500-year floodplains along the Pit River (refer to Figure 2-3, FEMA FLOODPLAIN) (SHN, 2020). All proposed facilities, including evaporation and percolation ponds are located outside of the mapped 100-year floodplain. In addition, the proposed pipeline would be constructed underground within the existing County Road 54 right-of-way and would not affect flooding. No impacts would occur in this regard.

*Revised Project Impacts*

Implementation of the revised project would not increase the amount of impervious surface area when compared to the 2022 Final MND. Land disposal of treated effluence would be discharged subsurface and occur outside of flood hazard zones and would not result in a substantial increase in the rate or amount of surface runoff. Similar to the approved project, impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| Would the Project: | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? | | | | **X** | Yes | No |

*2022 Final MND Findings*

The location of the project site is in an area where inundation from dam failures would not occur. In addition, there are no levees near the proposed project. The threat of a tsunami wave is not applicable to inland areas; there is no potential for the generation of a seiche. No impact has been identified.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not result in hazards from flooding, tsunamis or risk of release of pollutants due to project inundation. As with the approved project, no impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| Would the Project: | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? | | | **X** | | Yes | No |

*2022 Final MND Findings*

The proposed project is located within the Sacramento River Basin. The *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board (CVRWQCB) Central Valley Region (Fifth Edition)* was prepared for the Sacramento River Basin and the San Joaquin River Basin. The Basin Plan includes water quality objectives for the San Joaquin River. Implementation of the plan is conducted through the NPDES permits and waste discharge requirements for pollution (CVRWQCB, 2018).

The project would only require temporary water supplies for dust control during construction and would not require water supplies during operation. The project would comply with the NPDES general construction permit and would prepare a SWPPP and comply with BMPs to prevent degradation of water quality. The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This impact would be less than significant. No mitigation measures are required.

As previously described above under *Environmental Setting*, the project site and surrounding area is located within the Alturas Groundwater Basin, South Fork Pit River Subbasin (DWR, 2021a). The basin is comprised of 114,000 acres or 178 square miles. The Alturas Ground Water Basin, South Fork Pit River Subbasin is considered a low priority groundwater basin and therefore not subject to the requirement of development and implementing a Sustainable Groundwater Plan (SGP) (DWR, 2021). Given the relatively minor expansion proposed by the project, the potential for interference with groundwater recharge that would impact the Alturas Groundwater Basin is considered to be less than significant.

*Revised Project Impacts*

The revised project would be generally located on the same project footprint as analyzed in the 2022 Final MND. Thus, the revised project would not have the potential to conflict with or obstruct a sustainable groundwater management plan. Development of the revised project would be required to comply with the water quality regulations detailed in the Basin Plan and would not conflict with or obstruct its implementation. Further, the revised project would be required to prepare a project specific SWPPP and implement water quality related BMPs during construction and operation. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Hydrology and Water Quality*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

CVRWQCB (Central Valley Regional Water Quality Control Board). 2014. *Order R5-2014-0033 and NPDES No. CA0078921 Waste Discharge Requirements for the City of Alturas Wastewater Treatment Plan, Modoc County*. March 27, 2014.

CVRWQCB. 2018. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region (Fifth Edition), The Sacramento River Basin and The San Joaquin River Basin*. Revised May 2018.

DWR (California Department of Water Resources). 2021a. *Sustainable Groundwater Management Act (SGMA) Data Viewer*. [Online]: https://sgma.water.ca.gove/webgis/?appid=SGMADataViewer#boundaries. Accessed January 12, 2021.

DWR. 2021b. *Well Completion Report Map Application*. [Online]: https://dwr.maps.arcgis.com. Accessed January 18, 2021.

DWR. 2003. *Sacramento River Hydrologic Region, Alturas Groundwater Basin, South for Pit River Subbasin Groundwater Bulletin 118*. Updated February 27, 2004.

Modoc (Modoc County). 2016. *Local Hazard Mitigation Plan*. April 2016.

Modoc. 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

SWRCB (California State Water Resources Control Board). 2012. *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities Order No. 2012-0006-DWQ, NPDES No. CAS000002*. July 17, 2012.

# XI. Land Use and Planning

This section describes the impacts on land use and planning that would result from implementation of the revised project, including consistency with relevant local land use plans and compatibility with surrounding land uses.

## Environmental Setting

The proposed project is located in unincorporated Modoc County, southeast of the City of Alturas. Existing land uses within the area are comprised of grazing land and open space lands that are characterized by rolling terrain with weedy, grazed, sagebrush scrub communities. No existing residents or other sensitive land uses are located adjacent to or within the immediate project vicinity. County Road 54 (Centerville Road) provides the principal means of vehicular travel in the project area. This general east-west two-lane improved roadway begins at State Route 299 (SR-299) in the unincorporated community of Canby and provides west bound access to the proposed project area, including the City's existing wastewater treatment plant (WWTP) facility.

The project study area which includes the existing WWTP, proposed pipeline and new offsite aerations ponds and land application are consists of approximately 106 acres situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East, of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The study area consists of a portion of the developed WWTP parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment and disposal site. The facility location includes one single parcel, Assessor's Parcel Number (APN) 022-130-042 designated as Rural Residential (RR) in the Modoc County General Plan and is zoned Unclassified (U).

Existing land uses within a one-mile radius of the proposed project consist of undeveloped grazing lands and rolling open space lands with weedy, grazed, sagebrush scrub communities. No existing residents or other sensitive land uses are located immediately adjacent to or within the immediate project vicinity.

## Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Land Use and Planning* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to land use and planning include the following:

### *City of Alturas General Plan*

The City of Alturas General Plan is the long-range planning guide for growth and development for the City of Alturas helps to ensure that day-to-day decisions conform to the long-range program designed to protect and further the public interest as related to the City's growth and development. The General Plan also serves as a guide the private sector of the economy in relating its development initiatives to the public plans, objectives, and policies of the City.

### *City of Alturas Municipal Code – Chapter 28, Zoning*

Chapter 28, Zoning, of the City of Alturas Municipal Code offers a precise land-use plan for the City to promote orderly growth and to protect the public health, safety, peace, comfort, and general welfare. Specifically, the zoning code regulates, restricts, and segregates the use of land in an effort to regulate the density of population. Additionally, development standards are established for zoning district to ensure that activities can be reasonably accommodated in a manner that is compatible with adjacent land uses.

### *Modoc County General Plan*

The Modoc County General Plan is a policy document designed to give long-range guidance for decision-making affecting the future character of the County. It represents the official statement of the community's physical development as well as its economic, social, and environmental goals. The Modoc County General Plan provides cohesive land use planning for the unincorporated portions of Modoc County and long-range planning guidance, excluding the City of Alturas.

### *Modoc County Municipal Code – Title 18, Zoning*

The Modoc County Municipal Code provides the regulations that must be followed by every project within the County's jurisdictional area. Title 18 was adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses throughout the unincorporated area of Modoc County.

### *Modoc County Local Agency Formation Commission*

The Modoc County Local Area Formation Commission (LAFCO) is an independent agency responsible for the implementation of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The Act, Government Code §56000 et seq., identifies the responsibilities of LAFCO, which include the review, approval, and/or denial of boundary changes, annexations, consolidations, special district formations, incorporations for cities and special districts, and the establishment of local "Spheres of Influence" (SOI) which are boundaries established for each governmental agency for future provision of services.

LAFCOs are responsible for coordinating logical and timely changes in local governmental boundaries, conducting special studies that review ways to reorganize, simplify, and streamline governmental structure, preparing a review of services called a MSR, and preparing a SOI thereby determining the future "probable" boundary for each city and special district within each county.

The Commission's efforts are directed toward seeing that services are provided efficiently and economically while agricultural and open-space lands are protected. Often citizens are confused as to what LAFCO's role is. LAFCOs do not have enforcement authority, nor do they have the authority to initiate a city or district annexation or detachment proceeding. LAFCOs may initiate consolidation or dissolution proceedings; however, these proceedings are subject to the voter approval or denial.

## Impact Analysis

The following includes an analysis of environmental parameters related to *Land Use and Planning* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Land Use and Planning*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Physically divide an established community? | | | | X | Yes | No |

### *2022 Final MND Findings*

The proposed project site is located approximately 1.4 miles outside of the City's Sphere of Influence (SOI), within unincorporated Modoc County. Implementation of the proposed project would require an approved SOI amendment in addition to a general plan amendment from Rural Residential (RR) (Modoc County) to Public Facilities (City of Alturas) and a concurrent pre-zone of the entire property from Unclassified (U) to Agriculture (AG). Once the City purchased and approves a pre-zoning ordinance for the subject parcel, a formal application to amend the City's SOI pursuant to Government Code Section 56742 (non-contiguous City-owned territory for municipal purposes) will be submitted to LAFCO for consideration and action.

There is no established community at the project site; the area is rural agricultural and public use lands. Relocation of the City's WWTP facility would occur on one single parcel, Assessor's Parcel Number (APN) 022-130-042. Implementation of the

proposed project would not divide any community or prevent any future community from being established in the area. No impact would occur in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not physically divide an established community. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

As discussed in each resource section of this Initial Study, the proposed project is consistent with applicable policies and objectives of the Alturas General Plan and Modoc County General Plan and regulations of the regulatory agencies identified in Environmental Checklist Form of this Initial Study. Where necessary, mitigation measures are included to reduce impacts to less than significant levels. Therefore, the proposed project would not conflict with any plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

*Revised Project Impacts*

Similar to the approved project, the revised project would not conflict with any plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation, impacts associated with *Land Use and Planning* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2014. *City of Alturas General Plan*. November 2014.
Alturas. 2019. *City Alturas Municipal Code*. August 2019.
LAFCO (Modoc County Local Agency Formation Commission). 2010. *City of Alturas Sphere of Influence*. December 14, 2010.
LAFCO. 2009. *Municipal Service Review of Services Provided by the City of Alturas*. June 9, 2009.
Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program*. September 1988.
Modoc. 2020. *Modoc County Municipal Code*, *Title 18, Zoning*. January 14, 2020.

# XII. Mineral Resources

The purpose of this section of the Addendum is to address potential impacts of the revised project on mineral resources. This section also discusses the revised project in the context of regional and local mineral resources and addresses the potential impacts to mineral resource deposits that may occur as a result of implementation of the revised project.

## Environmental Setting

The project site is located within unincorporated Modoc County, immediately southwest of the City of Alturas. The study area consists of a portion of the City's existing developed wastewater treatment plan (WWTP) parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment and disposal site. Non-urbanized grazing areas are present within the project study area, including the pipeline route along the existing County Road 54 right-of-way.

The California Department of Conservation's (DOC) Division of Mine Reclamation (DMR) compiles data on the current status of mines and the commodities produced. The California Geological Survey (CGS) produces Mineral Land Classification (MLC) studies that identify areas with potentially important mineral resources that should be considered in local and regional planning. According to the CGS Information Warehouse, areas significant mineral resources or areas of locally important minerals have not been identified by the DOC for Modoc County (DOC, 2021).

## Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Mineral Resources* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to mineral resources include the following:

### *Surface Mining and Reclamation Act*

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized, and mined lands are reclaimed to a usable condition. SMARA also encourages the production, conservation, and protection of the state's mineral resources. Public Resources Code Section 2207 provides annual reporting requirements for all mines in the state, under which the State Mining and Geology Board is also granted authority and obligations. SMARA also requires the State Geologist to classify land into MRZs according to its known or inferred mineral potential. 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 that could preclude mining.

### *Division of Mine Reclamation*

In 1991, the Division of Mine Reclamation (DMR) was created to provide a measure of oversight for local governments as they administer the Surface Mining and Reclamation Act (SMARA) within their respective jurisdictions. While the primary focus is on existing mining operations and the return of those mined lands to a usable and safe condition, issues relating to abandoned legacy mines are addressed through the Abandoned Mine Lands Unit.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Mineral Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Mineral Resources*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

A mineral resource is land on which known deposits of commercially viable mineral or aggregate deposits exist. The designation is applied to sites determined by the CGS as being a resource of regional significance and is intended to help maintain any quarrying operations and protect them from encroachment of incompatible uses. The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State and would not result in the loss of availability of a locally-important mineral resource recovery site. The site has not been designated as an important mineral resource recovery site by a local general plan, specific plan, or other land use plan or by the State. No impact would occur in this regard.

*Revised Project Impacts*

Similar to the approved project, the revised project is not located within an area designated as an important mineral resource recovery site by a local general plan, specific plan, or other land use plan or by the State. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation, impacts associated with *Mineral Resources* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

DOC (California Department of Conservation). 2013. *Publications of the SMARA Mineral Land Classification Project Dealing with Mineral Resources in California*. [Online]: https://www.conservation.ca.gov/cgs/minerals/mineral-land-classification-smara. Accessed: January 10, 2021.

DOC. 2021. *The CGS Information Warehouse: MLC.* [Online]: https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/. Accessed January 10, 2021.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# XIII. Noise

The purpose of this section is to evaluate noise source impacts to onsite and surrounding land uses as a result of implementation of the revised project.

## Environmental Setting

Noise impacts are those that exceed general plan or other local ordinances developed to provide reasonable control of noise to residences, parks, open spaces, and other specific designated sites. Noise sources typically include roadways, freeways, schools, industrial and commercial operations, and other facilities that can generate noise. In the vicinity of the project, noise generation sources include traffic along County Road 54, as well as seasonal agricultural operations (haying, grading, etc.). These types of equipment can produce noise levels in the 60-100 dBA range. With the exception of the Alturas Rifle and Pistol Club located approximately 0.25 miles west of the site along County Road 54, there are no other noise sources of significance in the area. The exiting wastewater treatment plant (WWTP) does not produce noise other than occasional noise from equipment during maintenance operations, completed during the day.

Residential developments, schools and hospitals are considered sensitive noise receptors as these are locations where people sleep or typically expect quiet conditions. Sensitive noise conditions are typically at night and measured as indoor levels in decibels (dB). The nearest residence is approximately 0.27 miles southwest of the new WWTP site.

Based on findings in the Modoc County General Plan Noise Element (Modoc, 1988), existing and future exterior noise levels should not exceed 60 dB $L_{dn}$. Since the project site is outside of the City of Alturas, the County standards will be used as a basis of comparison.

The Alturas Municipal Airport is a public-use airport located approximately one-mile northeast of the proposed project. The project is not located within the Alturas Municipal Airport Land Use Plan or within two miles of a private airport or airstrip.

## Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Noise* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to noise include the following:

### *California Government Code*

California Government Code Section 65302 (f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

### *Title 24 - Building Code*

The state's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior

noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Noise* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Noise*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | X | | Yes | No |

*2022 Final MND Findings*

The project is located southwest of the City of Alturas amidst agricultural and grazing lands. Access is provided via an unpaved ranch road from County Road 54. The nearest known potential sensitive receptors to the proposed project sites (parcels 003-260-010 and 022-130-042) includes a residence approximately 0.3 miles northeast of the existing WWTP site (003-260-010) and a residence approximately 0.27 miles southwest of the new WWTP site (022-130-042). Vehicle noise from County Road 54 is the most significant noise in the area on a daily basis. Seasonally, agricultural equipment, such as tractors, mowers, and other ranch equipment contribute to seasonal noise emissions, both during daytime and nighttime operation periods.

Once developed, the project will generate noise from the use of pumps that will circulate air to sub-surface aeration equipment in the first two ponds. Pumps and motors will be housed inside the new equipment building, shielding much of the noise. Aeration operations, while typically quiet, can generate noise from the compressor. The US EPA and Federal Highways Administration (FHWA) have developed a list of typical construction and stationary equipment and their related noise generation levels (FHWA, 2017). For this project, it is anticipated that a standard stationary air compressor will be placed inside the new concrete block headworks building and will supply compressed air to the sub-surface aeration ports in the ponds. The compressor is expected to produce noise between 70-80 dBA. Shielding of the noise from the building is expected to result in exterior noise levels of the compressor to be approximately 40 dBA. Noise at the nearest residence from the compressor operation is expected to blend into the background noise levels (vehicle road noise, agricultural equipment) and be unnoticed. Using the County's compliance standards of 60 dBA at residences, the project will have no impact on ambient noise levels as the external noise levels anticipated from operations will already be below the County standards.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Generation of excessive ground borne vibration or ground borne noise levels? | | | X | | Yes | No |

*2022 Final MND Findings*

Excessive vibration during construction occurs only when high vibration equipment (i.e., compactors, large dozers, or pile drivers) are operated. The proposed project may require limited use of equipment with high vibration levels during construction. Use of this equipment, however, would be infrequent and cease at completion of the improvements. As previously discussed above, no sensitive receptors or buildings are within the vicinity of the proposed project. Long-term operation of the proposed project would not create ground borne vibration. Therefore, impacts would be less than significant.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not result in the generation of excessive ground borne vibration during construction. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. Impacts would remain less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

The Alturas Municipal Airport is located approximately one-mile northeast of the proposed project. The project is not located within the Alturas Municipal Airport Land Use Plan or within two miles of a private airport or airstrip. Therefore, the project would not expose people residing or working in the project area to excessive noise levels.

*Revised Project Impacts*

Similar to the approved project, the revised project is note located within the Alturas Municipal Airport Land Use Plan or within two miles of a private airport or airstrip. Therefore, implementation of the revised project would not expose people residing or working in the project area to excessive noise levels. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Noise*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

FHWA (Federal Highways Administration). 2017. *Construction Noise Handbook*. [Online]: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/. Accessed January 16, 2021.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# XIV. Population and Housing

This section addresses potential impacts of the revised project on population, housing, and employment and provides an overview of current population estimates and projected population growth.

## Environmental Setting

Modoc County has an existing population of approximately 9,570 persons based on the January 1, 2020 population estimates provided by the California Department of Finance (DOF). Between 2010 and 2020, population has been in decline (Modoc, 2020). This reflects a decrease of approximately 67 persons or 1% since 2010 based on the 2010 population and housing estimates reported by the DOF (DOF, 2020a). Modoc County maintains approximately 5,279 existing housing units and 2.42 persons per household (DOF, 2020b). Of these, approximately 1,405 housing units are within the City of Alturas (DOF, 2020b).

The City of Altura's 2020 population is 2,826 people and has remained static since 2010 (2,827 people). Between January 2019 and January 2020, the City's population declined from 2,849 to 2,826 (DOF, 2020a). This reflects a decline of about 0.7% compared to about 1% for all of Modoc County. Alturas's population consists of approximately 29% of the County's population (DOF, 2020a). Compared to other areas, the City of Alturas is experiencing a decline in population slightly slower than the majority of the county. In the 3-year period between 2018-2020, the City declined by 18 residents, which resulted in a less than 1% in population (DOF, 2020b). The City currently has 2.39 persons per household (DOF, 2020b). Median household income for the City in 2019 was $37,917 (US Census, 2019a), compared to $45, 507 for Modoc County (US Census, 2019b).

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Population and Housing* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to population and housing include the following:

### *State of California Housing Element Law*

State law requires each city and county to adopt a general plan for future growth. This plan must include a housing element that identifies housing needs for all economic segments and provides opportunities for housing development to meet that need. At the State level, the California Department of Housing and Community Development (HCD) estimates the relative shares of California's projected population growth that could occur in each county in the State based on Department of Finance (DOF) population projections and economic projections.

### *City of Alturas Cycle 6 Housing Element*

The City's 2019-2024 Housing Element includes policies and programs to address the City's housing needs through 2024, and provides a comprehensive analysis of Alturas's demographic, economic, and housing characteristics as required by State law. The Element also contain an evaluation of the City's progress in implementing its last Housing Element. Based on the City's housing needs, available resources, constraints and opportunities for housing production and preservation, and its past performance, the current Housing Element establishes a strategy of goals, measurable objectives, and related policies and programs to address present and future housing needs of the City.

### *Modoc County 2019-2024 Housing Element*

The County's 2019-2024 Housing Element details a 5-year schedule of actions the community is undertaking or plans to undertake to achieve its housing goals and objectives, based upon the community's Regional Housing Needs Allocation Plan (RHNAP). To comply with state law in addressing the jurisdiction's RHNAP, the updated Housing Element must identify adequate sites and program actions to accommodate the total RHNAP for each of four income categories: very low-, low-, moderate- and above moderate.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Population and Housing* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Population and Housing*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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)? | | | | **X** | Yes | No |

*2022 Final MND Findings*

The current population of the City's wastewater service area is approximately 2,600. The City's population has slightly fluctuated; however, between 2020 and 2020, the overall population has remained static; although the number of total households have decreased from 2,814 in 2010 to 2,793 in 2020 (DOF, 2020b). Currently, the population appears relatively stable and is not expected to grow significantly within the planning horizon of this study, which is the next 20 years (SHN, 2020). The project has been sized to accommodate the City's existing service area. Therefore, implementation of the proposed project is considered to accommodate planned growth in the City of Alturas and would not serve substantial unplanned population growth. No impacts are anticipated in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not induce substantial population growth. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | | | | **X** | Yes | No |

*2022 Final MND Findings*

The proposed project would not displace a substantial number of people or existing housing necessitating the construction of replacement housing elsewhere. Once acquired by the City, the existing onsite residence would be repurposed to support onsite operations of the facility. Suitable housing is available within the County. No impact has been identified in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not displace a substantial number of people or existing housing necessitating the construction of replacement housing elsewhere. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation, impacts associated with *Population and Housing* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2020. *City of Alturas Cycle 6 Housing Element.* March 10, 2020.
DOF (California Department of Finance). 2020a. *Table E-1: City/County Population Estimates with Annual Percent Change*. May 2020.
DOF. 2020b. *Table E-5: City/County Population and Housing Estimates*. May 2020.
DOF. 2010. *Table E-5: City/County Population and Housing Estimates*. April 1, 2010.
Modoc. (Modoc County). 2020. *2019-2024 Housing Element Update*. December 16, 2020.
Modoc. 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.
SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.
US Census (United States Census Bureau). 2019a. American *Community Survey 5-Year Estimates. Retrieved from Census Reporter Profile Page for Alturas, CA*. [Online]: https://censusreporter.org/profiles/16000US601444-alturas-ca/. Accessed January 14, 2021.
US Census. 2019b. *Quick Facts, Modoc County, California*. [Online]: https://census.gov/quickfacts/modoccountycalifornia. Accessed January 14, 2021.

# XV. Public Services

This section describes the affected environment for public services that serve the revised project area. It also describes the impacts on existing public services that would result from implementation of the revised project and mitigation measures, if necessary, that would reduce these impacts.

## Environmental Setting

Law enforcement to the area is provided by the Modoc County Sheriff's Department, and the California Highway Patrol (CHP). The County Sheriff's Office dispatches from the County jail in Alturas, approximately 2 miles from the project site.

The City of Alturas Fire Department is comprised of one full-time Fire Marshal and approximately 40 volunteers. Without these volunteers the City could not operate a fire department. The Fire Department as an Insurance Services Office (ISO) rating of 3, which serves to keep city resident's home-owners insurance rates down. The Fire Department responds to all fire and medical calls in the City (Alturas, 2021).

Modoc Medical Center is the nearest hospital facility located approximately 2 miles northeast in the in the City of Alturas. Public education services including elementary, middle, and high school are all offered in Alturas, approximately 2 miles from the project site. The nearest developed park in the vicinity of the proposed project is located in Alturas, about 1.5 miles distant.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Public Services* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Public Services*.

| Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| Fire Protection? | | | | X | Yes | No |
| Police Protection? | | | | X | Yes | No |

*2022 Final MND Findings*

Fire and police protection services to the proposed project are currently provided by County, and State agencies and private emergency responders. The fire and police protection that is currently afforded to the existing wastewater treatment plant (WWTP) facility would not be provided to the new facility located approximately 1.4 miles west along County Road 54. Construction of the proposed WWTP is not expected to significantly increase response times to the site or result in an increase in the demand for these protection services or require any additional fire or law enforcement facilities. As a result, there would be no adverse physical impacts associated with the provision of new or physically altered police or fire facilities. No impact would occur in this regard.

*Revised Project Impacts*

The proposed modification to the approved project would not result in adverse physical impacts associated with the provision of new or physically altered police or fire facilities. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| Schools? | | | | X | Yes | No |

*2022 Final MND Findings*

The purpose of the proposed project is to replace the City's outdated WWTP facility and provide environmentally sound wastewater disposal to City residents and businesses. Implementation of the proposed project will not result in an increase of student populations in the City or other areas in unincorporated Modoc County. The proposed project does not result in an increase in employees beyond that currently serving the existing WWTP facility. No new housing or population in the City or County would be required as a result of the proposed project which would require additional educational facilities. Therefore, the proposed project would have no impact in this area.

*Revised Project Impacts*

The proposed modification to the approved project would not require the construction or expansion of existing schools. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| Parks? | | | | X | Yes | No |

*2022 Final MND Findings*

As stated previously, the need for additional parkland is primarily based on an increase in population to an area. Given that the proposed project would not increase the population of the City or County, the project would not burden any parks in the surrounding area beyond capacity by generating additional recreational users. Therefore, the proposed project would not require the construction or expansion of park and recreational facilities and would also not result in an increase in demand for parks and recreation facilities in the surrounding area. There would be no impact on parks from implementation of the proposed project.

*Revised Project Impacts*

The proposed modification to the approved project would not require the construction or expansion of park and recreational facilities. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| Other public facilities? | | | | X | Yes | No |

*2022 Final MND Findings*

The proposed project does not involve a substantial change in the land use, does not substantially increase the numbers of people employed in the region, and does not create or require new housing or related facilities, an increased demand on public facilities is unlikely to occur. No impacts would occur in this regard.

*Revised Project Impacts*

The proposed modification to the approved project would not involve a substantial change in the land use, does not substantially increase the numbers of people employed in the region, and does not create or require new housing or related facilities, an increased demand on public facilities is unlikely to occur. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation, impacts associated with *Public Services* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2021. [Online]: https://www.cityofalturas/departments/fire/index.php. Accessed January 12, 2021.
Alturas. 2014. *City of Alturas General Plan*. November 2014.
Modoc (Modoc County). 2016. *Local Hazard Mitigation Plan*. April 2016.
Modoc. 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.
SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# XVI. Recreation

The recreation analysis is intended to determine the extent to which a project contributes to the physical deterioration of publicly provided recreation facilities. This section describes the recreational resources within the project area and discusses any increased demand for various recreational facilities and identifies any potential need for new recreational facilities generated by the revised project.

## Environmental Setting

Modoc County's natural resources, including scenic wildland areas, wildlife, forests, lakes, streams, and reservoirs offer a wide range of recreation opportunities such as fishing, hunting, bird, and wildlife viewing, hiking, picnicking, bicycling, camping, backpacking, and skiing. The Modoc Natural Forest, the federal and State game refuges, and the nearby Lava beds National Monument makes the County an outstanding area for outdoor recreation (Modoc, 1988). The County maintains twelve parks and recreation areas. There are also a limited number of private facilities and services in the county offering recreational opportunities to visitors and residents (Modoc, 1988). Within the vicinity of the project site, the Pit River, Modoc National Wildlife Refuge, and Alturas Park are important for their habitat, aesthetic, and economic values.

## Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Recreation* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to recreation include the following:

### *City of Alturas General Plan*

To ensure the provision of adequate sites for parks and recreational opportunities to serve both City residents and visitors, the City's General Plan outlines the following policies related to recreational resources:

1. The City shall at a minimum maintain the current inventory of parks and recreational opportunities.
2. The City shall recognize the importance of providing parks and recreational opportunities not only for residents, but also for visitors.
3. The City shall emphasize the joint use of school facilities as an important source of park and recreational facilities.
4. The City shall pursue State funding to the extent that it is available to augment City funds for park improvement and development.

### *Modoc County General Plan Open Space and Conservation Element*

Government Code Section 65560(b)(3) specifies that open space for outdoor recreation be addressed in a community's general plan. This topic has been addressed in the Open Space and Conservation Element of the Modoc County General Plan. The County's General Plan includes the following policies related parks and recreation:

1. Support enhancement of existing park and recreation resources for both tourist and resident use.
2. Encourage the development of private recreation facilities.

### *Quimby Act*

The Quimby Act provides for a maximum of three acres of park dedication/fee per 1,000 persons unless the amount of existing neighborhood and community parkland exceeds that limit. If a jurisdiction exceeds the three acres per 1,000 persons, then the jurisdiction is eligible to adopt the higher five acres per 1,000 persons standard. Given that the proposed project is not a residential subdivision, it is not subject to the requirements of the Quimby Act.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Recreation* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Recreation*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | | | | X | Yes | No |

*2022 Final MND Findings*

The proposed project does not propose to add significant new numbers of people that would require housing and ancillary recreation facilities; therefore, the proposed project would not 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. No impact would occur in this regard.

*Revised Project Impacts*

The proposed modification to the approved project does not include any residential land uses that would increase impacts to existing neighborhood or regional parks within the City or County. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | | | | X | Yes | No |

*2022 Final MND Findings*

The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. No impact would occur in this regard.

*Revised Project Impacts*

The proposed modification to the approved project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

In the course of the above evaluation, impacts associated with *Recreation* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2014. *City of Alturas General Plan*. November 2014.
Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

# XVII. Transportation

The purpose of this evaluation is to address traffic and transportation impacts of the revised project on surrounding streets and intersections, as well as provide an assessment of Vehicle Miles of Travel (VMT). This section also discusses the revised project in the context of roadway, bicycle, and pedestrian safety; emergency access; and potential hazards due to geometric design features.

## Environmental Setting

County Road 54 (Centerville Road) provides the principal means of vehicular travel in the project area. This general east-west two-lane improved roadway begins at State Route 299 (SR-299) in the unincorporated community of Canby and provides west bound access to the proposed project area, including the City's existing wastewater treatment plant (WWTP) facility. County Road 54's name changes to West Street just prior to entering the City of Alturas. Access to the proposed project site is provided from County Road 54 via an existing unpaved ranch road.

## Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Transportation* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to transportation include the following:

### *City of Alturas General Plan*

The City's General Plan Circulation Element includes the following relevant policies related to the proposed project:

1. All roads should be constructed and improved to minimum City design standards.
2. All roads constructed must meet minimum fire and other emergency standards, including construction, maintenance programs, street signs, and turn around space.
3. Major public transportation system improvements undertaken should be consistent with the Modoc County Transportation Plan.

### *Modoc County General Plan Circulation Element*

The Modoc County General Plan Circulation Element provides the necessary framework to guide the growth and development of the County's transportation-related infrastructure. The County's General Plan includes the following policies that apply to the proposed project:

5. All roads should be constructed and improved to minimum County design standards.
6. Private roads not constructed to minimum County standards will not be accepted for dedication.
7. All roads constructed must meet minimum fire and other emergency standards, including construction, maintenance program, street signs, and turnaround space.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Transportation* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Transportation*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? | | X | | | Yes | No |

*2022 Final MND Findings*

Project construction may require temporary lane closures along County Road 54 for installation of the wastewater force main. There are no adjacent sidewalks, bike lanes, or transit stops along County Road 54 where the pipeline installation will occur; however, bicycles do use the roadway.

Traffic impacts during construction are temporary in nature and will cease upon completion of construction activities. A traffic control plan will be developed prior to the initiation of any construction activities to minimize disruption to existing traffic flow conditions along County Road 54. The traffic control plan addresses details regarding road closures, provisions to maintain access to any adjacent properties, prior notices, adequate sign-posting, detours (including for bicyclists), and permitted hours of construction activity as determined appropriate by the City and County. Adequate local and emergency access to adjacent uses is required to be provided at all times. The traffic control plan shall also be reviewed and approved by the emergency service providers so that construction does not create any hazards or interfere with any emergency response or evacuation plans. With implementation of Mitigation Measure TRF-1, impacts would be less than significant.

*Revised Project Impacts*

The revised project would not result in any significant impacts with regards to transit, roadway, bicycle, or pedestrian facilities. Similar to the approved project, adequate local and emergency access to adjacent uses is required to be provided at all times. With implementation of Mitigation Measure TRF-1, impacts of the revised project would remain less than significant. Therefore, the proposed modifications to the approved project would not result in greater impacts than previously analyzed in the 2022 Final MND.

*Applicable 2022 Final MND Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. The following measure from the 2022 Final MND is also applicable to the revised project. Any modifications to the original measures are shown in ~~strikethrough~~ for deleted text and <u>underlined</u> for new inserted text.

*Mitigation Measure TRF-1.* Prior to project construction within or adjacent to public roadways, the construction contractor shall develop a traffic control plan for the project and submit the plan to the appropriate jurisdiction (City of Alturas, Modoc County), potentially as part of each agency's respective encroachment permit application. The plan shall identify temporary lane, sidewalk, and transit stop closures and provide information regarding how access and connectivity will be during construction activities. The plan shall include details regarding traffic controls that would be employed, including construction signage, detours, and flaggers. The traffic control plan shall be implemented by the contractor during to allow for the safe passage of vehicles, pedestrians, and cyclists along the pipeline route.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? | | | X | | Yes | No |

*2022 Final MND Findings*

State CEQA Guidelines Section 15064.3, Subdivision (b) states that for land use projects, transportation impacts are to be measured by evaluating the project's vehicle miles traveled (VMT), as outlined in the following: *"Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact."*

Temporary construction activities would result in slight increases in vehicle trips associated with worker commute and materials delivery. However, these additional trips would only occur during the approximate 11-month construction period. During operation, one full-time employee would be onsite to regularly inspect and monitor the proposed facilities; however, this would not result in additional vehicle roundtrips over those occurring at the existing WWTP, as the existing operations manager would simply be relocated to the new facility. Because the project would not change the amount of development projected for the City of Alturas or Modoc County, would be consistent with the population growth and would not result in an increase in VMT, this impact would be less than significant.

*Revised Project Impacts*

Per OPR, heavy vehicle traffic is not required to be included in the estimation of a project's VMT. As noted above, worker and truck trips would generate VMT, but once construction is completed, the construction-related traffic would cease, and VMT would return to pre-project conditions. Measures to reduce the VMT generated by construction workers and trucks are limited, and there are no thresholds or significance criteria for temporary, construction-related VMT. Additionally, construction-related VMT would be temporary and short term. Further, it should be noted that OPR does not require quantitative assessment of temporary construction traffic. Similar to the approved project, implementation of the revised project would have a less than significant impact related to VMT.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | | X | | | Yes | No |

*2022 Final MND Findings*

Project operation would not result in any changes in road geometry or new uses. As discussed above, project construction would require temporary closure of lanes as well as sidewalks, bike lanes, or transit stops. This impact is considered potentially significant; however, implementation of Mitigation Measure TRF-1 would reduce impacts to less than significant levels.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not increase an hazards due to geometric design features or incompatible uses. As such, the revised project would not result in a greater impact than the approved project. Impacts would remain less than significant with implementation of Mitigation Measure TRF-1.

*Applicable 2022 Final MND Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. Mitigation Measure TRF-1 from the 2022 Final MND is also applicable to the revised project.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| d) Result in inadequate emergency access? | | X | | | Yes | No |

*2022 Final MND Findings*

The proposed project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. As discussed under Section XVII.c above, project operation would not change any existing roads, including areas provided for emergency access. Project construction would involve temporary lane closures, which has the potential to impact access for emergency vehicles. This impact is considered potentially significant; however, implementation of Mitigation Measure TRF-1 would reduce impacts to less than significant levels.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not involve a use or activity that could interfere with emergency response or emergency evacuation plans for the area. As such, the revised project would not result in a greater impact than the approved project. Impacts would remain less than significant with implementation of Mitigation Measure TRF-1.

*Applicable 2022 Final MND Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. Mitigation Measure TRF-1 from the 2022 Final MND is also applicable to the revised project.

## Findings

In the course of the above evaluation impacts of the revised project associated with *Transportation* were found to be less than significant with implementation of mitigation.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2014. *City of Alturas General Plan*. November 2014.
Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.
SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# XVIII. Tribal Cultural Resources

This section of the Addendum describes the affected environment and regulatory setting for Tribal Cultural Resources (TCRs) on the project site. Ethnographic information is presented for the Ajumawi, the larger cultural group identified for the project location, as well as more specific information recognizing the Kosealekte Band of the Ajumawi as the inhabitants of the Traditional Cultural Area known as Alturas, California.

## Environmental Setting

The Ajumawi resided in and around the area encompassing the mountain course of the Pit River. According to Kroeber they were a stream people whose traditional cultural area reached from the northern Sacramento Valley to the arid grasslands above Alturas but ranged as far west as Shastan territory and north-east to Goose Lake, where they intersected with Modoc and Paiute bands. Olmstead and Stewart (1978; 225) define the Ajumawi territory as: *"In the west Mount Shasta, 14,162 feet, and Lassen Peak, 10,466 feet, served as the northwest and southwest corners of (Achomawi) Indian territory. The eastern boundary separating the Achomawi from the Northern Paiute was marked by the Warner Range with a half-dozen peaks ranging from 7,843 to 9,934 feet above sea level. Twenty peaks over 6,000 feet elevation were scattered over the area, breaking it into many distinct valley and stream systems. From the high of over 14,000 feet, Achomawi territory descended to sections of Pit River canyon below 2,000 feet elevation."*

The Atsugewi also occupied a portion of the Pit River, specifically along Hat Creek, and are related to the Ajumawi in both culture and language. Ajumawi and Atsugewi are Shastan dialects, and together they constitute the Palaihnihan branch of the Hokan language family. Unified by language and geography, both groups were bound to the south by the Yana, Wintun, and Okwanuchu. Although they have many words in common (Merriam 1926), intermarried, and were often bilingual, there are deep differences between the languages and dialects within this language family (Olmstead 1954). Baumhoff and Olmstead (1963, 1964) estimate the language split between Ajumawi and Atsugewi to have occurred sometime after 1500 B.C.

Because of the diversified landscape, cultural distinctions between Ajumawi bands evolved, including locational designations (downriver/western and upriver/eastern) and, most notably, dialectical differences between bands (Golla 2011). The downriver dialectical groups include Madesi (Big Bend people), Itsatawi (Goose Valley People), Ilmawi (people of the Village of Ilma), Aporige (Dixie Valley people), and the Ajumawi (river people). Upper river dialect groups include Atwamsini (valley people/valley dwellers), Astariwi (hot springs people), Kosealekte (juniper-liking people), Hammawi (south fork of Pit River people), and Hewisedawi (ones who live high up).

The downriver groups tended to form small autonomous tribelets. Their subsistence patterns tended chiefs and followed resource strategies employed by the cultures of the Plateau and Basin. Subsistence economies for both included vegetal resources including nuts (buckeye, sugar pine), seeds, roots, tubers, wild onions, parsley, and berries. Game was hunted including deer, elk, squirrels, and rabbit along with ducks and geese. Both groups lived along streams bearing bass, trout, and other fish, which were taken with both nets and woven traps (Olmsted and Stewart 1978). Kroeber (1925:308) estimates a total population figure for both the Ajumawi and the Atsugewi of about 3,000 Northwest and the Great Basin cultures, the Ajumawi exhibited clothing, armor, weaponry (projectile points, single-backed bow) exchange systems (dentalium and clamshell beads), food processing methods (mortar/hopper/pestle, mano-metate), and dwellings that incorporated elements common to regional lifeways.

Ajumawi hold religious beliefs incorporating dualities and contrasting creators, natural sprits (both good and evil), and the use of shaman to heal and to remove "pains," both spiritual and physical. The revitalization cult known as the Ghost Dance was also embraced by the Ajumawi. Sacred geographic locations across Ajumawi territory include Mt. Shasta, Medicine Lake, Black Fox Mountain, Little Black Fox Mountain, Grizzly Mountain, Devil Slide, Bunch Grass Mountain, Burney Peak, Thousand Lakes on Crater Peak, Rising River Spring, Soldier Mountain, and Lassen Peak.

The Kosealekte's territory lay to the east of the Astariwawi, with their major settlement centered on the Alturas plain at the fork of North and South Forks of the Pit River (Merriam 1926: Map; Merriam and Talbot 1974:6; Kniffen 1928:306). Merriam's boundary description is the most complete for Kosealekte: *"Their northern boundary extends easterly from Big Sage Reservoir to Cedar Mountain... the southern boundary is a straight line from Warren Peak to Signal Butte on South Fork*

*Pit River (4 miles north of the mouth of Fitzhugh Creek) and continues westerly for 10 or 12 miles; the western boundary, apparently, is a north-south line from Big Sage Reservoir southward, passing a little west of Essex Hot Spring and continuing to intersect the latitude of Signal Butte. [Merriam and Talbot 1974:6] The crest of the Warner Mountains marked the eastern extent of their lands (Merriam 1926; Merriam and Talbot 1974:4).”*

Kniffen further specifies that the Kosealekte held the North Fork of the Pit as far as Bob’s Creek (Kniffen 1928:306). Like their neighbors, as different resources became available throughout the year, the Kosealekte broke into small family bands and traveled to various locations within their territory to fish, hunt, and gather edible and medicinal plants. These seasonal rounds took them to outlying areas where they established seasonal base camps and a series of radiating temporary camps and task-related activity stations.

The Kosealekte today are members of the Pit River Tribe which comprises the Eleven Autonomous Bands of the Pit River Indians. Tribal members still use this area, continue to harvest plant resources (e.g., epos and other tubers and roots), and maintain certain areas for traditional cultural uses.

## Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Tribal Cultural Resources* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to Tribal Cultural Resources include the following:

### *Assembly Bill 52*

Assembly Bill 52 (AB 52) amended CEQA to require that: 1) a lead agency provide notice to any California Native American tribes that have 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 tribal cultural resources, 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 Public Resources Code 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 Public Resource Code 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 California Register of Historical Resources; and/or
    (b) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or

2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of 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 a Historical Resource under CEQA, a TCR may also require additional consideration as a 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.

## *Tribal Consultation*

On May 1, 2020, the City initiated environmental review under CEQA for the proposed Alturas Wastewater Treatment Plant Improvement project. Although there are no tribes that have notified the City for inclusion on the City's Assembly Bill (AB) 52 notification list, the City sent a project notification letter to the Pit River Tribe, a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, on May 4, pursuant to Public Resources Code 21080.3.1 (AB 52). No responses were received requesting initiation of consultation under the provisions of AB 52.

In accordance with PRC § 5097.91-5097.94, the Native American Heritage Commission (NAHC) maintains a catalog pertaining to places of special religious or social significance to Native Americans. To identify if places of religious or social significance exist within the APE, DZC contacted the NAHC on June 4, 2020, to request a review of their Sacred Lands Files. The NAHC responded by email on June 6, 2020, stating that the Sacred Lands File search was positive and provided a list of individuals to be contacted regarding the project.

PRC § 21080.3.1, subd. (b), declares that California Native American Tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their tribal cultural resources. On September 21, 2020, Project Notifications were sent to the following individuals listed by the NAHC for the project area:

- Vi Riley, Cultural Resources Coordinator, Alturas Rancheria of Pit River Indians;
- Alturas Rancheria, Tribal Administrator/Environmental Coord. Alturas Rancheria of Pit River Indians;
- Richard Lash, Chairperson, Cedarville Rancheria of Northern Paiute Indians;
- Bernold Pollard, Chairperson, Ford Bidwell Indian Community of Paiute;
- Agnes Gonzales, Chairperson, Pit River Tribe of California;
- Charles White, Tribal Administrator, Pit River Tribe of California;
- Natalie Forrest-Perez, Tribal Historic Preservation Officer (THPO), Pit River Tribe of California.

The Request for Comment provided each individual listed with a project description, location map, a request to respond to DZC with any relevant information, and a request to respond to the Lead Agency within 30 days, should the tribe wish to engage in formal government-to-government Consultation.

Between July 22 and July 29, 2020, email correspondence between Dimitra Zalarvis-Chase and Natalie Forrest-Perez consisted of scheduling of the Cultural Resource Survey, a site visit with a Native American monitor representing the Pit River Tribe of California during the survey, and a meeting to discuss results of the cultural resource survey. On September 4, 2020, an internet Zoom meeting took place between Dimitra Zalarvis-Chase and Natalie Forest-Perez. Together, both parties consulted project location and site record maps, survey results, and project descriptions and plans. THPO Forest-Perez concurred with DZCs findings regarding the nature and location of resources.

Following an expansion of the API in September of 2023, THPO Forrest-Perez and DZC again coordinated to place a Kosalektawi monitor during survey, extended phase 1 testing, and geotechnical testing. Pit River THPO Natalie Forest-Perez, arranged for Chris Brown, a member of the Kosealekte Band who maintains traditional ties with the project location (DZC, 2024) to monitor the survey efforts. Mr. Brown participated in both survey efforts, geotechnical testing, and in the extended phase 1 testing at P-25-002281. Following the results of the survey, THPO Perez expressed interest in having a Native American Monitor present during ground-disturbing activities within the boundaries of known resources within the API during active construction.

As of December 1, 2023, no response was received from (1) Vi Riley, Cultural Resources Coordinator, Alturas Rancheria of Pit River Indians (2) Alturas Rancheria, Tribal Administrator/Environmental Coord. Alturas Rancheria of Pit River Indians, (3) Richard Lash, Chairperson, Cedarville Rancheria of Northern Paiute Indians, (4) Bernold Pollard, Chairperson, Ford Bidwell Indian Community of Paiute, (5) Agnes Gonzales, Chairperson, Pit River Tribe of California, (6) Charles White, Tribal Administrator, Pit River Tribe of California.

## Impact Analysis

The following includes an analysis of environmental parameters related to *Tribal Cultural Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Tribal Cultural Resources*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | | X | | | Yes | No |
| b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | | X | | | Yes | No |

### *2022 Final MND Findings*

Section V, CULTURAL RESOURCES, impact discussion V.a, the project area is considered to have a moderate potential for buried prehistoric resources, a low potential for buried historic resources, and a high potential for prehistoric and historical resources to be found on the surface.

Although no California Native American tribe submitted a written request to the County for formal consultation pursuant to PRC Section 21080.3.1, DZC contacted the NAHC and several Native American representatives and organizations and requested information related to cultural resources that could be impacted by the proposed project. Consultation with the NAHC and local Native American community revealed that resources exist in the project area that could potentially be significant to a California Native American tribe. As discussed above under *Tribal Consultation*, the City consulted with the THPO with the Pit River Tribe of California on September 4, 2020 to site record maps, survey results, and project descriptions and plans. The THPO concurred with the findings of the *Cultural Resources Inventory Report* (DZC, 2020) regarding the nature and location of resources and requested the presence of a Native American monitor representing the Kosalektawi Band during all ground disturbing activities occurring within the boundaries of any resources that intersect the Area of Potential Impacts (API). Mitigation Measures CR-1, CR-2, and CR-3 address the inadvertent discovery of cultural resources and human remains during construction. Impacts are considered less than significant in this regard.

### *Revised Project Impacts*

Implementation of the revised project would result in the land disposal of treated wastewater as described in Subsection 2.5, *Revised Project (2024)*. Similar to the approved project, the revised project would be required to implement Mitigation Measure CR-1, CR-2, and CR-3 to ensure impacts to unknown tribal cultural resources are less than significant. The revised project would not result in greater impacts than that analyzed in the 2022 Final MND.

*Applicable 2022 Final MND Mitigation Measures*

The 2022 Final MND includes mitigation measures to reduce potential impacts associated with the approved project. Mitigation Measure CR-1, CR-2, and CR-3 from the 2022 Final MND are also applicable to the revised project. Refer to Section V, CULTURAL RESOURCES.

## Findings

In the course of the above evaluation impacts associated with *Tribal Cultural Resources* were found to be less than significant with implementation of mitigation. Mitigation measures for the protection of currently unknown but discovered resources are also provided for in Section V, CULTURAL RESOURCES.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.

DZC (DZC Archaeology & Cultural Resource Management). 2020. *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California*. December 2020.

DZC. 2024. *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California*. June 2024.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

# XIX. Utilities and Service Systems

This section addresses the revised project's potential impacts on certain utilities and services: electric, water, wastewater, stormwater, and solid waste.

## Environmental Setting

Pacific Gas & Electric (PG&E) currently provides power and natural gas to the City's existing wastewater treatment plant (WWTP). PG&E also supplies the existing residence on APN 022-130-042 with electric service, however, propane is utilized for heating. Potable water to this residence is provided by an onsite domestic water well and has an existing onsite septic system that disposes of domestic wastewater.

The project site and surrounding area is located within the Sacramento River hydrologic region of northern California within the Alturas Ground Water Basin, South Fork Pit River Subbasin (DWR, 2021). The basin is comprised of 114,000 acres or 178 square miles. The South Fork Pit River enters the basin near the community of Likely and flows north through the South Fork Pit River Valley to its confluence with the North Fork Pit River at the City of Alturas (DWR, 2003).

Water levels generally declined up to 10 feet in the northern part of the basin during the period from the early 1980's through the early 1990's and have recovered to former levels through 1999. The groundwater storage capacity to a depth of 800 feet is estimated to be approximately 7,500,000 acre-feet for the entire Alturas Groundwater Basin (including the South Fork Pit River Subbasin and the Warm Springs Valley Subbasin) (DWR, 2003). The Alturas Ground Water Basin, South Fork Pit River Subbasin is considered a low priority groundwater basin and therefore not subject to the requirement of development and implementing a Sustainable Groundwater Plan (SGP) (DWR, 2021).

Modoc County operates the Alturas Class III Municipal Solid Waste Landfill located immediately southeast of the proposed project along County Road 54. The facility is located on a 162-acre property at the intersection of North West Street and Westside Road. The existing landfill occupies approximately 28 acres with waste placed in six unlined waste management units (RWQCB, 2018).

## Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Utilities and Service Systems* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to utilities and service systems include the following:

### *Sustainable Groundwater Management Act of 2014*

In 2014, California enacted the Sustainable Groundwater Management Act (SGMA; Water Code Section 10720 et seq.). SGMA, and related amendments to California law, require that all groundwater basins designated as high or medium priority in the California Department of Water Resources (DWR) California Statewide Groundwater Elevation Monitoring (CASGEM) Program, and that are subject to critical overdraft conditions, must be managed under a new GSP or a coordinated set of GSPs, by January 31, 2020. High or medium priority basins that are not subject to a critical overdraft must be regulated under one or more GSPs by 2022.

### *California Integrated Waste Management Act*

The California Integrated Waste Management Act of 1989, or Assembly Bill (AB) 939, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of all solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. Projects that would have an adverse effect on waste diversion goals are required to include waste diversion mitigation measures to assist in reducing these impacts to less than significant levels. With the passage of Senate Bill (SB) 1016 (the Per Capita Disposal Measurement

System) in 2006, only per capita disposal rates are measured to determine if a jurisdiction's efforts are meeting the intent of AB 939.

### *California Solid Waste Reuse and Recycling Access Act*

The California Solid Waste Reuse and the Recycling Access Act of 1991 (AB 1327) is codified in Public Resources Code Sections 42900-42911. As amended, AB 1327 requires each local jurisdiction to adopt an ordinance requiring commercial, industrial, or institutional building, marina, or residential buildings having five or more living units to provide an adequate storage area for the collection and removal of recyclable materials. The size of these storage areas is to be determined by the appropriate jurisdictions' ordinance. If no such ordinance exists in the jurisdiction, the Cal Recycle model ordinance shall take effect.

## Impact Analysis

The following includes an analysis of environmental parameters related to *Utilities and Service Systems* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Utilities and Service Systems*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | X | | Yes | No |

### *2022 Final MND Findings*

As previously described in Section 2.0, PROJECT DESCRIPTION, the existing City of Alturas WWTP currently discharges treated effluent to the Pit River. The proposed project entails discharge to new percolation and evaporation ponds in lieu of discharge to the Pit River. Under the City's existing NPDES permit, the WWTP is prohibited from contributing more than five percent (5%) of the in-stream flow in the Pit River. With regards to the relocation of the existing WWTP as proposed by this project, a technical memorandum was prepared to analyze the effect to Pit River flows as a result of removing the WWTP discharge (SHN, 2021).

The maximum allowable dilution ratio is 5% which means that the Pit River flow must be a minimum of 20 times the effluent flow. The measured dilution ratio approaches this value when the Pit River is experiencing its minimum flow rate. In this case, maximum discharge from the WWTP equates to a height of approximately 1.2 inches in contribution to the depth of the river (SHN, 2021). Based on this data, the new proposed wastewater treatment process would result in an insignificant reduction in total flow in the Pit River.

A project may require new or expanded storm water drainage facilities if it increases the amount of impervious surface on the project site and results in increased surface runoff. Proposed improvements that would increase the amount of impervious surface on the WWTP site include an approximate 100 square-foot blower/generator building. This relatively small area does not represent a significant increase in impervious surface and would not result in the need for new or expanded storm drain or detention systems. Improvement plans for the proposed project would be prepared by a licensed engineer to ensure compliance with adopted standards to ensure that impacts on existing storm water drainage facilities are less than significant. Areas disturbed during installation of pipeline improvements would be restored to pre-construction conditions; therefore, completion of the pipeline improvements would have no impact on existing drainage patterns. As a

result, the proposed project would not result in a significant increase in impervious surfaces that would require the construction or expansion of stormwater drainage facilities.

The existing residence on APN 022-130-042 has an existing onsite septic system that disposes of domestic wastewater. This system would continue to be utilized for one permanent worker at the site (Chief Operator) and is not proposed to be expanded to accommodate other future onsite uses. Should the facility need to expand the system, they would be required to follow standard County procedures for septic system development as provided for by the Modoc County Department of Environmental Health. There is also sufficient power provided to the site for the proposed project, although emergency backup stationary generators would be provided in the event power to the facility is disrupted.

The proposed project is currently served by an existing groundwater well that serves the existing onsite residence. This structure will be upgraded for onsite facility operations; however, the amount of potable water needs would be similar to the existing WWTP facility and there would be no impact on other water systems or water resources. Therefore, the proposed project would not require or result in the construction of new or expanded water, wastewater treatment or stormwater drainage, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects. Less than significant impacts are anticipated in this regard.

*Revised Project Impacts*

Implementation of the revised project would result in the land disposal of treated wastewater as described in Subsection 2.5, *Revised Project (2024)*. Implementation of these modifications would have no impact on existing storm drain facilities and negligible impacts to electricity and natural gas consumption. Similar to the approved project, impacts would be less than significant in this regard and impacts would not be greater than analyzed in the 2022 Final MND.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project may require minimal water supplies for dust control during construction. Once construction activities are complete the project will not require any water supplies. Existing water supplies would be sufficient as water needs for the project would be minimal and temporary. As mentioned above under Section XIX.a, the proposed project would be served by an existing groundwater well that serves the existing onsite residence. This structure will be upgraded for onsite facility operations; however, the amount of potable water needs would be similar to the existing WWTP facility and there would be no impact on other water systems or water resources. Impacts are considered less than significant in this regard.

*Revised Project Impacts*

Implementation of the revised project would result in the land disposal of treated wastewater as described in Subsection 2.5, *Revised Project (2024)*. Implementation of these modifications would require minimal water use for dust control during construction. No increase in potable water needs would be required for the revised project beyond that evaluated in the

2022 Final MND. Similar to the approved project, impacts would be less than significant in this regard and impacts would not be greater than analyzed in the 2022 Final MND.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

The proposed project is served by an onsite septic system; there are no impacts to community wastewater systems, as there are none in the immediate area. No impacts would occur in this regard.

*Revised Project Impacts*

Similar to the approved project, there would be no impact of the revised project in this regard and impacts would not be greater than analyzed in the 2022 Final MND.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

The proposed project would generate only a minimal amount of waste from construction-related activities. Construction contractors would be required to comply with federal, State, and local statutes and regulations relating to the disposal of solid waste. There would be no increase in solid waste generation above existing levels in the long-term. In addition, the proposed WWTP would not result in an increase in the amount of wastewater treated that could result in an increased demand for disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. Therefore, because the City will ensure through contractual obligations that the contractor complies with applicable federal, State, and local regulation pertaining to solid waste, there would be no impact.

*Revised Project Impacts*

Similar to the approved project, there would be no impact of the revised project in this regard and impacts would not be greater than analyzed in the 2022 Final MND.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste? | | | X | | Yes | No |

*2022 Final MND Findings*

The 1989 California Integrated Waste Management Act (AB 939) requires the City to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design. Reuse and recycling of construction debris would reduce operating expenses and save valuable landfill space.

Project implementation would generate solid waste during construction and operation. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. AB 939, SB 1016, AB 341, and AB 1826 require the City and County to meet specific waste diversion goals. The amount of solid waste generated from operations of the proposed project would remain similar in quantity as the existing WWTP facility. Less than significant impacts would occur in this regard.

*Revised Project Impacts*

The revised project would not generate any additional solid waste compared to the approved project. The revised project would also be required to comply with the City's regulations and Assembly Bills 939 and 341. Thus, impacts would be less than significant, and no new impacts would result from project implementation.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the revised project will have a less than significant impact with respect to *Utilities and Service Systems*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2019. *Sanitary Sewer Management Plan*. Revised June 2019.

DWR (California Department of Water Resources). 2021. *Sustainable Groundwater Management Act (SGMA) Data Viewer*. [Online]: https://sgma.water.ca.gove/webgis/?appid=SGMADataViewer#boundaries. Accessed January 12, 2021.

DWR. 2003. *Sacramento River Hydrologic Region, Alturas Groundwater Basin, South for Pit River Subbasin Groundwater Bulletin 118*. Updated February 27, 2004.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

CVRWQCB (Central Valley Regional Water Quality Control Board). 2018. *Waste Discharge Requirements Order R5-2018-0025 for County of Modoc Alturas Class III Municipal Solid Waste Landfill Operation*. April 6, 2018.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

SHN. 2021. *Technical Memorandum - City of Alturas Wastewater Treatment Plant Hydrologic Analysis for Wastewater Discharge Reduction.* September 16, 2021.

# XX. Wildfire

This section provides an analysis of potential wildfire impacts. The analysis considers potential impacts of the revised project on emergency access and evacuation routes to, through, and from the project area and the exacerbation of fire risk or that may result in temporary or ongoing impacts to the environment during or following a fire.

## Environmental Setting

Human activities such as equipment operation cause the vast majority of wildland fires that occur on average throughout the State. According to the Modoc County *Local Hazard Mitigation Plan*, wildland fire is an ongoing concern for County. Generally, the fire season extends from early spring through late fall of each year during the hotter, dryer months. Drought may extend the fire season in Modoc County. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds (Modoc, 2016).

The California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program (FRAP) designates lands in three general classifications, "Moderate," "High" and "Very High" Fire Hazard Severity Zones. The 2007 FRAP (updated May 2008) delineates the project site and surrounding vicinity as a part of a designated "Moderate Fire Hazard Severity Zone" (MFHSZ) (CAL FIRE, 2008). Since the site also falls within a State Responsibility Area (SRA) fire suppression for the project site and surrounding area is provided by a combination of first responders such as CAL FIRE with additional firefighting support from the nearby Alturas Fire Department main station located approximately 2 miles from the site (CAL FIRE, 2021).

## Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Wildfire* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to wildfire hazards include the following:

### *California Department of Forestry and Fire Protection*

CAL FIRE protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. The Office of the State Fire Marshal supports CAL FIRE's mission by focusing on fire prevention. It provides support through a wide variety of fire safety responsibilities including by regulating buildings in which people live, congregate, or are confined; by controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death, and destruction by fire; by providing statewide direction for fire prevention in wildland areas; by regulating hazardous liquid pipelines; by reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

### *California Fire Code*

The California Fire Code (CFC) is contained within Title 24, Chapter 9 of the California Code of Regulations. Based on the International Fire Code, the CFC is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the CFC and CBC use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

### *California Public Resources Code*

California Public Resources Code Section 4290 requires minimum fire safety standards related to defensible space that are applicable to SRA lands and lands classified and designated as VHFHSZs. California Public Resources Code Section 4291 requires a reduction of fire hazards around buildings, which requires 100 feet of vegetation management around all buildings and is the primary mechanism for conducting fire prevention activities on private property within CAL FIRE jurisdiction.

### *Fire Hazard Severity Zoning*

CAL FIRE mapped Fire Hazard Severity Zones (FHSZ) in Modoc County based on fuel loading, slope, fire weather, and other relevant factors as directed by California Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189. FHSZs are ranked from moderate to very high and are categorized for fire protection within a Federal Responsibility Area (FRA), SRA, or Local Responsibility Area (LRA) under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively.

### *City of Alturas General Plan Safety Element*

The Safety Element of the City of Alturas General Plan addresses four categories of hazards: geologic hazards, seismic hazards, flood hazards, and fire hazards. The Safety Element contains the following policies related to fire hazards:

1. The City will not permit new development on land which has been identified as environmentally unsound to support such development.
2. New development must demonstrate the availability of adequate fire protection and suppression facilities.

### *Modoc County General Plan Safety Element*

The Safety Element of the Modoc County General Plan contains policies regarding fire protection. The County's General Plan includes the following policies that apply to the proposed project:

3. New development should demonstrate the availability of adequate fire protection and suppression facilities.
4. Recommendations within the Fire Safe Code should be implemented wherever practical in Modoc County.

## Impact Analysis

The following includes an analysis of environmental parameters of the revised project related to *Wildfire* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Wildfire*.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Substantially impair an adopted emergency response plan or emergency evacuation plan? | | | X | | Yes | No |

### *2022 Final MND Findings*

As previously described in Section 2.0, PROJECT DESCRIPTION, new 8-inch diameter force main would run from the pump station along the existing wastewater treatment plant (WWTP) access road to County Road 54, where it would run along the road shoulder for approximately 1.4 miles to the entrance of the disposal property (refer to Figure 2-7, PROPOSED SITE PLAN). The pipeline would be installed below grade and within the roadway right-of-way through trenching and directional drilling.

No roadway closures are anticipated during construction. However, if temporary closures would be required, emergency access would be maintained at all times. Construction effects along the pipeline route would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. Once operational, the project would not conflict with emergency response or evacuation plans. Therefore, the proposed project would not substantially impair an

adopted emergency response plan or emergency evacuation plan. Impacts are considered to be less than significant in this regard.

*Revised Project Impacts*

Similar to the approved project, implementation of the revised project would not involve a use or activity that could interfere with emergency response or emergency evacuation plans for the area. As such, the revised project would not result in a greater impact than the approved project. Impacts would remain less than significant in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project would not result in any alterations to slope, wind, or other factors that could potentially exacerbate wildfire risks onsite or within the project vicinity. The project would include the installation of a force main for wastewater delivery to the disposal ponds. The pipeline would be constructed underground, and all surfaces would be returned to pre-project conditions upon completion of construction activities.

The onsite operations office and all ancillary structures would be upgraded and maintain appropriate fire suppression based on the California Building Code and City requirements. Compliance with applicable regulations and regular inspection of project facilities would reduce wildfire risks and the exposure to pollutant concentrations or uncontrolled spread of wildfire. Impacts are considered to be less than significant in this regard.

*Revised Project Impacts*

As noted above, the approved project would not result in any alterations to slope, wind, or other factors that could potentially exacerbate wildfire risks onsite or within the project vicinity. Implementation of the revised project would continue to be subject to the California Building Code and City requirements. As such, the proposed project does not have the potential contribute to factors that exacerbate wildfire risks, thereby exposing project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would remain less than significant in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | | X | Yes | No |

*2022 Final MND Findings*

As described above, under impact discussion XX.b, project facilities would be constructed, designed, inspected, and maintained in accordance with applicable regulation to reduce fire risk. No new utilities will be extended to the project site, although the project will require connecting to existing onsite power sources. Implementation of the proposed project would not require the installation of any other infrastructure or utilities that may exacerbate fire risk. Impacts are considered to be less than significant in this regard.

*Revised Project Impacts*

Implementation of the revised project does not require the installation or maintenance of infrastructure that would exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. No impact would occur in this regard.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| 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? | | | X | | Yes | No |

*2022 Final MND Findings*

The proposed project would not result in an increase in population, nor would the project include the construction of residential or commercial structures. Onsite where facilities are proposed consists of rolling terrain and is not at risk for landslides. The Federal Emergency Management Agency (FEMA) has mapped the 100-year and 500-year floodplains along the Pit River (refer to Figure 2-3, FEMA FLOODPLAIN, in Section 2.0, PROJECT DESCRIPTION) (SHN, 2020). All proposed facilities, including evaporation and percolation ponds are located outside of the mapped 100-year floodplain. In addition, the proposed pipeline would be constructed underground within the existing County Road 54 right-of-way and would not affect flooding. As a result, there is no reason to believe that the project area would be exposed to significant risks from flooding or landslides as a result of post fire runoff. Impacts are considered to be less than significant in this regard.

*Revised Project Impacts*

Considering the existing site features and characteristics evaluated in the 2022 Final MND, the potential future post-fire conditions are not expected to increase risks associated with runoff and erosion. As described in Section 2.0, PROJECT DESCRIPTION, and analyzed in Section X, HYDROLOGY AND WATER QUALITY, of the 2022 Final MND, the approved project grading would not occur within the 100-year or 500-year floodplains, further reducing the potential for such impacts associated with flooding of the project site or adjacent areas. With implementation of erosion control BMPs required for the revised project, potential impacts associated with runoff, post-fire slope instability, or drainage changes are considered less than significant.

*Mitigation Measures*

There are no changes to the previous impact assessment that require mitigation due to the revised project; therefore, no mitigation measures are required.

## Findings

Based upon the review of the information above, implementation of the revised project will have a less than significant impact with respect to *Wildfire*.

## Documentation and References

Alturas (City of Alturas). 2022. *Alturas Wastewater Treatment Plant Improvement Project Final IS/MND*. March 2022.
Alturas. 2014. *City of Alturas General Plan*. November 2014.
CAL FIRE (California Department of Forestry and Fire Protection). 2021. *State Responsibility Area Viewer.* [Online]: http://www.fire.ca.gov/fireprevention fee/sraviewer_launch. Accessed: January 10, 2021.
CAL FIRE. 2008. *Fire Hazard Severity Zones.* [Online]: https://frap.fire.ca.gov/media/6719/fhszs_map25.pdf. Accessed January 10, 2021.
Modoc (Modoc County). 2016. *Local Hazard Mitigation Plan*. April 2016.
Modoc. 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.
SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

# XXI. Mandatory Findings of Significance

Based on this Addendum, the revised project has not substantially changed in regard to the setting, design, impacts, and mitigation measures as described in the 2022 Final MND. New circumstances or new information, including any new or revised environmental laws, regulations, or policies have not modified the impacts of the revised project compared to that analyzed in the 2022 Final MND.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below the self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number, or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | | X | | | Yes | No |

The revised project would not result in impacts beyond those identified in the 2022 Final MND in this regard and does not have the potential to degrade the environment, reduce the habitat of a fish or wildlife species, threaten plant or animal communities, reduce or restrict endangered plant or animal species, or eliminate important examples of major periods of California history or prehistory with 2022 Final MND mitigation measures incorporated; refer to Section IV, BIOLOGICAL RESOURCES, and V, CULTURAL RESOURCES. Impacts would not be greater than analyzed in the 2022 Final MND.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | | X | | | Yes | No |

Given the nature and scope of the revised project, and in consideration of the mitigation measures included in the 2022 Final MND, the revised project would not involve impacts that are cumulatively considerable.

| Would the Project: | New Impacts of the Revised Project | | | | Adopted 2022 MND | |
|---|---|---|---|---|---|---|
| | Potentially Significant Impact | Less Than Significant with 2022 Mitigation | Less Than Significant Impact | No Impact | Impacts Disclosed? | Subsequent or Supplemental MND Required? |
| c) Does the project have potential environmental effects which may cause substantial adverse effects on human beings, either directly or indirectly? | | X | | | Yes | No |

Construction-related activities are anticipated to have some relatively minor, temporary impacts which can be mitigated with implementation of measures included in the 2022 Final MND. Additionally, potential long-term (operational) impacts

would similarly be reduced to less than significant levels through implementation of required 2022 Final MND mitigation measures. Thus, the proposed project would not involve environmental effects that could cause substantial adverse effects on human beings, either directly or indirectly.

## Findings

Based upon the review of the information above, implementation of the revised project is not anticipated to have a substantial adverse effect on the environment. Therefore, there is no significant impact.

# Section 4.0 – CEQA Determination

DETERMINATION: (To be completed by the Lead Agency)

On the basis of the initial evaluation:

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

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

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

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

☐ I find that although the proposed project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR of NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Copies of the Initial Study and related materials and documentation may be obtained at the City of Alturas Planning and Zoning Division at 200 W. North Street, Alturas, CA 96101. Contact: Warren Farnam, Direct of Public Works; (530) 233-2377; wfarnam@cityofalturas.us.

Warren Farnam
Director of Public Works

7/15/24
Date

# Section 5.0 – Mitigation Monitoring Program (MMP)

This section contains the proposed Mitigation and Monitoring Program (MMP) for the Alturas Wastewater Treatment Facility Project. The MMP includes a brief discussion of the legal basis for and the purpose of the program, discussion, and direction regarding complaints about noncompliance, a key to understanding the monitoring matrix, and the monitoring matrix itself.

California Public Resources Code §21081.6(a)(1) requires public agencies to adopt mitigation monitoring or reporting programs whenever the agencies adopt CEQA Findings in connection with the approval of projects requiring Environmental Impact Reports (EIRs) and whenever agencies adopt Mitigated Negative Declarations (MNDs). This requirement facilitates implementation of all mitigation measures adopted through the California Environmental Quality Act (CEQA) process.

The MMP contained herein is intended to satisfy the requirements of CEQA as they relate to the MND prepared for the proposed project. It is intended to be used by City staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the proposed project. Mitigation is defined by State CEQA Guidelines Section 15370 as a measure that does any of the following:

- Avoids impacts altogether by not taking a certain action or parts of an action.
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifies impacts by repairing, rehabilitating, or restoring the impacted environment.
- Reduces or eliminates impacts over time by preservation and maintenance operations during the life of the project.
- Compensates for impacts by replacing or providing substitute resources or environments.

Table 5-1, MITIGATION MONITORING PROGRAM, below, identifies the mitigation measures proposed for the Alturas Wastewater Treatment Facility Project. The table has four columns that are defined as follows:

- *Mitigation Measure/Condition.* Lists the mitigation measures identified within the MND for a specific impact, along with the number for each measure enumerated in the MND.
- *Timing.* Identifies at what point in time, review process, or phase the mitigation measures will be completed.
- *Enforcement/Monitoring.* References the responsible entity or any other public agency with which coordination is required to satisfy the identified mitigation measure.
- *Verification.* Provides a space to be initialed and dated by the individual designated to verify adherence to a specific mitigation measure.

Any person or agency may file a complaint asserting noncompliance with the mitigation measures associated with the proposed project. The complaint shall be directed to the District in written form, providing specific information on the asserted violation. The City shall conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure has occurred, the City shall take appropriate action to remedy any violation. The complainant shall receive written confirmation indicating the results of the investigation or the final action corresponding to the particular noncompliance issue.

**Table 5-1**
**MITIGATION MONITORING PROGRAM**

| Mitigation Measure / Condition | Timing / Implementation | Enforcement / Monitoring | Verification (Date & Initials) |
|---|---|---|---|
| *Mitigation Measure AQ-1*<br><br>The following dust control measures shall be implemented during construction activities to minimize fugitive dust generation.<br><br>• All active construction areas (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered a minimum of two times per day during the dry season.<br>• Limit traffic speeds to 15 mph on unpaved access roads.<br>• Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.<br>• Enclose, cover, water, or apply non-toxic soil binders to open materials stockpiles.<br>• Dust-generating activities shall be limited during periods of high winds (over 15 mph).<br>• Suspend excavation and grading activity when winds exceed 25 mph.<br>• All haul trucks transporting soil, sand, or other loose material, likely to give rise to airborne dust, shall be covered.<br>• All vehicle speeds shall be limited to 15 miles per hour within the construction area.<br>• Promptly remove earth or other tracked out material from paved streets onto which earth, or other material has been transported by trucking or earth-moving equipment. | During Construction | Contractor / City | |
| *Mitigation Measure BIO-1*<br><br>Western pond turtles, a State Species of Special Concern, are present in the Pit River in and adjacent to the study area and may nest and/or overwinter in portions of the study area. Potential impacts to western pond turtles shall be avoided and/or minimized through implementation of the following measures:<br><br>• Prior to commencement of construction activities exclusionary fencing shall be erected around the unfenced portions of the current WWTP site to prevent access to the site by nesting and overwintering pond turtles. Exclusionary fending shall be wildlife friendly and constructed per the following specifications:<br><br>o All fences shall be three-strand horizontal wire, barbed wire allowed as noted, total height preferably no more than 40 inches, not to exceed 42 inches, no hog wire or non-horizontal standing (chain link prohibited).<br>o Post spans shall not be less than 12 feet.<br>o No more than two stays between fence posts.<br>o All new fences shall have flagging tied to the top wire between posts to improve visibility of the new hazard.<br>o Pronghorn may become accustomed to the new fence by the time the flagging deteriorates. Grey "camouflage" steel posts shall be avoided.<br>o The bottom wire shall be smooth and 18 to 20 inches above ground; the second wire, barbed, spaced 6 to 10 inches above the first, and the third wire, smooth, spaced 12 inches above the second.<br><br>• Prior to commencement of construction activities at the current WWTP site, a qualified biologist shall conduct a pre-construction survey for western pond turtles and shall relocate any western pond turtles encountered to a safe location outside of the exclusionary fencing. In the unlikely event that any turtles stray into the project area, the project biologist would consult with USFWS staff prior to moving the turtles.<br><br>• If western pond turtles are encountered within the exclusionary fencing at any time during construction, construction personnel shall contact the qualified biologist and halt construction activities within 50 feet of the turtle until the turtle has left the area or is relocated by the qualified biologist. | Prior to Commencement of Construction Activities | Contractor / Qualified Biologist / City | |

| Mitigation Measure / Condition | Timing / Implementation | Enforcement / Monitoring | Verification (Date & Initials) |
|---|---|---|---|
| • To prevent the inadvertent entrapment of wildlife, the construction contractor shall ensure that, at the end of each workday, trenches, and other excavations that are over one foot deep have been backfilled or covered with plywood or other hard material. If backfilling or covering is not feasible, one or more wildlife escape ramps constructed of earth fill or wooden planks shall be installed in the open trench. Pipes shall be inspected for wildlife prior to capping, moving, or placing backfill over the pipes to ensure that animals have not been trapped, If animals have been trapped, that shall be allowed to leave the area unharmed. | | | |
| *Mitigation Measure BIO-2*<br><br>Prior to issuance of a grading permit affecting any jurisdictional waters, including wetlands, as identified in the *Aquatic Resources Delineation Report* (Appendix B), the City shall obtain the following resource agency permits from the USACE, CDFW, RWQCB, or any other applicable agency (i.e., USFWS) identified through the permitting process:<br><br>• Prior to any discharge of dredged or fill material into "waters of the U.S.," including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For any features determined to not be subject to the USACE jurisdiction during the verification process, authorization to discharge (or a waiver from regulation) shall be obtained from the RWQCB. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material.<br>• Prior to any activities that would obstruct the flow of, or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFW; and, if required, a 1602 streambed alteration agreement shall be obtained by the City.<br>• The City shall achieve the mitigation for the permanent loss of streams, wetlands, and other waters through the purchase of mitigation credits at an agency-approved mitigation bank at a minimum 1:1 ratio, or through onsite/offsite habitat restoration at a minimum 3:1 ratio All measures contained in the permits or associated with any agency approvals shall be implemented to the satisfaction of the lead regulatory agency. | Prior to Issuance of a Grading Permit | City | |
| *Mitigation Measure BIO-3*<br><br>The potential for introduction and spread of noxious weeds shall be avoided/minimized by the following:<br><br>• Using only certified weed-free erosion control materials, mulch, and seed;<br>• Limiting any import or export of fill material to material that is known to be weed free; and<br>• Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering and upon leaving the job site. | During and Post Construction | Contractor | |
| *Mitigation Measure BIO-4*<br><br>In order to avoid impacts to nesting birds, including raptors, protected under the federal Migratory Bird Treaty Act and California Fish and Game Code §3503 and §3503.5, including their nests and eggs, one of the following shall be implemented:<br><br>• Vegetation removal and other ground-disturbance activities associated with construction shall occur between September 1 and January 31 when birds are not nesting; or<br><br>• If vegetation removal or ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area.<br><br>Surveys shall begin prior to sunrise and continue until vegetation and nests have been sufficiently observed. The survey shall take into account acoustic | During Construction | Contractor / Qualified Biologist / City | |

| Mitigation Measure / Condition | Timing / Implementation | Enforcement / Monitoring | Verification (Date & Initials) |
|---|---|---|---|
| impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds.<br><br>At a minimum, the survey report shall include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed in the area, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have impacted the survey results (e.g., weather conditions, excess noise, the presence of predators, etc.). The results of the survey shall be submitted to the CDFW upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the preconstruction survey, the site shall be resurveyed.<br><br>If active nests are found, the City shall contact the CDFW and the USFWS regarding appropriate action to comply with the Migratory Bird Treaty Act and California Fish and Game Code §3503. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.<br><br>*Swainson's Hawk Specific Surveys.* The surveys shall also be conducted according to methods recommended in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.* If ground-disturbing activities will take place during the Swainson's hawk nesting season (March 1 through September 15), and pre-construction surveys find active nests, a minimum no-disturbance buffer of 0.5-mile be delineated around active nests. If "take" of Swainson's hawk cannot be avoided during project activities, a CEQA Incidental Take Permit must be obtained pursuant to FGC Section 2080 et seq.<br><br>*Cliff Swallow Specific Surveys*. If the installation of the sewer force main outside of the nesting season in not feasible, any existing unoccupied and inactive nest shall be removed from the crossing structure prior to March 1 of the construction year. Removal of empty or unfinished nests shall be repeated daily or as frequently as necessary to prevent nest completion until swallows cease trying to construct nests, or sewer force main installation activities are completed. If swallows are allowed to complete nest building the nests shall not be destroyed or removed until after September 1 or after any successful nests have fledged their young, as determined through monitoring by a qualified biologist. | | | |
| *Mitigation Measure CR-1*<br><br>A Native American Monitor shall be present during ground disturbing activities within the boundaries of know precontact sites within the API. This measure is applicable to the following resources:<br><br>• P-25-000562 (Ethnographic Village of Kosole'kta)<br>• P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse) | During Construction | Contractor / City | |
| *Mitigation Measure CR-2*<br><br>The following resources are withing the area of potential impact, but are not within, nor adjacent to an area of direct impacts. Prior to the commencement of construction activities, the following resources boundaries shall be flagged for identification and avoided during project activities:<br><br>• P-25-00XXX1 (Wandering Flakes; Sparse Lithic and Historical Refuse Scatter)<br>• P-25-00XXX2 (Wayside Vista; Sparce Lithic and Moderately Dense Historical Refuse Scatter) | During Construction | Contractor / City | |

| Mitigation Measure / Condition | Timing / Implementation | Enforcement / Monitoring | Verification (Date & Initials) |
|---|---|---|---|
| *Mitigation Measure CR-3*<br><br>If cultural resources, such as chipped or ground stone, or bone are inadvertently discovered during ground-disturbance activities, work shall be stopped within 50 feet of the discovery, as required by the California Environmental Quality Act (CEQA; January 1999 Revised Guidelines, Title 14 California Code of Regulations [CCR] 15064.5 (f)). Work near the archaeological finds shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the material, and offered recommendations for further action. | During Construction | Contractor / City | |
| *Mitigation Measure CR-4*<br><br>If In the event that previously unidentified evidence of human burial or human remains are discovered during project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5) the Modoc County Coroner must be informed and consulted, per State law. If the coroner determines the remains to be Native American, he or she shall contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent. The most likely descendent will be given an opportunity to make recommendations for means of treatment of the human remains and any associated grave goods. when the commission is unable to identify a descendant or the descendants identified fail to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the descendants and the mediation provided for in subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance. Work in the area shall not continue until the human remains are dealt with according to the recommendations of the County Coroner, Native American Heritage Commission and/or the most likely descendent have been implemented. | During Construction | Contractor / City | |
| *Mitigation Measure TRF-1*<br><br>Prior to project construction within or adjacent to public roadways, the construction contractor shall develop a traffic control plan for the project and submit the plan to the appropriate jurisdiction (City of Alturas, Modoc County), potentially as part of each agency's respective encroachment permit application. The plan shall identify temporary lane, sidewalk, and transit stop closures and provide information regarding how access and connectivity will be during construction activities. The plan shall include details regarding traffic controls that would be employed, including construction signage, detours, and flaggers. The traffic control plan shall be implemented by the contractor during to allow for the safe passage of vehicles, pedestrians, and cyclists along the pipeline route. | Prior to and During Construction | Contractor / City | |

# Technical Appendices

## Appendix A
Final Wastewater Preliminary Engineering Report

## Appendix B
Aquatic Resource Delineation Report

## Appendix C
Biological Study Reports

## Appendix D
Cultural Resource Inventory Reports

## Appendix E
Air Quality Data

# Appendix A

Final Wastewater Preliminary Engineering Report

40100

# Final Wastewater Preliminary Engineering Report

## City of Alturas
## 200 W. North Street
## Alturas, California

Prepared for:

**City of Alturas**

Engineers & Geologists

**November 2020**

**518004.200**

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CONSULTING ENGINEERS & GEOLOGISTS, INC.
803 Main Street, Ste.401 • Klamath Falls, OR 07601 • 541-827-7855 • shninfo@shn-engr.com

Reference: 518004.200

November 12, 2020

Jason Diven, Director of Public Works
City of Alturas
200 W. North Street
Alturas, CA 96101

**Subject:** **Final Wastewater Preliminary Engineering Report**
**Proposition 1 Wastewater Planning Grant**

Dear Mr. Diven:

We are pleased to submit to you the enclosed copy of the Final Wastewater Preliminary Engineering Report (PER). prepared under your Proposition 1 Wastewater Planning Grant. We have incorporated responses to comments from the City, CVRWQCB, and SWRCB-DFA. Please review and let us know if you have any further comments. Please submit to SWRCB-DFA via your FAAST account at your convenience.

If you have any questions, please feel free to contact me at 541-827-7855 or arasmussen@shn-engr.com.

Respectfully submitted,

**SHN Engineers & Geologists**

Anders Rasmussen

Anders H. Rasmussen, PE
Regional Principal/Senior Civil Engineer

AHR:ahr

Enclosures: Final PER

c. w/Encl.: Lawrence Sanchez, SWRCB-DFA
Mike Nilsen, CVRWQCB
Jeremy Pagan, CVWRCB

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Reference: 518004.200

# Final Wastewater Preliminary Engineering Report

Prepared for:
**City of Alturas**

Funding for this project has been provided by the California State Water Resources Board under a Proposition 1 Small Community Wastewater Planning Grant, Agreement No. D17-04002.

Prepared by:

SHN
Engineers & Geologists
803 Main Street, Suite 401
Klamath Falls, OR 97601
541-827-7855

November 2020

QA/QC: AHR


Signed
11/12/2020

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# Table of Contents

# Appendices



# List of Illustrations

**Figures** **Follows Page**

**Tables** **Page**

# Abbreviations and Acronyms

| | |
|---|---|
| BOD | Biochemical Oxygen Demand |
| CDO | Cease and Desist Order |
| CVRWQCB | Central Valley Regional Water Quality Control Board |
| DFA | Division of Financial Assistance |
| FAA | Federal Aviation Administration |
| FEMA | Federal Emergency Management Agency |
| I/I | Infiltration and Inflow |
| MG | Million Gallons |
| MGD | Million Gallons per Day |
| NPDES | National Pollution Discharge Elimination System |
| OMB | Office of Management of Budget |
| PER | Preliminary Engineering Report |
| PVC | Polyvinyl Chloride |
| SCADA | Supervisory Control and Data Acquisition |
| SHN | SHN Engineers & Geologists |
| SRF | State Revolving Fund |
| SSES | Sanitary Sewer Evaluation Study |
| SWRCB | State Water Resources Control Board |
| TSO | Time Schedule Order |
| TSS | Total Suspended Solids |
| USDA-RD | United States Department of Agriculture Rural Development |
| USEPA | United States Environmental Protection Agency |
| UV | Ultraviolet |
| VFD | Variable Frequency Drive |
| WDR | Waste Discharge Requirements |
| WWTP | Wastewater Treatment Plant |
| WWTF | Wastewater Treatment Facility |

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# Executive Summary

The City of Alturas' Wastewater Treatment Plant (WWTP) currently discharging to the Pit River has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand (BOD), total suspended solids (TSS), total coliform, toxicity, and total suspended solids (TSS). The Central Valley Regional Water Quality Control Board has noted that land discharge is the more feasible long-term solution to remain in compliance with future discharge regulations. The WWTP, which having some upgrades in 2006, has components that are well beyond their useful life and need to be replaced.

Several options were evaluated in this Preliminary Engineering Report (PER). Three alternatives were investigated in detail:

- Alternative 1: Rehabilitate the existing WWTP and continue to discharge to the Pit River;
- Alternative 2: Rehabilitate the existing WWTP and use land discharge with infiltration/evaporation ponds offsite; and
- Alternative 3: Decommission the existing WWTP, pump the raw wastewater to an offsite new WWTP utilizing aeration ponds, and use land discharge with infiltration/evaporation ponds at the offsite location.

A planning level alternatives analysis was conducted, with estimated project costs as follows:

- Alternative 1: $12.9 million
- Alternative 2: $11.7 million
- Alternative 3: $5.8 million

Alternative 3 was found to be the most cost-effective solution, both in terms of capital cost and long-term operational costs, through the Net Present Value analysis. Alternative 3 is the recommended alternative.

# 1.0 Introduction

## 1.1 Background

The City of Alturas ("City") owns and operates a wastewater utility which consists of a collection system and wastewater treatment plant. The system serves the City's population of approximately 2,600. The wastewater treatment plant (WWTP) is located along the north bank of the North Fork Pit River at the confluence with the South Fork Pit River. The WWTP provides primary and secondary treatment and had a major upgrade in 2006. Treated effluent is currently discharged to the Pit River under Waste Discharge Requirement (WDR) Order R5-2014-0033 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078921, issued by the Central Valley Regional Water Quality Control Board (CVRWQCB).

The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand (BOD), total suspended solids (TSS), total coliform, and toxicity. A Time Schedule Order (TSO) R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued specifying interim limits for zinc, copper, and total coliform. At the time of the draft Preliminary Engineering Report (PER), renewed WDRs were proposed that include new and recalculated effluent limits. A corresponding Cease and Desist Order (CDO) was also proposed that includes interim effluent limits for copper, zinc, total coliform, and aluminum. These new limits have been issued recently under Order R5-2020-0004.

The City obtained a Proposition 1 Wastewater Planning Grant (Agreement No. D17-04002) from the State Water Resources Control Board (SWRCB) Division of Financial Assistance (DFA) to assist the City to develop a recommended path forward to achieve regulatory compliance.

## 1.2 Purpose

The purpose of this Preliminary Engineering Report (PER) is to evaluate alternatives and provide a recommended alternative to allow the City to obtain funding for final design and construction and achieve consistent regulatory compliance.

## 1.3 Format

The SWRCB does not require a specific format for wastewater treatment facility planning documents. The format of this PER generally follows the format guidelines provided by the United States Department of Agriculture Rural Development (USDA-RD), which will allow the City the flexibility to pursue USDA-RD funding in addition to SWRCB SRF funding.

# 2.0 Project Planning

## 2.1 Location

The City's existing WWTP is located just south of the City limits along the north bank of the North Fork Pit River (Figure 1). The WWTP is located on a portion of a property owned by the City, as shown in Figure 2. This property is also used for the City's dog pound and for storage of excess City equipment. Figure 1 also shows the location of the property where facilities are proposed under the recommended alternative as described later in this PER. The wastewater system service area is described in Section 3.


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City of Alturas
Preliminary Engineering Report
Alturas, CA

Project Location

SHN 518004

December 2019 | Figure_1 | Figure 1

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| | | |
|---|---|---|
| | City of Alturas<br>Wastewater Planning Study<br>Alturas, California | Wastewater Treatment Plant Boundaries<br>Plan View<br>SHN 518004 |
| | November 2020 | 518004-ALTURAS-WW | Figure 2 |

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## 2.2 Environmental Resources Present

Environmental resources present in the planning area are described in the associated CEQA documents, which are being developed concurrently to this PER. Portions of the WWTP site are within the 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA). The 100-year floodplain is shown on Figure 3. No significant changes to existing conditions are anticipated within the defined floodplain and, therefore, no significant downstream impacts are anticipated.

## 2.3 Population Trends

The current population of the City's wastewater service area is approximately 2,600. The City's population has been in decline at an average rate of 1.15% since the 2010 census, when the population was 2,833. Currently, the population appears relatively stable and is not expected to grow significantly within the planning horizon of this study, which is the next 20 years.

## 2.4 Community Engagement

The Public Works Department, through its Director, communicates with and provides updates to the City Council, which meets monthly. Meeting minutes are available at City Hall and online at the City's website for residents to view. If special announcements or communication is needed, the City can include written announcements with sewer and water bills, which are sent out monthly. The City also puts announcements on its website.

# 3.0 Existing Facilities

## 3.1 General

The City's WWTP is a Class II trickling filter facility with the following major components:

- Headworks, including grit removal
- Grinder
- Influent Pump Station
- Primary Clarifier
- Trickling Filter
- Secondary Clarifiers
- Digester
- Sludge Drying Beds
- Disinfection
- Outfall, including high water pump station

A site plan of the current WWTP is presented in Figure 4. The process flow diagram showing the existing treatment process is shown in Figure 5.

The wastewater collection system is not part of this study, but has been described and evaluated in a separate Sanitary Sewer Evaluation Survey (SSES), which was recently completed by SHN as part of the Proposition 1 Wastewater Planning Grant associated with this PER.

## 3.2 History

The exact year when the original WWTP was constructed is not known. Improvements were constructed in 1965, 1974, and 2006. Table 1 provides a list of the WWTP system components, when constructed (if

known), when renovated, and some brief comments. Detailed discussion of the current status of each major component is found in Section 3.3.

**Table 1. Wastewater Treatment Plant System Components**
**Wastewater Preliminary Engineering Report**
**Alturas, California**

| System Component | Year Constructed | Years Renovated | Description of Renovation/Comments[1] |
|---|---|---|---|
| Grit Chamber | 1978 | - | |
| Grinder | 1965 | 2006 | Originally a comminutor; replaced with grinder in 2006 |
| Influent Pump Station | 1965 | - | Replaced old pump station, which is now the recirculation pumps for the trickling filter |
| Primary Clarifier | Before 1965 | 1965, 2006 | Only minor renovations in 2006 |
| Trickling Filter | Before 1965 | 1965, 2006 | Switched from gravel to plastic media |
| TF Recirculation Pumps | 1978? | 2006 | |
| Secondary Clarifiers | 1978 (#1)<br>2006 (#2) | - | Clarifier #1 is currently used for sludge storage |
| Sludge Pump Station | Before 1965 | - | |
| Digester | Before 1965 | 1965 | |
| Chlorine Contact Chamber | 1978 | 2006 | Additional parallel contact chamber |
| Sludge Drying Beds | 1978 | 2006 | Concrete basin with drain lines |
| Effluent Pump Station | 1978 | - | Used only when Pit River is high |

1. See text for additional description and comments

## 3.3 Condition of Existing Facilities

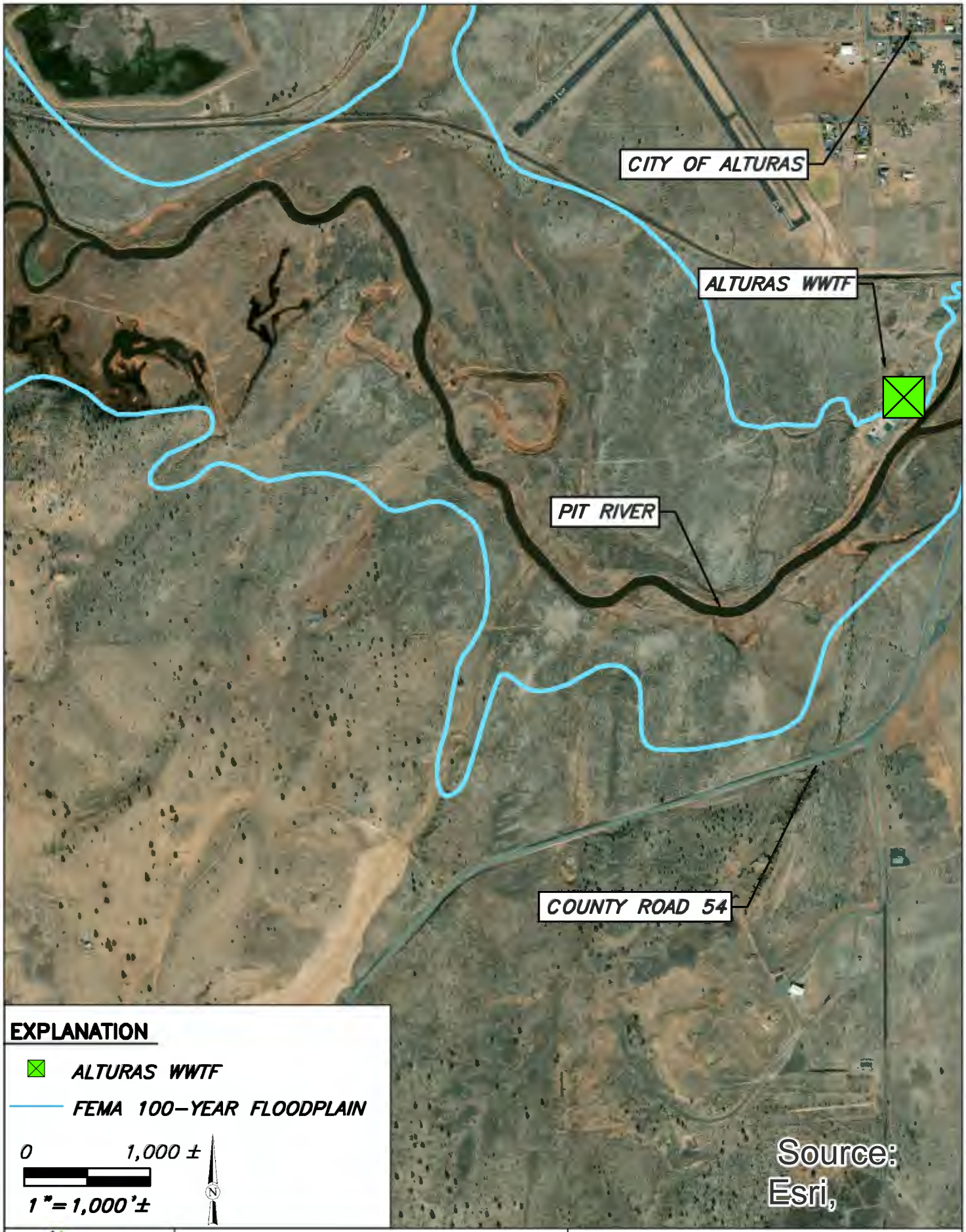
### 3.3.1 General

This section discusses the condition of the existing facilities, first with respect to regulatory compliance, then by individual major treatment component. Year of construction and renovation for each system component was provided in Table 1.

The existing WWTP was originally designed for an average dry weather flow (ADWF) of 0.5 million gallons per day (MGD), with a peak day flow of 1.0 MGD. Current ADWF is approximately 0.33 MGD, and peak daily flows have been as high as 1.2 MGD. Additional discussion about design flows can be found in Section 5.2.

### 3.3.2 Regulatory Compliance

The City's WWTP has been regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB) under Waste Discharge Requirements (WDR) Order No. R5-2014-0033 (NPDES No. CA0078921). At the time the WDRs were issued, it was recognized that the City was not able to comply immediately with the effluent requirements for copper, zinc, and total coliform. The City has had compliance schedules to meet effluent limits for copper and zinc since 2006 in the permit or Time Schedule Orders (TSO). Therefore,

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| | | |
|---|---|---|
| SHN | City of Alturas<br>Preliminary Engineering Report<br>Alturas, California | Alturas WWTF<br>with FEMA 100-year Floodplain<br>SHN 518004 |
| February 2020 | FIGURE_3 | Figure 3 |

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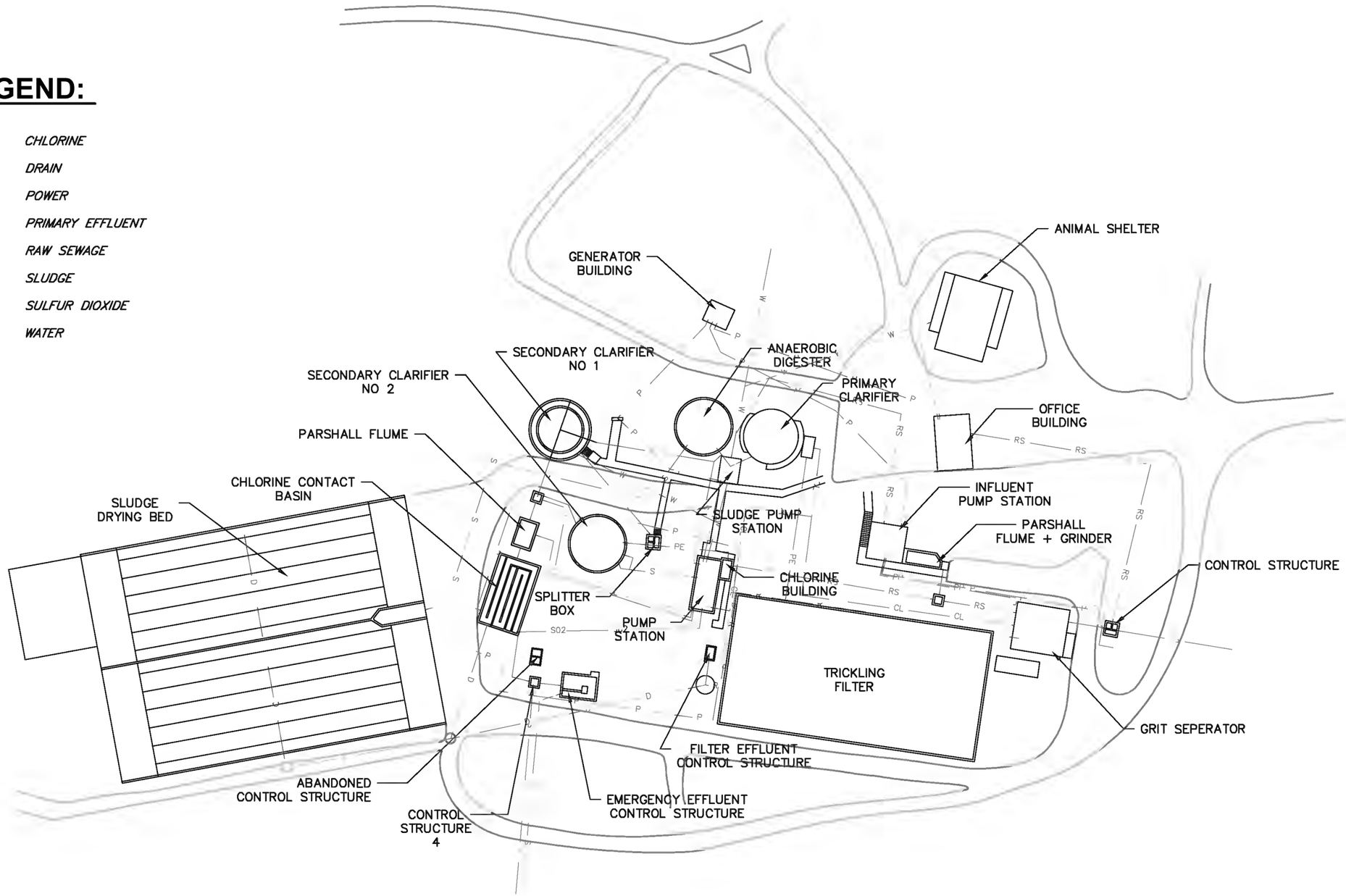
# LEGEND:

- CL — CHLORINE
- D — DRAIN
- P — POWER
- PE — PRIMARY EFFLUENT
- RS — RAW SEWAGE
- S — SLUDGE
- S02 — SULFUR DIOXIDE
- W — WATER




**PLAN**

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| | | |
|---|---|---|
| City of Alturas<br>Wastewater Planning Study<br>Alturas, California | | Existing Conditions<br>Plan View<br>SHN 518004 |
| December 2019 | 518004-ALTURAS-WW | Figure 4 |

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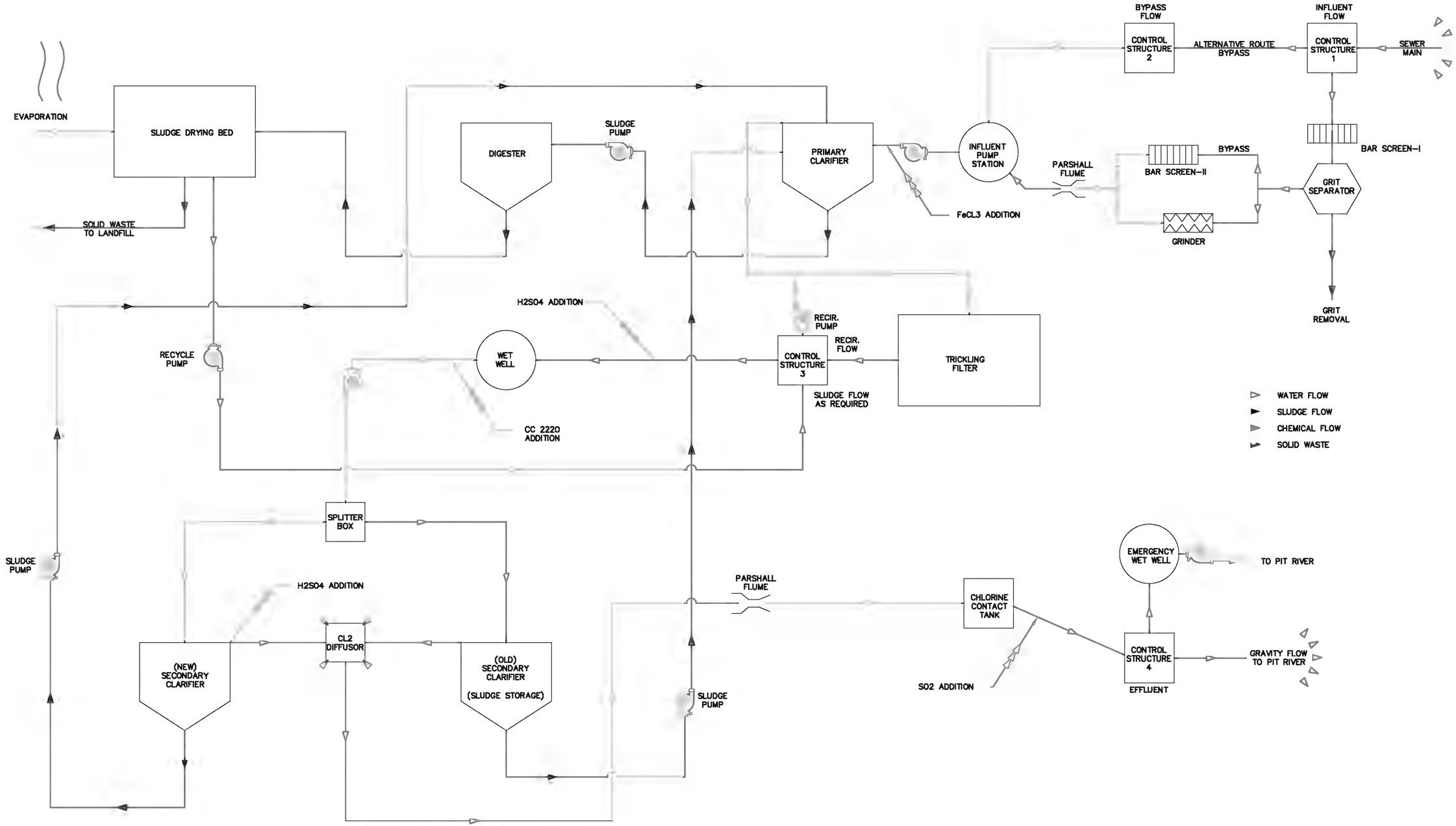


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|---|---|---|
| | City of Alturas<br>Wastewater Planning Study<br>Alturas, California | Existing Flow Diagram<br>-<br>SHN 518004 |
| | December 2019 \| 518004-ALTURAS-WW | Figure 5 |

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Time Schedule Order (TSO) R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued by the CVRWQCB. This TSO gave interim compliance limits for copper, zinc, and total coliform. The final compliance date for copper and zinc was May 18,2020.

A review of effluent water quality data for 2015-2018 revealed that effluent water quality often did not meet the regulatory limits stipulated in the WDR and TSO for the following constituents: Aluminum, copper, zinc, BOD, TSS, and toxicity. The City was assessed $15,000 in civil liability for effluent limitation violations of copper and zinc in 2015. The $15,000 was treated as a permanently suspended administrative civil liability since the City completed a compliance project designed to correct the violations.

After the Draft PER was released and before this Final PER was completed, the CVRWQCB issued on April 1, 2020 a new permit under WDR Order No. R5-2020-0004, which provides interim limits through March 31, 2030 for the following constituents: Chronic Whole Effluent Toxicity, BOD, TSS, and ammonia.

The City has had historical challenges meeting the chronic toxicity with nine out of 36 toxicity tests since 2014 having failed. The newly issued permit has the following compliance schedule for chronic toxicity:

- Until March 31, 2030, chronic whole effluent toxicity shall not exceed 16 toxicity units and a percent effect of 25% at 6.25% effluent, any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.
- After March 31, 2030, chronic whole effluent toxicity shall not exceed 1 toxicity units and a percent effect of 25% at 100% effluent for any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.

Suspected reasons for the toxicity violations have included ammonia and, most recently, surfactants. Other potential causes include chlorine, metals, non-polar organics, other treatment chemicals, and total dissolved solids. The most recent Toxicity Identification Evaluation by Pacific EcoRisk dated August 2019 from samples collected July 8 and 10, 2019 concluded the following:

> *"Toxicity was persistent with a 54.4% reduction in growth relative to the laboratory control…By weight of evidence, the combined visual observation of foam during air sparging and the overall improvements in cell growth from all treatments suggest that surface-active compounds (i.e., surfactants) may be causing or contributing to toxicity. Further analysis of all treatments for anionic and nonionic surfactants is recommended."*

The CVRWQCB has indicated that if the City continues to discharge to the Pit River, future permits will include effluent limits for previously nonregulated constituents which include arsenic, Bis (2-ethylhexyl) phthalate, ammonia, and nitrate+nitrite. As discussed later in this PER, significant upgrades to the WWTP would be required to address these new effluent limits.

### 3.3.3 Headworks

The headworks consists of a manual bar screen, a grit removal chamber, and a grinder. The manual bar screen is located in the inflow channel to the grit chamber and is in good condition. The bar screen is cleaned manually daily as needed.

The grit removal chamber is a detritus tank, which is constant-level, short detention settling tank. Grit is removed from the bottom by a rotating rake arm that sweeps the grit to a collection sump where the grit is pumped to grade level into a wheelbarrow. The existing flow vanes, piping, grit pump, and rake are old and beyond their useful life. Much of the exposed metal shows significant signs of rust. While there is a bypass around the grit chamber, the grit chamber has never been taken offline for cleaning according to City staff.

The grinder grinds solids into smaller pieces that can be removed in the primary clarifier. This was originally a comminutor installed in 1965 but was replaced with a grinder in 2006 and appears to be in good condition. A bypass channel adjacent to the comminutor has a manual bar screen and allows for the grinder to be taken offline or for use as a high flow bypass if needed.

In general, the in-ground concrete structures housing the grit chamber and grinder are in good condition. This includes handrails and safety railing.

Figure 6 shows the bar screen and grit chamber. Figure 7 shows the grinder.

**Figure 6.** Existing bar screen and grit chamber

**Figure 7.** Grinder and bar screen bypass.

### 3.3.4 Influent Pump Station

The influent pump station consists of a concrete wet well and adjacent dry well. In the dry well are three centrifugal pumps with draw horizontally out of the wet well. One pump is rated at 350 gallons per minute (gpm) and is used for low flows. The other two pumps are rated at 750 gpm and are used for high flows and for redundancy. The drywell pumps and piping are shown in Figure 8.

It is not known whether the pumps have been replaced since original installation in 1965. The pumps appear to be past their useful life. In the last couple of years, the pumps have been frequently offline and in need of repair. The City is currently in the process of replacing all three pumps for proper redundancy. The pumps currently do not have variable frequency drives (VFD). When the pumps turn, the full flow occurs which leads to short circuiting in the primary clarifier as discussed in the following section.

The original piping from the pumps to the primary clarifier has been replaced with a new alignment due to a leak in the original piping. The old pipe was removed from the influent pump station and the pipe capped. The new piping consists of 12-inch-diameter polyvinyl chloride (PVC) much of which runs along the wall as shown in Figure 9. The interior PVC piping, which is restrained with chains and runs vertically from the dry well to grade level, was intended to be temporary but has been in place since 2006. In December 2006, the pipe failed and flooded the dry well. A shut-off float has been installed in the pump station to turn off the pumps if the pipe breaks inside the building. Failure of the pipe could allow raw wastewater to spill inside the lab and electrical rooms, which are located at the ground floor. Between the influent pump station and

the primary clarifier, the PVC pipe was laid at a shallow depth (16-20 inches), and a boulder barrier has been placed to keep vehicular traffic from driving over the pipe alignment.

**Figure 8.** Influent pump station.

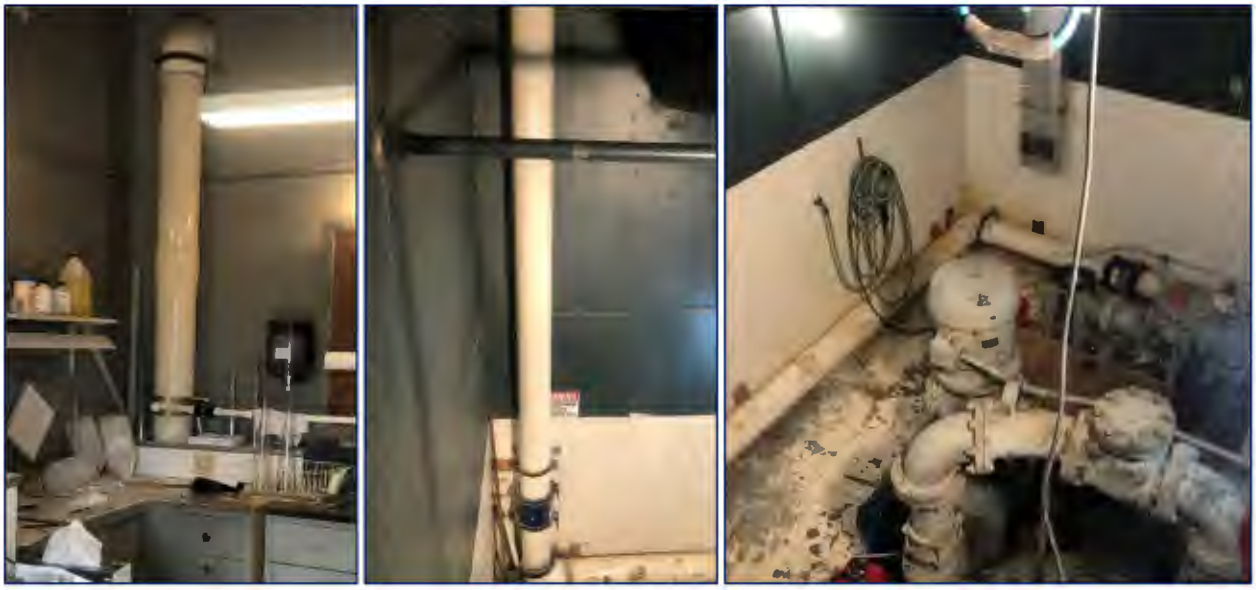


**Figure 9.** "Temporary" PVC force main from influent pump station.

Modifications to the influent pump station were needed to allow for installation of the new discharge piping. This retrofit has eliminated the ability of the operator to use a crane to remove pumps for servicing. Currently, the operator has to pull the pump and carry it up a narrow staircase with a ninety degree turn in it.

### 3.3.5 Primary Clarifier

The 30-ft-diameter primary clarifier has been in place since before the major WWTP upgrade in 1965, at which time it received significant upgrades, including a new skimming mechanism, new weir baffles, new scum box, and new drive housing. Minor upgrades were done in 2006. The internal raking and skimming mechanisms, while generally performing adequately, are well beyond their expected life, and many of the parts are difficult to find. The walkway associated with the drive housing is constructed of wood, which is currently in poor condition. Photos of the primary clarifier are shown in Figure 10.

**Figure 10.** Primary clarifier.

With only one primary clarifier, there is no redundancy. Currently, the clarifier experiences short circuiting which leads to inadequate solids removal. These solids end up in the trickling filter. The solids removal process utilizing a grinder and primary clarifier leads to significant amounts of plastics in the primary sludge. According to operations staff, the high amounts of plastics and other non-organic material creates problems in the poorly functioning anaerobic digester (described further in a later section).

### 3.3.6 Trickling Filter

The City's WWTP has utilized a trickling filter (TF) for biological treatment since before 1965. The existing trickling filter is rectangular in shape and uses fixed emitters separated into two zone. From at least 1965 to 2006, the trickling filter media consisted of gravel. In 2006, the gravel was replaced with random dump plastic honeycomb-shaped media (Bio-Pac SF#30), new underdrains were installed, and sidewalls were rehabilitated. The existing filter has a footprint of approximately 10,400 square feet and has a media depth of six feet. Figure 11 shows the photos of the trickling filter.

Effluent from the trickling filter is pumped either back to the TF for recirculation or to the secondary clarifier. Photos of the pump station are shown in Figure 12. In 2006, the pumps were upgraded with new motors and VFDs. While the pump station is old and may not meet current code requirements, it appears to be working adequately.

**Figure 11.** Trickling Filter (top) showing media (bottom left) and exterior wall where cracking has occurred in the CMU block wall (bottom right).

The issues with the trickling filter are as follows:

- Flow is not well distributed over the existing media.
- Wind affects the spray from the emitters, and the operator has created windrows to block wind.
- Freezing conditions can occur on the top of the media during winter, leading to reduced treatment efficiency.
- Operator access to sprayers is unsafe, since the operator must walk on the plastic media.
- Chemical addition is needed for pH adjustment.
- There is inadequate recirculation during wet weather months, leading to reduced treatment efficiency.
- The west wall of the trickling filter appears to have tilted, with cracking showing at the northwest and southwest corners.
- While the trickling filter has two zones and, therefore, technically has redundancy, there is no interior wall separating the two zones.
- The second zone does not have windrows in the media so it more susceptible to wind effects than the first (western) zone.
- There is inadequate nitrification occurring in the trickling filter.

**Figure 12.** Recirculation flow control structure (left) and pump station to secondary clarifier (right).

### 3.3.7 Secondary Clarifiers

Secondary Clarifier #1 was constructed in 1978. In 2006, a redundant new secondary clarifier (#2) was constructed. Since that time, clarifier #1 has generally been offline and used as sludge storage, which has removed the redundancy that was originally intended. Figure 13 shows clarifier #1, and Figure 14 shows clarifier #2.

Issues with clarifier #1 are as follows:

- The internal structure, including weirs, rake arms, and skimmer arms are showing significant signs of rust due to lack of use.
- Concrete surface of the clarifier structure is showing signs of pitting.
- The scum pipe valve is difficult to open and close.
- The skimming arm and scum baffle have been removed.

Clarifier #2 appears to be in good working order.

**Figure 13.** Secondary Clarifier #1 (currently offline).

**Figure 14.** Secondary Clarifier #2.

### 3.3.8 Sludge Pump Station

The sludge pump station has been in service since before the 1965 upgrade. Sludge from the trickling filter and secondary clarifiers is pumped from each respective unit through the sludge pump station to the primary clarifier. Sludge from the primary clarifier is pumped through this station to the digester. Sludge from the digester is then pumped to the sludge drying beds.

There is only one pump in the sludge pump station which does all the pumping in the various directions described above. The operation is manual and requires valves to be opened/closed to allow for the sludge to be moved in the proper direction. The piping is old, and the pump, while operational, appears to be well beyond its useful life. See photos in Figure 15.

**Figure 15.** Sludge pump station and piping gallery.

### 3.3.9 Digester

The anaerobic digester is in a significant state of disrepair and is not functioning as originally designed. It predates the 1965 upgrade, but upgrades performed in 1965 include a new sludge mixer and redwood roof. Figure 16 shows the current conditions of the digester.

**Figure 16.** Digester.

The digester is no longer functioning in an anaerobic state due to significant openings from missing plywood panels on the upper sides and roof. The shaft and blade of the mixer have broken away and fallen onto the digester floor. The supports for the mixer have failed, causing the mixer motor to drop a few inches. Operations staff has installed 4-inch by 4-inch wood boards to provide support to the mixer motor to ensure

it does not fall into the digester. Operator access to the roof is dangerous due to the missing or loose plywood panels.

### 3.3.10 Sludge Drying Beds

The sludge drying beds were constructed in 2006, replacing ones that were constructed in 1978. There are two separate beds located adjacent to each other. Each bed is concrete lined with a sloped bottom. Four-inch-wide slot drains run longitudinally to allow water to drain from the sludge. The slot drains contain a three-inch-diameter perforated pipe covered by 3/8-inch pea gravel to prevent solids from draining. Figure 17 shows the existing sludge drying beds.

The sludge drying beds appear to be prone to plugging in the slot drain gravel, causing slow drainage. At times, this has required storing sludge in secondary clarifier #1 due to lack of capacity. The gravel in the slot drains was recently replaced in at least one of the beds and has improved the drainage ability. The design of the slot drain appears to cause frequent plugging requiring more frequent gravel replacement.

The drain water pump station dates from 2006 and appears to be functioning properly. This pump station pumps drain water from the drying beds to the primary clarifier.

**Figure 17.** Sludge drying beds.

### 3.3.11 Disinfection

Since the effluent is currently discharged to the Pit River, the disinfection process includes chlorination and dechlorination. Chlorination is performed using chlorine gas, and dechlorination is performed using sulfur dioxide gas. In 2006, the chlorine contact chamber was expanded to include a second flow path for effluent which provides more capacity during wet weather flows and helps maintain proper contact time. The system is functioning properly. However, the cost to obtain gaseous chlorine and sulfur dioxide has increased significantly in recent years due to changes in the supplier and the hazardous nature of both transporting and storing the gas. Figure 18 shows the chlorination building. Figure 19 shows the chlorine contact chamber.

**Figure 18.** Disinfection building

**Figure 19.** Chlorine contact chamber. Chlorine injection occurs in the upper structure in the background and dechlorination (sulfur dioxide injection) occurs at the chamber outfall in the foreground.

### 3.3.12 Outfall

The outfall consists of two pipes that discharge to the Pit River. Under most flow conditions in the Pit River, the WWTP effluent is discharged by gravity directly to the Pit River. When water levels in the Pit River are very high, the effluent is directed to a pump station is pumped to a higher elevation discharge pipe. The effluent pump station is used very infrequently.

### 3.3.13 Backup Power System

A diesel generator installed in 1978 provide backup power to the WWTP in the event of a power outage. Operations staff has indicated that it is old and not currently tested and is, therefore, not reliable. The structure housing the generator appears to be in good condition.

### 3.3.14 SCADA System

The WWTP currently operates manually with no Supervisory Control and Data Acquisition (SCADA) system. There are alarms which alert the operator by phone in case of pump failures.

### 3.3.15 Plant Classification

The Alturas WWTP is currently classified as a Class II facility, requiring a Grade II operator. As discussed later in this report, the difficulty of finding licensed wastewater treatment operators with Grade III or higher factors significantly into the treatment methods being investigated.

## 3.4 Financial Status of Existing Facilities

The 2006 WWTP upgrade, which included the trickling filter and secondary clarifier, was funded through a loan from the Clean Water State Revolving Loan Fund (SRF). The current principal balance is approximately $800,000, and annual payments are $95,844. The SRF loan requires that the funded components be operated and maintained for 20 years. Under the current repayment schedule, the loan will be paid off in 2029.

## 3.5 Water/Energy/Waste Audits

No energy or waste audits have been performed at the WWTP. A Sanitary Sewer Evaluation Study (SSES) was recently performed as part of the grant funding for this PER. The results of the SSES showed that there is significant infiltration and inflow (I/I) into the system due to high groundwater and age of infrastructure. However, it was determined that it would be more cost effective to address the I/I flows at the WWTP rather than construct I/I reduction projects in the collection system. The SSES results along with an augmented analysis are summarized in Appendix 1.

# 4.0 Need for Project

## 4.1 Health, Sanitation, and Security

The main need for the project is to eliminate the effluent water quality violations that the City has experienced over the last several years. The CVRWQCB has indicated that the Pit River is a sensitive water and would prefer to see the City use land disposal for the effluent. Due to the frequency of violations of the current effluent limits, the CVRWQCB is concerned with the City's ability to meet the current and future effluent limits if they continue to discharge to the Pit River. Future regulated constituents include arsenic, Bis (2-ethylhexyl) phthalate, and ammonia.

## 4.2 Aging Infrastructure

The secondary need for this project is due to aging infrastructure at the WWTP. As described in Section 3, a number of the unit processes are very old and not functioning properly. There is a need to rehabilitate or replace many of the processes. Operator safety issues are also of concern as discussed on Section 3.

## 4.3 Reasonable Growth

The City of Alturas has had a relatively stable population that has been slowly declining over the last couple of decades. Since there is not significant change in population expected within the planning horizon of this report, growth is not a factor.

# 5.0 Alternatives Considered

## 5.1 Initial Alternatives Development

The overall approach was to develop up to three main alternatives that meet the goals stated in Section 4. The main alternatives considered centered around continuing to discharge to the Pit River or utilize land disposal through a combination of evaporation, percolation, and irrigation for the treated effluent. Initially, the preferred direction by the City was to maintain the WWTP and its current secondary level of treatment for all alternatives; however, the WWTP could not be upgraded above its current classification in order to keep the same operator grade level. Later in the process, with staff changes at the City, an additional alternative of decommissioning the existing WWTP and building a simplified WWTP offsite was also suggested. A do nothing alternative was not considered because such alternative would not bring the City into compliance with the current WDR/NPDES permit.

Other alternatives that are typically reviewed include the following:

- Optimize current WWTP operations
    - This was not pursued since some of the treatment process units, e.g. the digester, are in such poor condition that only operational changes would not be sufficient.
- Interconnect with other existing systems
    - There are no other nearby systems.
- Build new centralized facilities for regional/joint management
    - There are no other nearby systems.
- Develop centrally managed decentralized systems, including small cluster or individual systems.
    - Since Alturas is a small community, a decentralized system was not considered given that the topography and infrastructure layout lend itself well to a single WWTP location and there is no advantage to a decentralized system.

After much discussion and research, three main alternatives were developed for further analysis:

- Alternative 1: Upgrade WWTP with Pit River discharge
- Alternative 2: Upgrade WWTP with land discharge
- Alternative 3: New WWTP with land discharge

The specific details of each alternative, along with analysis of subalternatives, are described in the following sections. The next section discusses the general design criteria which apply to all the alternatives and provided a specific framework for cost basis.

## 5.2 General Design Criteria and Constraints

Various design criteria are applicable to multiple or all alternatives and are discussed in this section. Design criteria that are specific to individual alternatives are discussed in the respective sections.

The existing WWTP is designed for an average dry weather flow of 0.5 million gallons per day (MGD) and a peak flow of 0.8 MGD. Based on influent flow data from 2008-2017, current average dry weather flow is approximately 0.33 MGD, and recent daily peak flows have been as high as 0.91 MGD. Instantaneous peaks have been up to 1.2 MGD. For this study, the alternatives were designed around 0.5 MGD for design dry weather flow and 1.0 MGD for peak day flow.
Based on the current permit and discussions with CVRWQCB regulators regarding likely future regulations under each alternative, the following treatment levels for BOD and TSS were used as a basis for design:

- BOD: 10 milligrams per liter (mg/L) for Alternative 1, 30 mg/L for Alternatives 2 and 3.
    - Under the current permit, BOD of 30 mg/L is allowed when the dilution ratio in the Pit River is greater than 20:1.
- TSS: 10 mg/L for Alternative 1, 30 mg/L for Alternatives 2 and 3.
    - Under the current permit, TSS of 30 mg/L is allowed when the dilution ratio in the Pit River is greater than 20:1.

Nitrogen, in any form, was not regulated in the 2014 permit. The recently issued permit includes effluent limits for ammonia and nitrite+nitrate but are not included in the interim limits. However, these nitrogen limits have been taken into consideration in the direct discharge scenario (Alternative 1). It is assumed that nitrogen species will not be included in WDRs for land disposal (Alternative 2 and 3) but will be monitored through groundwater monitoring, which could lead to future nitrogen limits if elevated levels are found in the groundwater monitoring wells.

For Alternative 1, limits on zinc, copper, aluminum, and toxicity must be considered. Effluent limits for arsenic and bis (2-ethylhexyl) phthalate are included in the recently issued permit but are not included in the interim limits.

Redundancy and emergency bypass ability are generally required under USEPA guidelines for WWTPs. As such, redundant units and/or bypass piping/channels are incorporated in the design.

One of the key constraints affecting the design is that the existing WWTP must remain in operation at all times during construction of the new facilities. Another major constraint is the proximity of the WWTP to the Alturas airport. Current FAA regulations (AC 150/5200-33A) generally prohibit open water bodies within a 5,000-foot radius from the nearest operation area (that is, edge of runway) for an airport serving piston-powered aircraft due to concerns with bird strikes. Open water attracts various bird species, and the presence of these birds can increase collisions between aircraft and birds. The 5,000-foot buffer is shown on the figures for Alternatives 2 and 3 with respect to proposed pond locations.

## 5.3 Sub-Alternatives Analysis

### 5.3.1 General

Analysis of various options within each alternative was needed in order to provide definition to each alternative. For example, “upgrade WWTP sludge digestion” is inadequate, for there is more than one option for doing so. The following sections discuss the evaluation that was done for each of the major process items. Some of the options are applicable to one, two, or all three of the major alternatives as discussed in each section.

Many of the various components of the existing WWTP are well beyond their useful life. While some of them could be rehabilitated with minor costs, it is our opinion that this simply delays needed upgrades. Therefore, the approach was to recommend full replacement when it would be in the best long-term interests of the City for the respective alternatives.

## 5.3.2 Headworks and Primary Treatment

### 5.3.2.1 Alternatives 1 and 2

The existing headworks and primary treatment consist of bar screen, grit chamber, grinder, and primary clarification. The following options were considered:

- Upgrade or replace the various unit processes as needed (grit chamber, primary clarifier); and
- Replace grit chamber and primary clarification with screening.

Upgrade of the grit removal would entail either replacing the internal mechanisms or replacing the entire unit with a new package grit removal system. The primary clarifier currently has no redundancy, so a replacement would entail construction of two new clarifiers. Another option is to construct a new primary clarifier and rehabilitate the existing one. Rehabilitation of the existing primary clarifier would consist of replacement of the internal mechanism.

Replacing the grit chamber and primary clarification with a single screening unit process could be done either by (1) installing the screening unit within the existing grit chamber along the influent channel downstream of the bar screen, or (2) installing a new unit on the existing bypass line located along the south side of the grit chamber. There are several types of screening mechanisms on the market. After some research and discussion with vendors, a screw screening unit, such as the Parkson Helisieve (www.parkson.com) or the Franklin Miller Spiralift (www.franklinmiller.com), was determined to be the most appropriate type of screen (see Figure 20 for a typical screw screen). Only coarse (6 mm, or ¼ inch) screening would be needed for effective grit and solids removal based on the downstream process of trickling filtration. The existing grinder would be decommissioned.

**Figure 20.** Typical helical screw screen.

The main advantage of replacing the grit and primary clarifier with a screw screen would be to reduce the inorganic solids loading (namely from plastics) to the digester and the sludge drying beds. According to operations staff, the presence of significant levels of plastics in the digester has caused upsets in the process. This process will increase the solids generation and handling needs at the front end of the WWTP.

After review of the options with respect to preliminary costs, constructability issues, and future operations and maintenance (O&M) costs, it was determined that replacing the existing headworks and primary treatment with a single screw screen with 6 mm opening size with a capacity of up to 1.0 MGD would be the best overall solution. For this study, it was assumed that the new screen would be placed on the bypass line in a new concrete chamber. The influent channel would have an emergency bypass. The screw screen includes an integral dewatering system conveys the dewatered solids to a hopper, which could be a dumpster.

#### 5.3.2.2 Alternative 3

Under Alternative 3, the existing WWTP is decommissioned and all wastewater is conveyed to a new aeration pond treatment facility offsite. This will require a pump station located at the WWTP along the existing entrance road. Two options were considered: (1) Provide coarse screening to remove grit and solids prior to pumping or (2) pump all raw influent sewage to the new WWTP.

The first option, providing coarse screening prior to pumping, was determined to be the best option. Removal of grit and solids prior to pumping will reduce solids buildup in the forcemain and in the aeration

ponds. The coarse screen system would be the same as for Alternatives 1 and 2 but placed in a different location as described under the Alternative 3 description.

### 5.3.3 Influent Pump Station

As discussed in Section 3, the current influent pump station (IPS) is generally in good shape other than the pumps and the forcemain to the primary clarifier. The needed upgrades include replacing all three pumps and the forcemain, redirecting the pumped flow to the new trickling filters. The pumps would have the same as the current flows, i.e. one pump at 350 gpm and two pumps at 750 gpm. All three pumps would include VFDs. This option is applicable only to Alternatives 1 and 2. Alternative 3 would require a package influent pump station as described later.

### 5.3.4 Trickling Filter

The main considerations with the existing trickling filter are twofold: (1) the media does not appear to provide the level of treatment originally anticipated and (2) due to the configuration with the bubbler sprayers, the surface area of the filter is not fully utilized. Further, one of the side walls is not in good condition and needs to be repaired.

Several options were evaluated, including the following:

- Replace the media with gravel as used previously;
- Replace the media with another engineered plastic media;
- Replace the emitters with a spray system that provides better flow distribution over the media;
- Repair the existing outer wall that is leaning slightly;
- Replace the existing trickling filter with new, more traditionally round shaped units;
- Replace the trickling filter with another treatment process, such as aerated ponds, activated sludge or membrane bioreactors.

Various factors were applied during evaluation of these alternatives, including operational issues, winter weather effects, redundancy, future regulations, and treatment efficiency. While rehabilitating the existing trickling filter is feasible, it was not favored based on the history of the existing unit and industry norms. Replacing the trickling filter with new round units is preferable because the round units will have the following advantages:

- No need for operator access to repair fixed emitters.
- Improved treatment efficiency from more efficient flow distribution.
- Improved nitrification.
- Improved redundancy.

Replacing the trickling filter with aeration ponds, which does not require a change in operator grade level, became Alternative 3. The aeration ponds needed to be moved offsite due to the proximity to the Alturas airport. Upgrading the trickling filter with another process such as activated sludge or membrane bioreactors would change the classification of the WWTP to a Class III Facility, thereby requiring a Grade III operator. This was not a preferred option for the City, since finding a Grade III operator is very uncertain as discussed earlier.

For Alternatives 1 and 2, we are recommending two parallel trickling filter treatment trains, each with two trickling filters. Each has a capacity of 0.5 MGD. Each filter is 30 feet in diameter and looks similar to what is

shown in Figure 21. The media would be cross flow rigid media that can support a worker. The first filter of each train is for BOD removal, and the second is for nitrification. The new trickling filters would be placed just northwest of the existing digester (see Alternative 1) in order to allow the existing trickling filter to remain in operation during construction.

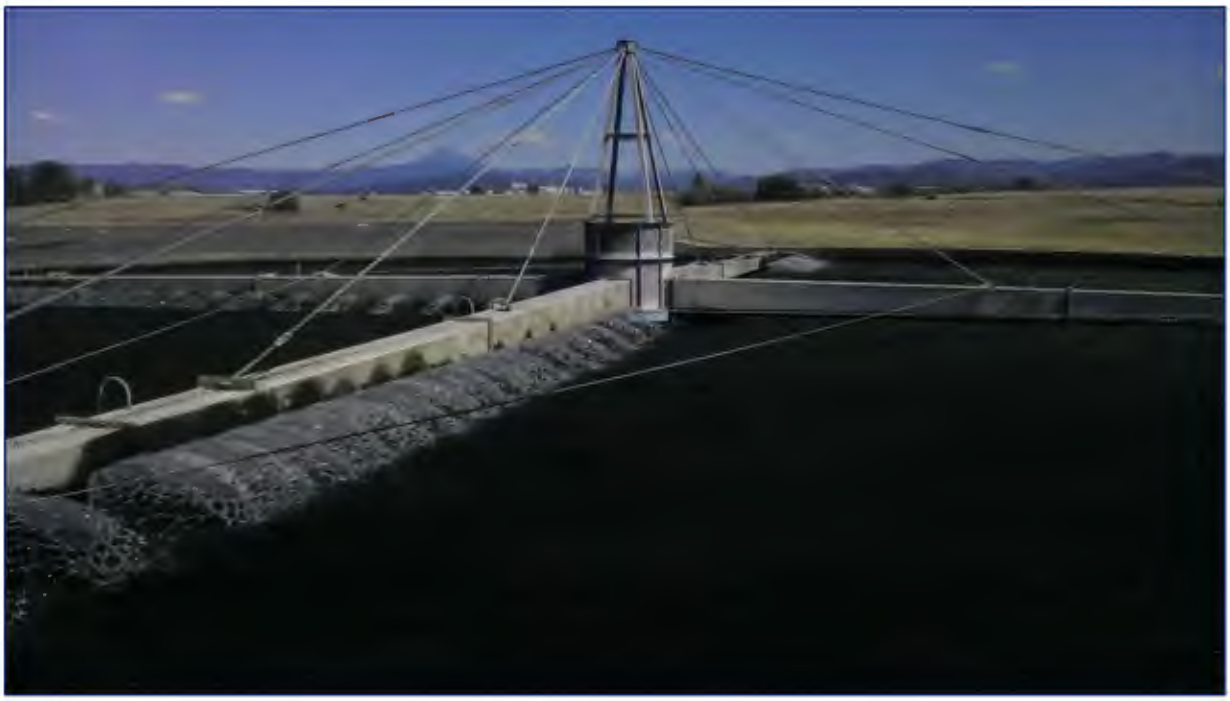


**Figure 21.** Typical trickling filter showing media as is recommended for Alturas.

### 5.3.5 Secondary Clarifier

Since clarifier #1 is not currently being used for clarification but for sludge storage, there is no redundancy. Two options were considered: (1) rehabilitate the clarifier #1 and (2) construct a new redundant clarifier. With the existing concrete tank and associated piping being in good condition, it was determined that replacement of the internal clarifier mechanisms was preferred. The internal mechanisms include the overflow weirs, rake arm, skimming arm, catwalk, motor and drives. The sludge pump is also assumed to require replacement. This is applicable to Alternatives 1 and 2.

### 5.3.6 Digester

Three options were considered for sludge digestion:

- Rehabilitate the existing anaerobic digester;
- Replace the digester with new anaerobic digesters;
- Replace the digester with new aerobic digesters.

Rehabilitation of the existing digester would include replacing the cover and upper side walls, replacing the mixer, and installing a gas flare. Anaerobic digestion produces methane gas, which must either be flared off or otherwise contained. On method of methane use at WWTPs is to burn it as a fuel source for power generation. However, the quantities produced at the Alturas WWTP are too low to make beneficial use

economical. Therefore, a gas flare with an associated air quality permit is needed. Rehabilitating the existing digester does not add redundancy without adding a second unit. Based on a cursory review of potential costs, it was determined that full replacement was a preferred option.

Sludge digestion can be performed either aerobically or anaerobically. There are advantages and disadvantages from an operational perspective for each method. The key deciding factor is that anaerobic digestion produces methane gas that must be flared off, requiring an air quality permit. It was therefore determined that replacement with two new aerobic digesters (for redundancy) was the selected option to use for Alternatives 1 and 2.

### 5.3.7 Disinfection

Alternative 1 is the only alternative where effluent disinfection is needed. The CVRWQCB confirmed that disinfection is not required for land disposal that utilizes evaporation and percolation as the effluent disposal method. Current and future permit requirements (for direct discharge to the Pit River) would include a limit on total residual chlorine, which necessitates dechlorination if chlorine is used as the disinfectant.

Currently, the City uses gaseous chlorine and sulfur dioxide for disinfection and dechlorination, respectively. As discussed in Section 3, cost and availability for remote deliveries of small quantities has become an issue. Other disinfection alternatives that were evaluated include the following:

- Liquid sodium hypochlorite (disinfection) and sodium bisulfite (dechlorination)
- Ultraviolet disinfection
- Onsite generation
- Ozone generation

Liquid sodium hypochlorite is commonly used as a disinfectant in order to avoid the regulatory safety requirements around chlorine gas. Sodium hypochlorite comes in a 12.5% solution, which does degrade with time, thus requiring deliveries at least quarterly. Sodium bisulfite for dechlorination also comes in a liquid solution.

Ultraviolet (UV) disinfection is also a popular disinfection method. It does require a fair amount of electrical energy, but no dechlorination is needed since UV does not introduce chlorine, which is harmful to aquatic life. UV units have historically been prone to fouling, requiring a fair amount of maintenance. One company, Enaqua, has introduced a non-contact UV unit, which reduces maintenance costs (www.enaqua.grundfos.com).

Onsite generation is a method of applying electricity to a solution of salt and water to produce sodium hypochlorite. This is one of the safest disinfection methods, as inert salt is stored on site. However, dechorination is still required, which would entail using liquid sodium bisulfite.

Ozone is a powerful disinfectant, more powerful than chlorine, but is not a stable substance. This requires onsite generation of ozone, which is an energy intensive operation. No dechlorination is needed for this method.

After a cursory review of these methods, it is recommended that the disinfection system be changed to use liquid sodium hypochlorite and sodium bisulfite for Alternative 1. This is based on ease of operation, safety concerns, and cost. Conversion would entail replacing the chlorine and sodium hydroxide cylinders with liquid sodium hypochlorite and sodium bisulfite in the existing chlorination/dechlorination room and installing new chemical feed pumps. It is assumed the existing feed lines are in good condition. Frost protection of the lines near the injection points must be considered during final design.

It should be noted that for Alternatives 2 and 3, if disinfection were required in the future, the process could easily be added to the proposed configurations. Further, dechlorination is not needed if chlorination is used since the effluent is not being discharged to a water body.

### 5.3.8 Sludge Drying Beds

Operator feedback on the condition of the sludge drying beds has been mixed. The City has recently replaced the media located in the slot drains in half of the beds, and this improved the ability of the beds to drain more consistently. Replacement of the drying beds with a revised design to improve leachate drainage was considered but ultimate dismissed due to the recent media replacement. While not a superior design, the existing beds appear to be functioning well when properly operated.

### 5.3.9 Land Discharge

For Alternatives 2 and 3, land discharge of treated effluent is proposed. Land discharge can be in a variety of forms, including evaporation, percolation, irrigation, or a combination of these. Often, winter storage is needed, especially when irrigation is used, since irrigation is not needed during the winter months. A significant amount of land is needed for land discharge. The amount needed depends on various factors including wastewater flow (dry weather and wet weather), climate conditions (precipitation and evaporation), soil conditions (percolation), and crops (if irrigating). In most cases, the public must be prevented from having access to the disposal sites due to public health concerns. Groundwater quality must not be impacted, which typically restricts nitrogen levels. Compliance with this would be done through required groundwater quality monitoring. Also, no overflow from storage ponds or runoff from irrigated areas is allowed, as this would be considered a direct discharge to a water body which is a violation of land discharge permit.

Various factors were considered when evaluating each property. These factors included the following:

- Federal Aviation Administration (FAA) wildlife hazard mitigation regulations;
- Mapped floodplain;
- Proximity to the Pit River
- Depth to groundwater
- Soils
- Irrigation operations

The FAA discourages the creation of new water bodies within 5,000 feet of an airport, specifically 5,000 feet from the edge of runways. The water bodies act as bird attractants and, therefore, could increase hazardous bird strikes with aircraft. However, there are methods that are used to deter birds from coming to the water bodies and that are currently used at other pond locations near airports. These techniques include wires strung across the ponds, visual deterrents, audio deterrents, covers, and floating balls. A discussion of various techniques (except floating balls) is provided in Appendix 2. Wires strung across ponds

would require periodic, though infrequent, removal to provide maintenance access to the ponds. The floating balls are plastic balls partially filled with water and are used frequently to provide cover on ponds and open tanks to deter birds. The balls also reduce evaporation by approximately 90%. Mechanical evaporators are another solution that increases evaporation but also has a side benefit of deterring birds due to its noise when operating.

The Federal Emergency Management Agency (FEMA) has mapped the 100-year and 500-year floodplains along the Pit River (see Figure 3). All of the proposed parcels for land discharge are outside, or mostly outside, of the mapped floodplain. No pond structures would be proposed within the 100-year floodplain.

The CVRWQCB expressed concern based on recent litigation that if percolation ponds are placed too close to the Pit River then the risk of hydraulic connectivity with the river increases. Such hydraulic connectivity is difficult to ascertain without groundwater tracer studies. As such, it was determined on a qualitative basis to place any percolation areas as far away as possible from the Pit River.

Depth to groundwater is an important factor when especially percolation is used for disposal. No degradation of the groundwater quality is allowed. The greater the depth to groundwater, the better, since soils can provide additional treatment while water percolates through the soil matrix.

Soils, especially their permeability and infiltration capacities, are important factors in locating percolation and irrigation areas. The greater the infiltration ability of the soil, the smaller the infiltration area and pond volumes are required. Initial review of soils was conducted using the online web soil survey from the National Resources Conservation Service (NRCS), which provide maps of soil types and soil characteristics. Additional in field infiltration tests were performed at the preferred locations (discussed below), which provided data for preliminary sizing of percolation areas.

Irrigation is commonly used as an effluent disposal method. However, this can only be done during the growing season, which requires winter storage, with the exception of a forested irrigation, which is done in some locations year-round. Typically, irrigation is used for a fodder crop, such as grass or alfalfa hay. In general, wastewater utilities that utilize irrigation own the land where irrigation and winter storage take place, but it is possible to have long-term agreements with third parties to take the effluent for irrigation use. An irrigation disposal system often adds operational costs for the management and/or operation of the irrigation system by utility staff. Irrigation is used when recycled water has significant value and when more passive methods, such as evaporation and percolation, are not as feasible.

With these considerations in mind, several parcels were identified as potential land discharge locations. These are shown on Figure 22 and include the following:

- Adjacent Modoc Refuge property
- Mill Site (Duck Ponds)
- Irrigation Field along Highway 299
- Modoc County Landfill
- Manteca property along County Road 54

The Modoc National Wildlife Refuge property located immediately west of the City's WWTP site was initially the preferred alternative for land discharge. Percolation tests were conducted, and it was determined that

the site soils have decent permeability, indicating that approximately three to six acres of ponds would be needed to provide the area required for percolation and evaporation. Mechanical evaporators were also considered to increase evaporation.

The depth to groundwater at the Refuge property, especially during the winter months was not known. The distance from the proposed pond locations and the Pit River is under 1,000 ft. Without further studies, including installing monitoring wells and performing groundwater tracer studies, this location left an uncertain potential risk, as indicated by CVRWQCB staff, for hydraulic connectivity with the Pit River.

The Refuge property is within a 5,000-foot radius of the Alturas airport, which is within the FAA wildlife hazard mitigation zone. After informal discussion with the FAA by City staff, it was determined that getting FAA approval for siting the ponds would be very difficult. Modoc Refuge staff indicated that the Federal government, which owns the property, could not sell the land outright but could swap with equivalent land. The City does not own land that would likely be considered equivalent on a monetary basis to this property. A significant portion of this property is located within the 100-year mapped floodplain. For these reasons, it was concluded that pursuing this option was not favorable.

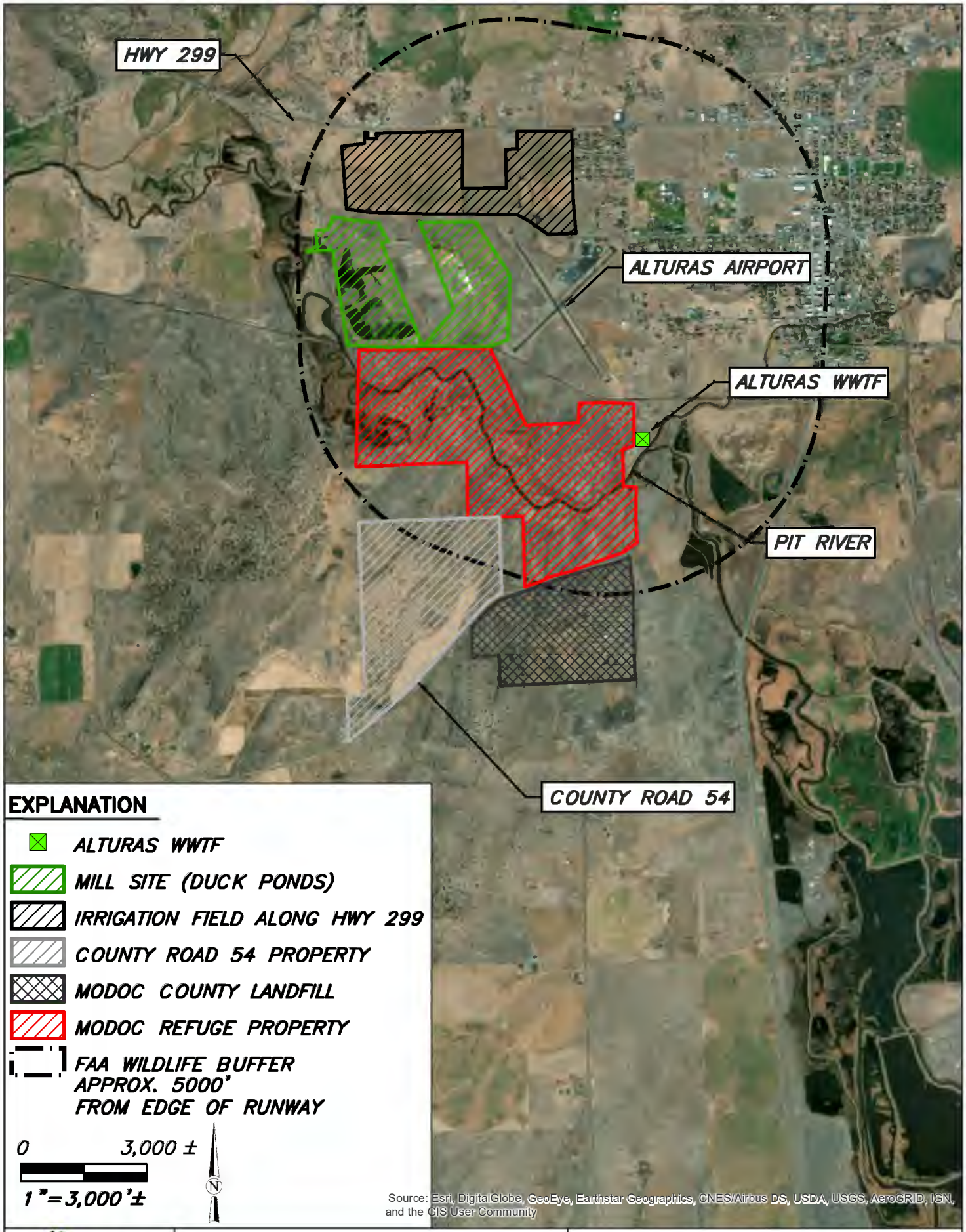
The Mill Site consists of a former mill site where portions of the parcel have been used to create duck hunting ponds which are currently filled with potable groundwater. After review of the site, this was not considered a feasible alternative because of the potential of public contact with the treated effluent would require higher levels of treatment and because the hunting club was not willing to take the effluent without compensation.

The irrigation field along Highway 299 was considered for irrigation disposal. However, winter effluent storage would still be needed, and additional land would be needed since this parcel does not have sufficient area for storage ponds. These ponds would need to be placed close by, which would be within the 5,000-foot wildlife mitigation zone around the airport. Therefore, this parcel was eliminated from further consideration.

According to the NRCS soil survey, well draining soils are found in large areas south of the Pit River along County Road 54. One site, owned by Modoc County, is where the County Landfill is located. Portions of the property are conducive to having percolation ponds, but are in too close proximity to the landfill, which would likely not be acceptable to the CVRWQCB. This site was therefore eliminated from further consideration.

A 278-acre parcel along County Road 54 (Manteca Property, see Figure 22) with well-draining soils was identified. This property is located within two miles of the WWTP. Based on a preliminary review of pumping costs, it was determined that pumping to a land disposal site within five miles of the WWTP was acceptable. Percolation tests were performed (see Appendix 3) which confirmed the ability of this site to provide good percolation opportunity, with a calculated minimum required infiltration area of approximately three acres, with two two-acre ponds being recommended.

The Manteca property is hilly with nestled shallow gulches which are conducive to siting percolation ponds and aeration treatment ponds. The depth to groundwater varies based on the overlying topography, which varies by more than 60 feet between the upper elevations to the lower elevations. At the lower elevations

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| | | |
|---|---|---|
| SHN | City of Alturas<br>Perliminary Engineering Report<br>Alturas, California | Proposed Disposal Sites<br>with FAA Perimeter<br>SHN 518004 |
| | February 2020 | FIGURE_22 | Figure 22 |

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along County Road 54, groundwater was encountered at a depth of 9.5 feet in Exploratory Pit (1), while no groundwater was encountered up to 11 feet in Exploratory Pit (2). The ground elevation where the percolation ponds would be located is approximately 60 feet higher than the ground elevation around Exploratory Pit (1). The straight distance to the Pit River is approximately 2,300 feet. Based on the results of these initial investigations, the Manteca property was considered to be the most suitable location for effluent disposal and was therefore considered for Alternatives 2 and 3. The City has contacted the owner and an agreement for an option to purchase is currently being negotiated. Monitoring wells, which would be installed during final design in the vicinity of the percolation ponds, would be used to determine depths to groundwater at the location of the percolation ponds.

For Alternatives 2 and 3, two evaporation/percolation ponds will be constructed for disposal of the treated effluent, each designed to infiltration at least 0.5 MGD. Each pond will have a bottom area of two acres with a depth of six feet. Embankment side slopes will be 3H:1V on the inside and 2H:1V on the outside. It is anticipated that soils will be suitable and a balanced cut and fill construction will be feasible to minimize construction costs. Preliminary sizing calculations with respect to infiltration are presented in Appendix 3.

### 5.3.10 Other options evaluated

Other options that were considered but dismissed as either infeasible, too complicated, or too uncertain include the following:

- Polishing treatment surface wetland;
- Polishing treatment subsurface wetland;
- Equalization ponds
- Effluent disposal into geothermal reinjection wells.

Polishing treatment wetlands, both surface and subsurface, were considered for Alternative 1. They were determined not to be needed for Alternatives 2 and 3, since land discharge has fewer effluent limitations than river discharge. These wetlands provide additional treatment to remove BOD, TSS, metals, and nitrogen. The wetlands are not the ultimate disposal locations, as the effluent pass through them and must be sent to a discharge location at the downstream end. For Alternative 1, the discharge would be to the Pit River, and for Alternatives 2 and 3, the discharge would be percolation basins. It was determined that polishing wetlands would not be needed for Alternatives 2 or 3, since the proposed process would provide sufficient treatment and since land discharge has fewer regulatory requirements than a river discharge.

A surface wetland would have open water, which attracts birds. Since the surface wetland would need to be located near the WWTP, it would be within the FAA wildlife hazard mitigation zone, and would, therefore, be difficult to permit. Research into subsurface wetlands found that, while these can be effective for treatment, available removal data were difficult to find. Without performing pilot tests, which were not part of this study, it would be difficult to predict the specific treatment efficiency with certainty. Further, the ability of subsurface wetlands to treat constituents that are likely to be regulated in the future was unknown due to lack of data. Subsurface wetlands are also prone to plugging, which increases maintenance costs. Thus, treatment wetlands were not pursued further.

Equalization ponds were considered as an option to reduce flow spikes in the treatment train during high winter flows after a significant storm or snowmelt event. When flows are equalized, a relatively constant treatment flow can be maintained which can reduce the size of various unit processes. Based on flow data

from 2017, which has exceptionally high wet weather flows during the first half of the year, it was determined that equalization volumes of approximately 500,000 gallons would be needed. This would require large tanks or ponds, which would be a new open water source within the FAA wildlife mitigation zone. It was, therefore, determined that equalization ponds were not an economical option for peak flow reduction.

Another option considered was the disposal of treated effluent into an unused geothermal well. This has been used effectively in other locations. After discussion with City staff, it was determined that no geothermal wells for this use were available, as there are very few geothermal wells in Alturas and the surrounding area.

## 5.4 Alternative 1: Rehabilitate WWTP with River Discharge

### 5.4.1 Description

Alternative 1 consists of improvements to the existing WWTP and continued discharge to the Pit River. Based on an evaluation of the existing treatment processes (see Section 3) and the sub-alternative analyses discussed in Section 5.3, the improvements consist of the items listed in Table 2. A plan view showing the configuration of the upgraded facility is shown in Figure 23. A process flow diagram is shown in Figure 24.

In general, decommissioning of the unit processes is assumed to consist of removing internal moving mechanisms but keeping the existing concrete structures in place. The only exceptions are the trickling filter, which needs to be removed to make room for the new digesters, and the existing digester, which has a failing superstructure that needs to be removed and no exterior railing to prevent someone from falling into the below grade structure.

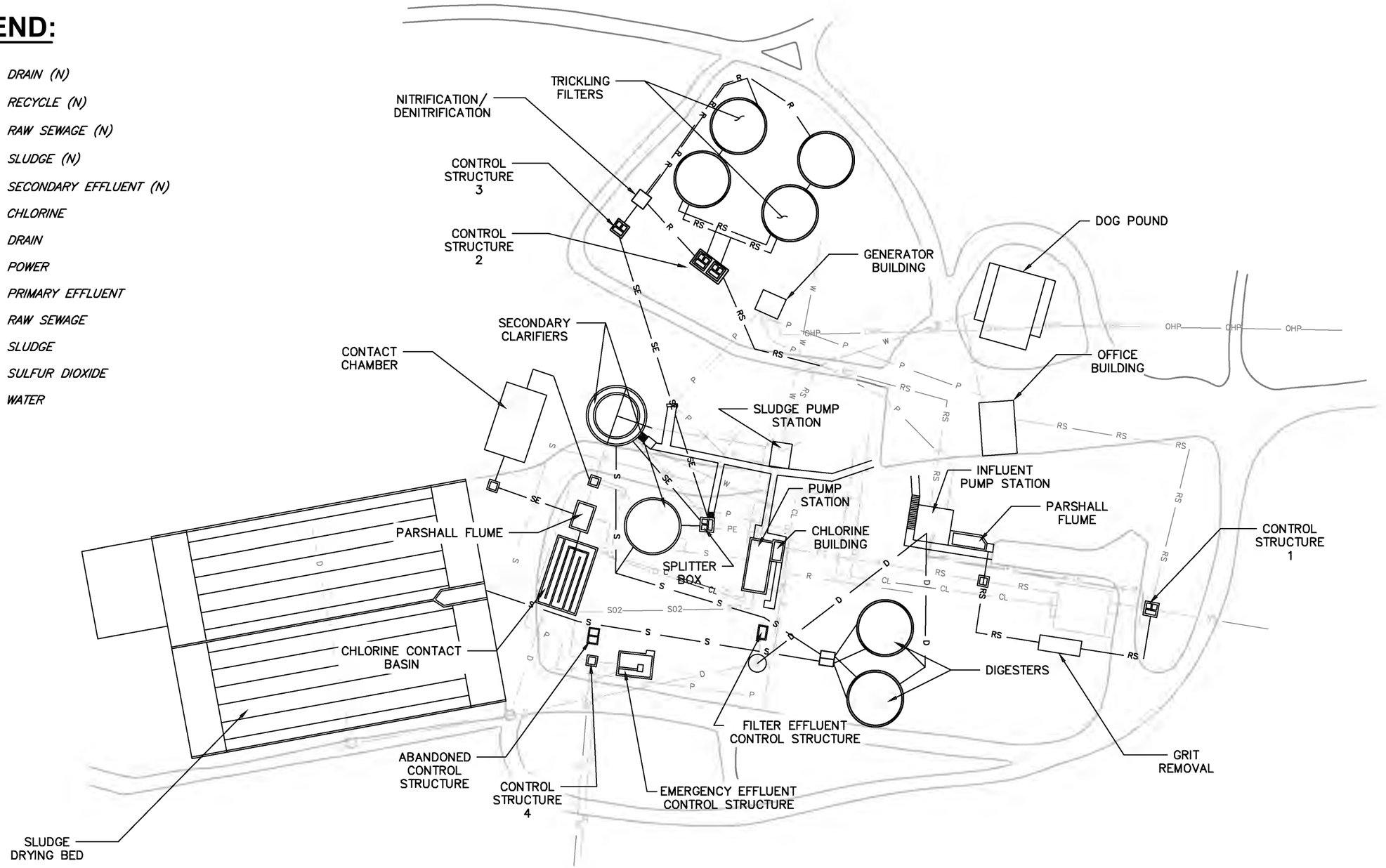
The new screw press screen, as discussed earlier, will consist of a screening unit such as the Franklin Miller Spiralift with integrated weather protection (-40 degrees Fahrenheit), integral screen washing, and dewatering unit. A below grade concrete structure will be constructed over the existing bypass line with an open concrete channel in which the screen is placed. The washed screenings will be conveyed to grade level where they will be dewatered and placed in a dumpster, which will be emptied on a weekly basis. A bypass channel will be incorporated to allow for the screen to be taken offline if needed.

The new trickling filters will be round concrete structures partly below grade using structured sheet, plastic crossflow media (by e.g. Brentwood). As discussed earlier, the trickling filters will consist of two parallel treatment trains of two units each, for a total of four 30-foot-diameter trickling filters.

Secondary Clarifier #1 will get new internal parts including rake arms, skimmers, weir plates, and motor due to the deterioration that has occurred from lack of use. The new weir plates would be of fiberglass material, rather than steel, to prevent future rusting.

# LEGEND:

| | |
|---|---|
| D | *DRAIN (N)* |
| R | *RECYCLE (N)* |
| RS | *RAW SEWAGE (N)* |
| S | *SLUDGE (N)* |
| SE | *SECONDARY EFFLUENT (N)* |
| CL | *CHLORINE* |
| D | *DRAIN* |
| P | *POWER* |
| PE | *PRIMARY EFFLUENT* |
| RS | *RAW SEWAGE* |
| S | *SLUDGE* |
| SO2 | *SULFUR DIOXIDE* |
| W | *WATER* |




**PLAN**

0 FEET 60

| | | |
|---|---|---|
| City of Alturas<br>Wastewater Planning Study<br>Alturas, California | | Alternative 1<br>Plan View<br>SHN 518004 |
| December 2019 | 518004-ALTURAS-WW | Figure 23 |

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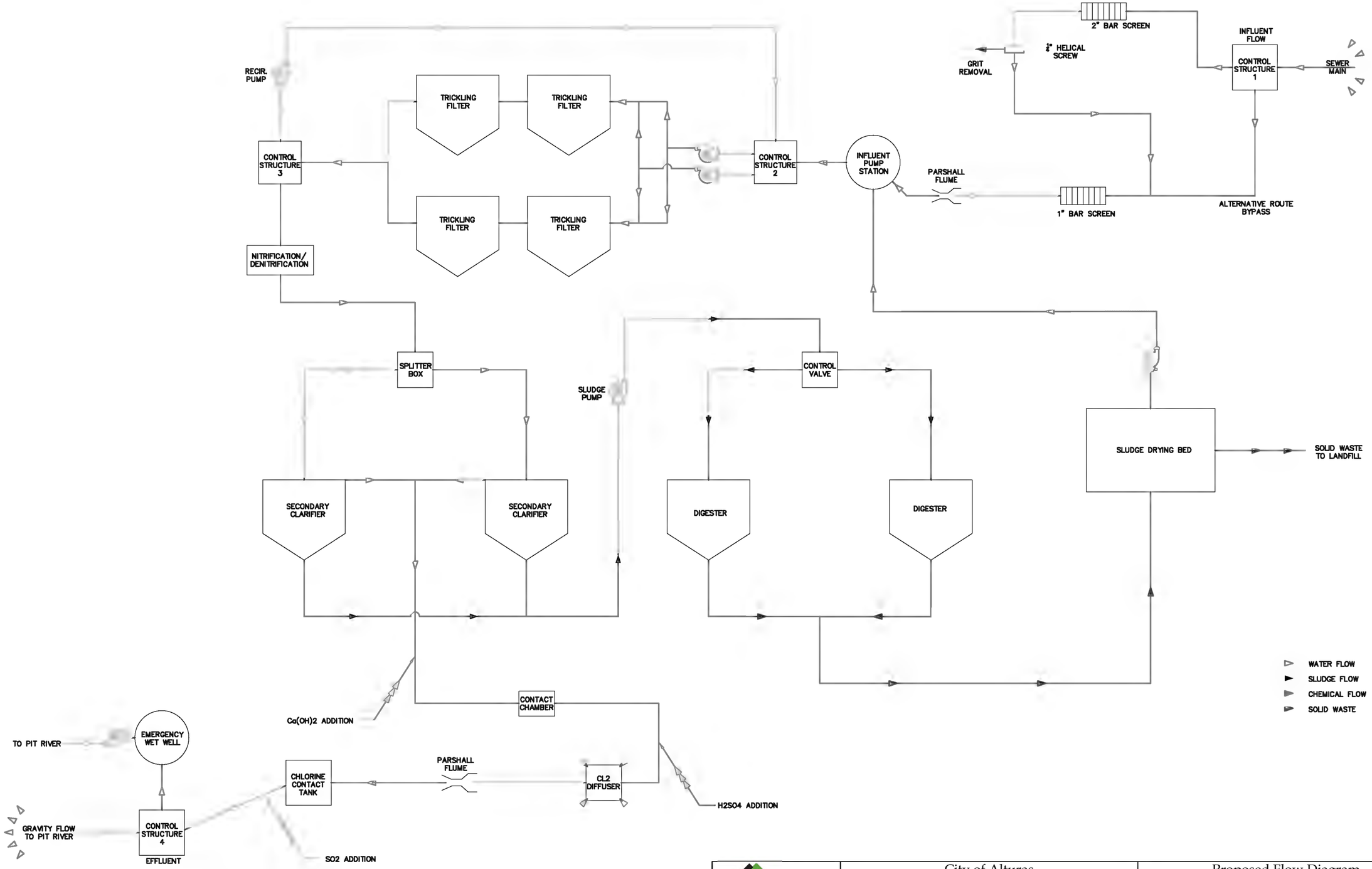


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|---|---|---|
| | City of Alturas<br>Wastewater Planning Study<br>Alturas, California | Proposed Flow Diagram<br>Alternative 1<br>SHN 518004 |
| | December 2019 \| 518004-ALTURAS-WW | Figure 24 |

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**Table 2. Alternative 1 Component Description**
**City of Alturas Wastewater Planning Study**

| Item | Additional Description |
|---|---|
| Decommission the grit chamber, grinder, and primary clarifier; replace with new screw press screening | The existing structures will remain while all mechanical equipment is removed. The new screen will be placed on the existing bypass line. |
| Improve influent pump station | Replace existing pumps with new pumps with VFDs[1]; replace PVC[2] force main piping and redirect to the new trickling filter location; and install new crane hoist for pump removal. |
| Decommission existing trickling filter and replace with new round trickling filters | New filters to be located in different location to allow the existing filter to remain in service. New filters will be 30-foot diameter round units, two parallel treatment trains for redundancy and high flows, each train with two filters in series. Includes flow control box and recirculating pumps. |
| Install new nitrification/denitrification process | Assume packaged engineered unit process. |
| Rehabilitate Secondary Clarifier #1 | Replace all internal moving mechanisms and weir plate. |
| Install new metals removal process | Use chemical precipitation process with pH adjustment. |
| Replace disinfection system | Switch from gaseous to liquid chlorination and dechlorination |
| Replace anaerobic digester with aerobic digester | Two units for redundancy are recommended. Placed at the location of the former trickling filters. |
| Replace associated yard piping and site electrical as needed to connect the relocated treatment processes | |

1. VFD: Variable Frequency Drive
2. PVC: Polyvinyl Chloride

A new nitrification/denitrification process would be added to remove nitrogen to meet proposed ammonia and nitrite+nitrate limits. Ammonia conversion to nitrate will take place partly in the trickling filter process, with the remainder as well as the denitrification process will take place in a separate engineered nitrification/denitrification process such as the NitrOx+D process by Triplepoint Environmental.

For Alternative 1, limits on zinc, copper, aluminum, and toxicity must be considered. The following paragraphs describe the specific approaches to each of these.

Zinc and copper removal can be accomplished in a number of ways, including chemical precipitation or ion exchange. For this alternative, a chemical precipitation process is assumed since it is commonly used in industrial wastewater processes. Hydrated lime will be added to the secondary effluent coming from the secondary clarifier in order to bring the pH up to above 10.3. Zinc and copper will precipitate out as the effluent flows through a contact clarifier. The pH will be lowered using sulfuric acid prior to disinfection. Sludge will be sent to the sludge drying beds.

Aluminum, which is found in the polymer currently used to assist the existing trickling filter process, is assumed to be removed from the wastewater since the improved trickling filters will not require the coagulant.

Toxicity is not a particular constituent but can result from a number of causes, including chlorine, ammonia, non-polar organics, metals, other treatment chemical additives, surfactants, and total dissolved solids. It is anticipated that many of these potential causes will be reduced or eliminated as a result of the improved treatment process. If toxicity is persistent, additional study would be required.
The disinfection system would consist of two chemical feed pumps, one for chlorination and one for dechlorination. Full redundancy is not needed, since extra chemical feed pumps can be kept on hand for replacement in the event of a pump failure.

The new aerobic digesters will consist of two units for redundancy and will be located where the trickling filter is currently. A unit such as manufactured by WesTech is recommended.

The CVRWQCB has indicated that future effluent limits for arsenic, bis (2-ethylhexyl) phthalate would be included in future NPDES permits, which are included in the 2020 permit to start in 2030. The CVRWQCB and SWRCB-DFA requested that general approaches to addressing these limits be discussed as part of the PER.

Removal of bis (2-ethylhexyl) phthalate in municipal wastewaters has been researched recently, and studies have indicated that this phthalate can be removed by sorption to primary and secondary sludges. Additional removal may occur during the denitrification process. It would be anticipated that the recommended unit processes would provide sufficient treatment for this phthalate.

### 5.4.2 Design Criteria

General design criteria were described in Section 5.2. Specific design criteria for individual components are discussed below.

The pumps for the influent pump station will match the existing, i.e. one at 350 gpm and two at 750 gpm. The head requirements will be determined during final design since the pumped flow would be directed to the new trickling filters.

### 5.4.3 Environmental Impacts

This alternative would disturb previously disturbed areas within and around the footprint of the existing WWTP.. Additional discussion of environmental impacts are discussed in the CEQA documentation.

### 5.4.4 Land Requirements

No new land is required for Alternative 1.

### 5.4.5 Potential Construction Problems

Potential construction problems include rock excavation for buried yard piping and site electrical and construction sequencing that does not allow for continued use of the existing WWTP during construction.

### 5.4.6 Sustainability Considerations

This section discusses any design consideration with respect to water conservation, water reuse, energy efficient design, operational simplicity, appropriate technology, and other considerations.

Since this alternative is an upgrade of the existing system with continued discharge to the river, there were no significant sustainability considerations that affected the design, other than the recommendation that variable frequency drives be added to the influent pump station pumps. Solar panels could be installed in the future on unused portions of this property to offset electrical costs.

### 5.4.7 Costs

Capital costs for Alternative 1 are shown in Table 3. Anticipated operational costs are presented in Table 4. Additional detail is provided in Appendix 4. It should be noted that the operational costs listed below exclude the current SRF Loan repayment of $95,844 annually through 2028 since this cost is the same for all alternatives.

**Table 3. Alternative 1 Opinion of Probable Project Costs[1,2,3]**
**City of Alturas Wastewater Planning Study**

| Item | Description | Item Cost |
|---|---|---|
| 1 | Decommission/Demolition | $25,000 |
| 2 | Demolish existing trickling filter | $41,000 |
| 3 | Helical Screw Screen | $309,000 |
| 4 | Trickling Filters (4) | $1,744,000 |
| 5 | Nitrification/Denitrification | $900,000 |
| 6 | Aerobic Digesters (2) | $772,000 |
| 7 | Metals Removal | $1,500,000 |
| 8 | Influent Pump Station Improvements (pumps, VFD, force main) | $200,000 |
| 9 | Convert disinfection system | $50,000 |
| 10 | Refurbish Secondary Clarifier #1 | $300,000 |
| 11 | Replace Generator | $57,000 |
| | Mobilization (12%) | $708,000 |
| | Subtotal: | $6,606,000 |
| | Contingency (30%) | $1,982,000 |
| | **Subtotal Construction:** | **$8,588,000** |
| | Engineering/Construction Management (18%) | $1,546,000 |
| | Environmental/Permitting (5%) | $430,000 |
| | Administration/Legal (4%) | $344,000 |
| | **Total Project:** | **$12,890,000** |

1. See Appendix 4 for additional detail
2. Costs do not include upgrades to meet proposed effluent limits as described in the text.
3. Items not explicitly listed are incorporated with the listed items.

**Table 4. Alternative 1 Opinion of Annual Operational Costs[1,2]**
**City of Alturas Wastewater Planning Study**

| Description | Item Cost |
|---|---|
| Labor | $85,000 |
| Chemicals | $95,000 |
| Testing/Reporting | $35,000 |
| Sludge/solids Hauling | $2,000 |
| Electrical Costs | $28,500 |
| Permitting | $5,000 |
| **Annual O&M** | **$250,500** |

1. See Appendix 4 for additional detail
2. Some minor operational costs have not been included because they are assumed to be relatively equal for all alternatives. Detailed operational costs will be shown in a Rate Study being performed as part of this study.

## 5.5 Alternative 2: Rehabilitate WWTP with Land Discharge

### 5.5.1 Description

Alternative 2 consists of improvements to the existing WWTP (same as Alternative 1) but with land discharge. Based on an evaluation of the existing treatment processes (see Section 3) and the sub-alternative analyses discussed in Section 5.3, the improvements consist of the items listed in Table 5. A plan view showing the configuration of the upgraded facility is shown in Figure 25. Figure 26 shows the effluent force main alignment and disposal pond locations. A process flow diagram is shown in Figure 27.

The discussion under Alternative 1 provides additional detail regarding the new unit processes common between both Alternatives 1 and 2.

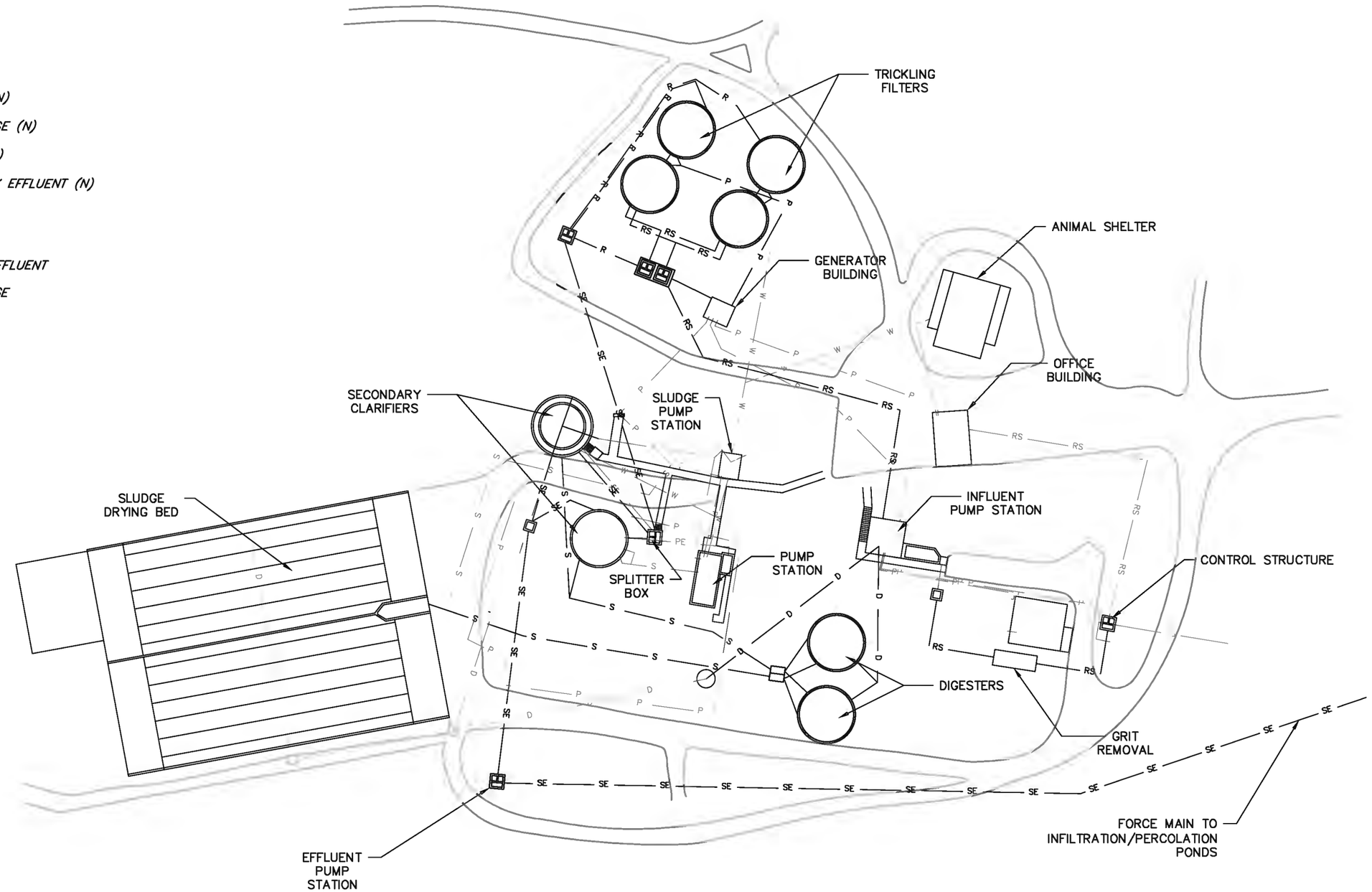
The new effluent pump station would be a package lift station located between the existing chlorine contact chamber and the Pit River outfall. A force main would run from the pump station along the WWTP access road to County Road 54, where it would run along the road shoulder, crossing the Pit River on the road bridge, to the entrance of the Manteca property. The force main would continue along the internal access road to the location of the evaporation/percolation ponds.

Effluent disposal at the site is recommended to be via infiltration/evaporation ponds. Average annual precipitation in the area is 13 inches, and average annual pan evaporation is 51 inches. This indicates that there is a net loss to evaporation from the surface. As discussed in the next section, percolation ability is significant and is estimated, based on field tests, to be in excess of 400 feet per year. The ponds will be located in a small, perched gulch near the upper elevations of the property where well-draining soils were encountered.

Two evaporation/percolation ponds will be constructed for disposal of the treated effluent, each designed to infiltration at least 0.5 MGD. Each pond will have a bottom area of two acres with a depth of six feet.

# LEGEND:

- D — DRAIN (N)
- R — RECYCLE (N)
- RS — RAW SEWAGE (N)
- S — SLUDGE (N)
- SE — SECONDARY EFFLUENT (N)
- D — DRAIN
- P — POWER
- PE — PRIMARY EFFLUENT
- RS — RAW SEWAGE
- S — SLUDGE
- W — WATER




**PLAN**

0 FEET 60

| | | |
|---|---|---|
| City of Alturas<br>Wastewater Planning Study<br>Alturas, California | | Alternative 2<br>Plan View<br>SHN 518004 |
| December 2019 | 518004-ALTURAS-WW2 | Figure 25 |

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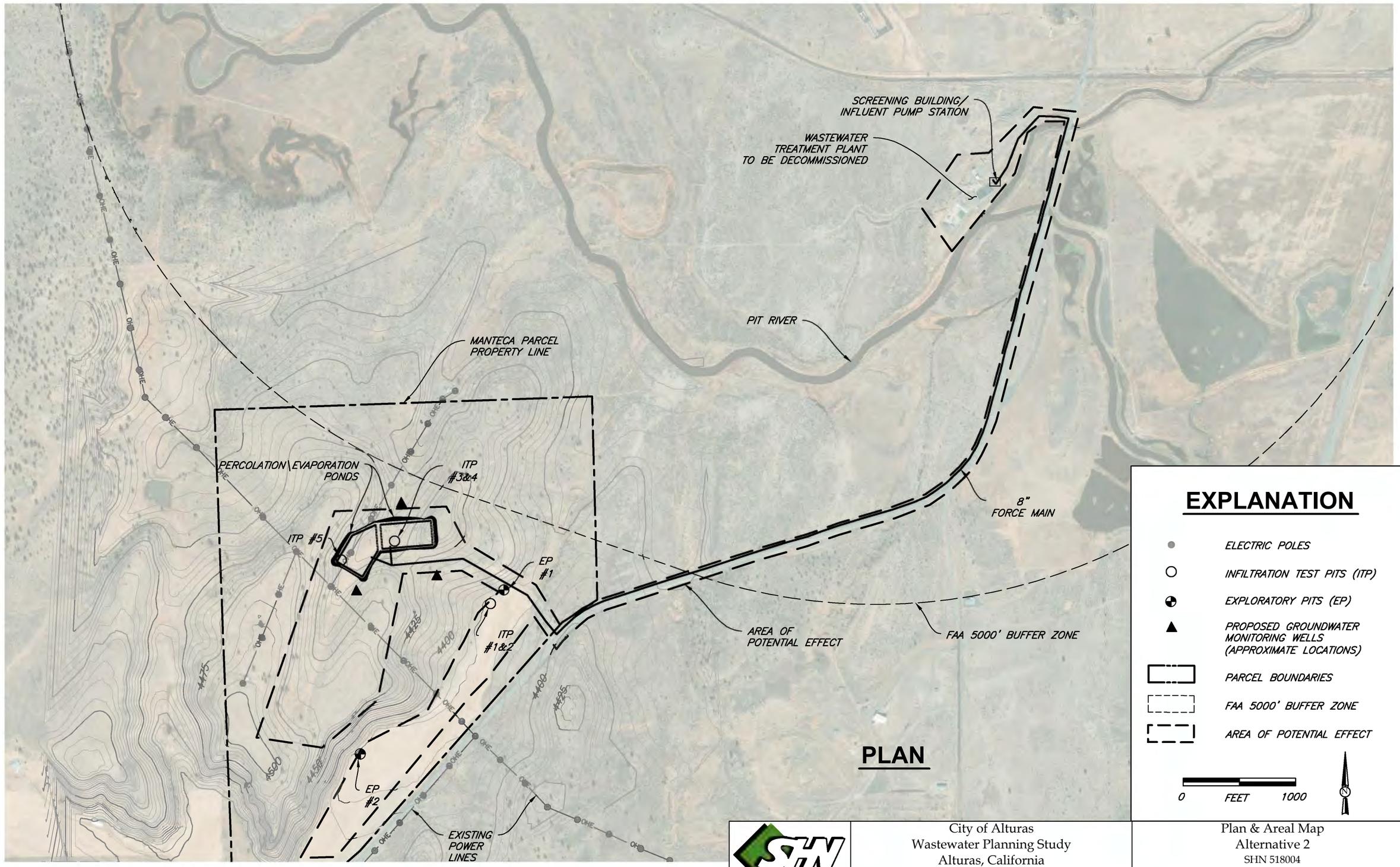


PLAN

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|---|---|---|
| SHN | City of Alturas<br>Wastewater Planning Study<br>Alturas, California | Plan & Areal Map<br>Alternative 2<br>SHN 518004 |
| | November 2020 | 518004-ALTURAS-WW2 | Figure 26 |

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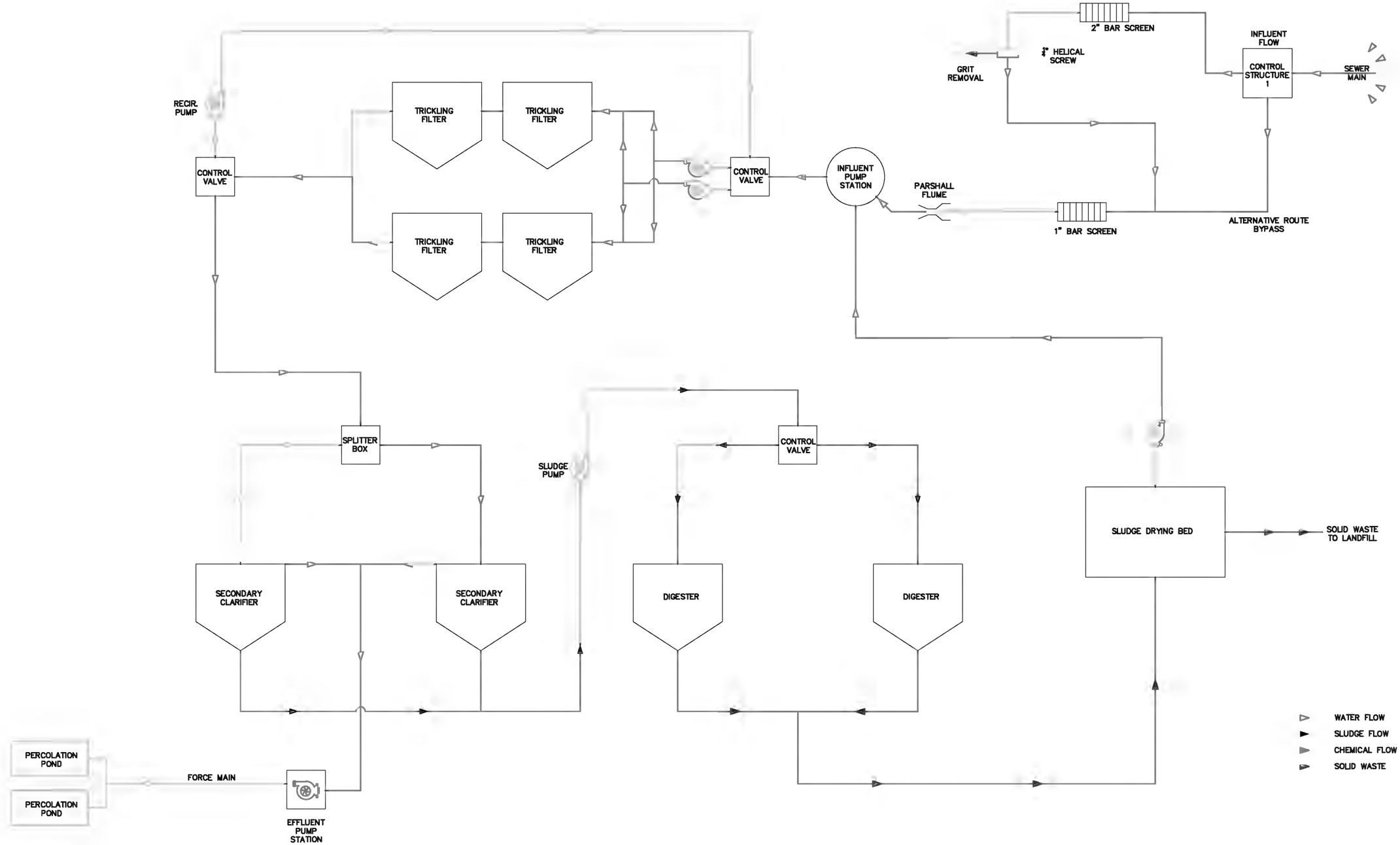


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|---|---|---|
| | City of Alturas<br>Wastewater Planning Study<br>Alturas, California | Proposed Flow Diagram<br>Alternative 2<br>SHN 518004 |
| | December 2019 | 518004-ALTURAS-WW2 | Figure 27 |

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Embankment side slopes will be 3H:1V on the inside and 2H:1V on the outside. It is anticipated that soils will be suitable and a balanced cut and fill construction will be feasible to minimize construction costs.

**Table 5. Alternative 2 Component Description**
**City of Alturas Wastewater Planning Study**

| Item | Additional Description |
|---|---|
| Decommission the grit chamber, grinder, and primary clarifier; replace with new screw press screening | The existing structures will remain while all mechanical equipment is removed. The new screen will be placed on the existing bypass line. |
| Improve influent pump station | Replace existing pumps with new pumps with VFDs[1]; replace PVC[2] force main piping and redirect to the new trickling filter location; and install new crane hoist for pump removal. |
| Decommission existing trickling filter and replace with new round trickling filters | New filters to be located in different location to allow the existing filter to remain in service. New filters will be 30-foot diameter round units, two parallel treatment trains for redundancy and high flows, each train with two filters in series. Includes flow control box and recirculating pumps. |
| Rehabilitate Secondary Clarifier #1 | Replace all internal moving mechanisms and weir plate. |
| Decommission disinfection system | No disinfection will be required for this alternative. |
| Replace anaerobic digester with aerobic digester | Two units for redundancy are recommended. Placed at the location of the former trickling filters. |
| Replace associated yard piping and site electrical as needed to connect the relocated treatment processes | |
| New Effluent Pump Station | To be located at the current location of the effluent pipe. |
| New Force main | Eight-inch diameter pipe to the effluent disposal site |
| New Evaporation/Percolation Ponds | Two ponds able to infiltrate 0.5 MGD, approximately 2-acre bottom area for each pond. |

1. VFD: Variable Frequency Drive
2. PVC: Polyvinyl Chloride

Monitoring wells will be required to monitor groundwater quality and verify that the percolated effluent does not degrade groundwater quality. Existing groundwater quality will affect design criteria for final design. Typically, three monitoring wells are placed around the infiltration areas that will provide adequate coverage since exact groundwater flow direction is not known. Three wells would be placed around the pond locations. The depths of the monitoring wells would extend to the highest groundwater level in order to be able to take groundwater samples. Until further investigation is performed, groundwater depth is not known in this specific location where the wells will be located.

No electricity is needed at the infiltration/evaporation pond site. Therefore, no new electrical service is anticipated or included in the cost estimate. If site lighting were desired, Surprise Valley Electric has indicated that they would provide a service drop at no up-front cost.

### 5.5.2 Design Criteria

General design criteria were described in Section 5.2. Specific design criteria for individual components were discussed previously (those common with Alternative 1) or are discussed below.

The package effluent pump station would have three pumps, one at 350 gpm and two at 750 gpm, which matches the pump capacity configuration of the existing influent pump station. Total design head is estimated at approximately 200 ft. It is expected that the pump station will be a wetwell and drywell configuration using centrifugal pumps, but an option to use submersible pumps is left up to final design.

The force main would be eight inches in diameter to minimize headlosses and travel time and consist of high-density polyethylene (HDPE), except for the two Pit River crossings locations, where it will be ductile iron pipe. The trench for the force main will be approximately 18 inches wide and five feet deep.

The disposal ponds are based on a percolation value of one foot per day, which was estimated from field testing and applying a factor of safety of four. Additional discussion of the percolation test results is provided in Appendix 3. Groundwater monitoring wells would be required around the percolation ponds and installed prior to construction. This will help determine baseline groundwater quality, which would refine the design criteria for the percolation ponds.

### 5.5.3 Environmental Impacts

Ground disturbing activities for this alternative are twofold: (1) Within the existing WWTP property, which has previously been disturbed, and (2) along County Road 54 and at the effluent disposal property. Additional discussion of environmental impacts are discussed in the CEQA documentation.

### 5.5.4 Land Requirements

A new parcel of land, located outside the Alturas city limits, will be required to site the disposal ponds. A parcel has been identified (County Road 54 property) as discussed earlier. Also, a utility easement or similar permission will be needed from Modoc County to place the force main along County Road 54.

### 5.5.5 Potential Construction Problems

As with Alternative 1, potential construction problems include rock excavation for buried yard piping and site electrical and construction sequencing that does not allow for continued use of the existing WWTP during construction.

Additional potential construction problems could be conflicts with other utilities along County Road 54.

### 5.5.6 Sustainability Considerations

This section discusses any design consideration with respect to water conservation, water reuse, energy efficient design, operational simplicity, appropriate technology, and other considerations.

Since this alternative is an upgrade of the existing system, there were no significant sustainability considerations that affected the design, other than the recommendation that variable frequency drives be added to the influent pump station pumps. Solar panels could be installed in the future on unused portions of this property and the property where the disposal ponds are located to offset electrical costs.

The effluent disposal ponds are simple in design and operation and therefore provides operational simplicity through the use of an appropriate disposal technology.

### 5.5.7 Costs

Capital costs for Alternative 2 are shown in Table 6. Anticipated operational costs are presented in Table 7. Additional detail is provided in Appendix 4. It should be noted that the operational costs listed below exclude the current SRF Loan repayment of $95,844 annually through 2028 since this cost is the same for all alternatives.

**Table 6. Alternative 2 Opinion of Probable Project Costs[1,2]**
**City of Alturas Wastewater Planning Study**

| Item | Description | Item Cost |
|---|---|---|
| 1 | Decommission/Demolition | $25,000 |
| 2 | Demolish existing trickling filter | $41,000 |
| 3 | Helical Screw Screen | $309,000 |
| 4 | Trickling Filters (4) | $1,744,000 |
| 5 | Aerobic Digesters | $772,000 |
| 6 | Effluent Pump Station | $900,000 |
| 7 | Effluent Force Main | $582,000 |
| 8 | Infiltration Ponds | $157,000 |
| 9 | Replace Generator | $56,000 |
| 10 | Influent Pump Station Improvements (pumps, VFD, force main) | $200,000 |
| 11 | Rehabilitate Secondary Clarifier #1 | $300,000 |
| 12 | Effluent Flow Meter | $15,000 |
| 13 | Groundwater Monitoring Wells | $60,000 |
| | Mobilization (12%) | $620,000 |
| | Subtotal: | $5,781,000 |
| | Contingency (30%) | $1,735,000 |
| | **Subtotal Construction:** | **$7,516,000** |
| | Land Acquisition[3] | $361,000 |
| | Engineering/Construction Management (18%) | $1,353,000 |
| | Environmental/Permitting (5%) | $376,000 |
| | Administration/Legal (4%) | $301,000 |
| | **Total Project:** | **$11,642,000** |

1. See Appendix 4 for additional detail
2. Items not explicitly listed are incorporated with the listed items.
3. Land costs include basic sale at $1,000/acre plus $300/acres for closing costs, legal fees, survey, etc.

**Table 7. Alternative 2 Opinion of Annual Operational Costs[1,2]**
**City of Alturas Wastewater Planning Study**

| Description | Item Cost |
|---|---|
| Labor | $85,000 |
| Chemicals | $39,500 |
| Testing/Reporting | $24,500 |
| Sludge/solids Hauling | $2,000 |
| Electrical Costs | $30,900 |
| Permitting | $5,000 |
| **Annual O&M** | **$186,900** |

1. See Appendix 4 for additional detail
2. Some minor operational costs have not been included because they are assumed to be relatively equal for all alternatives. Detailed operational costs will be shown in a Rate Study being performed as part of this study.

## 5.6 Alternative 3: Convert to Aeration Ponds with Land Discharge

### 5.6.1 Description

Alternative 3 consists of decommissioning the existing WWTP and moving treatment to a new offsite location using aeration ponds with land discharge. The improvements consist of the items listed in Table 8. A plan view showing the configuration of the alternative is shown in Figure 28. A schematic layout of the new headworks and pump station is shown in Figure 29. A process flow diagram is shown in Figure 30.

**Table 8. Alternative 3 Component Description**
**City of Alturas Wastewater Planning Study**

| Item | Additional Description |
|---|---|
| Decommission the existing WWTP[1] | The existing structures will remain while all mechanical equipment is removed. |
| New Headworks with new screw press screening | The new headworks will be the same as Alternatives 1 and 2. |
| New Influent Pump Station | To be located adjacent to the new headworks. |
| New Force main | Eight-inch diameter pipe to the treatment pond site |
| New Aeration Ponds | Two ponds with coarse and fine bubble aeration |
| New Evaporation/Percolation Ponds | Two ponds able to infiltrate 0.5 MGD, approximately 2-acre bottom area for each pond. |

1. WWTP: Wastewater Treatment Plant

Raw wastewater would be diverted from near the entrance to the existing WWTP and pumped to the new treatment ponds located approximately two miles away. Two options for this process were evaluated: (1) Pump raw unscreened wastewater to the treatment ponds and (2) Remove solids prior to pumping to the treatment ponds. In either case, solids should be removed prior to the aeration ponds to prevent solids buildup in the ponds. Removing solids prior to pumping would reduce the potential for solids buildup in the force main. For this reason, a headworks prior to the influent pump station is recommended.

SCREENING BUILDING/
INFLUENT PUMP STATION

WASTEWATER
TREATMENT PLANT
TO BE DECOMMISSIONED

PIT RIVER

MANTECA PARCEL
PROPERTY LINE

PERCOLATION \ EVAPORATION
PONDS

ITP
#3&4

ITP #5

EP
#1

AERATION
PONDS

ITP
#1&2

BLOWER/
GENERATOR
BUILDING

EP
#2

EXISTING
POWER
LINES

8"
FORCE MAIN

AREA OF
POTENTIAL EFFECT

FAA 5000' BUFFER ZONE

4475 4500 4425 4400 4450 4480 4425

OHE

## PLAN

## EXPLANATION

- ELECTRIC POLES
- INFILTRATION TEST PITS (ITP)
- EXPLORATORY PITS (EP)
- PROPOSED GROUNDWATER MONITORING WELLS (APPROXIMATE LOCATIONS)
- PARCEL BOUNDARIES
- FAA 5000' BUFFER ZONE
- AREA OF POTENTIAL EFFECT

0 FEET 1000

| | | |
|---|---|---|
| SHN | City of Alturas<br>Wastewater Planning Study<br>Alturas, California | Plan & Areal Map<br>Alternative 3<br>SHN 518004 |
| | December 2019 \| 518004-ALTURAS-WW2 | Figure 28 |

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| | | |
|---|---|---|
| SHN | City of Alturas<br>Wastewater Treatment Facility Project<br>Alturas, California | New Headworks & Pump Station<br>Alternative 3<br>SHN 518004 |
| | December 2019 \| 518004-ALTURAS-WW2 | Figure 29 |

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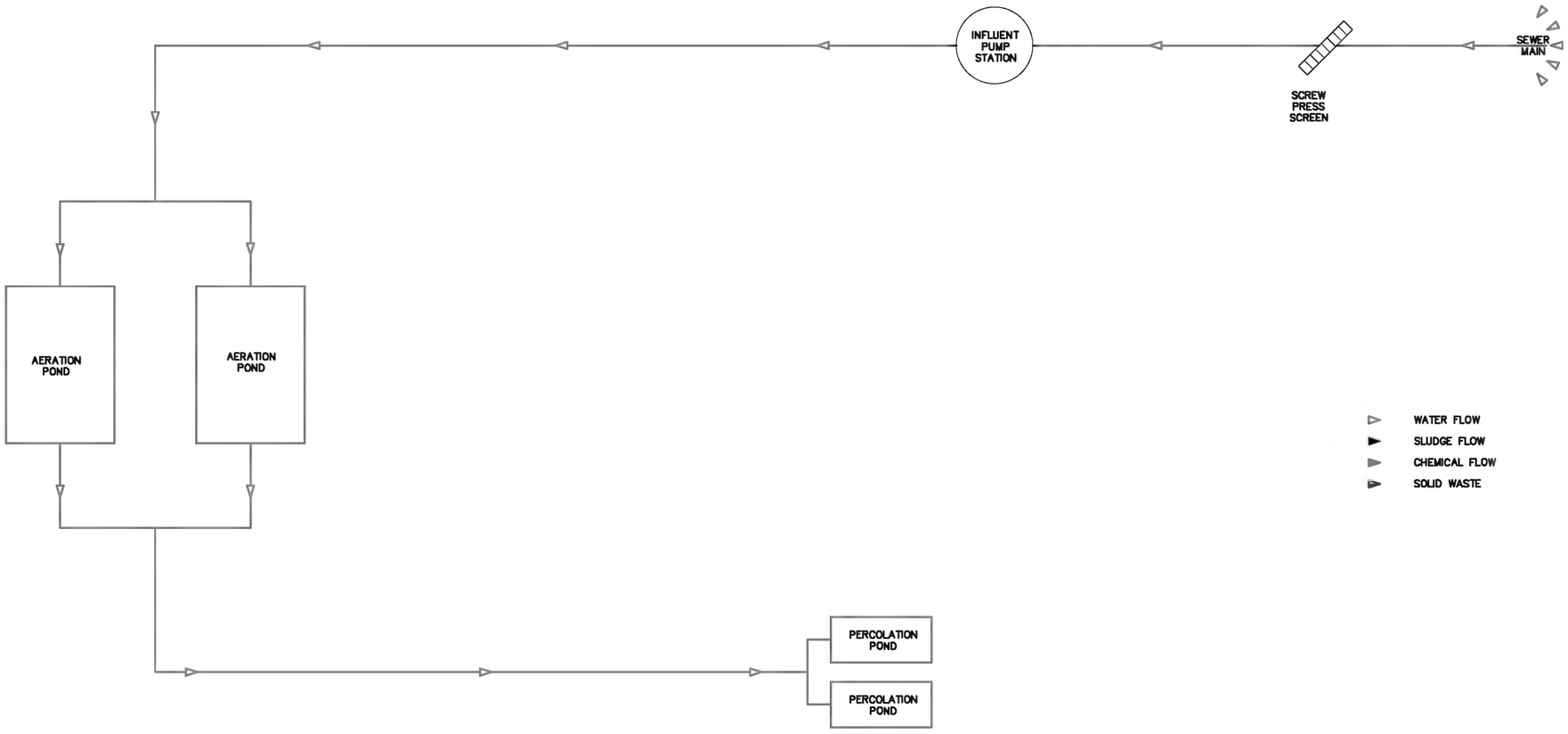


| | | |
|---|---|---|
| | City of Alturas<br>Wastewater Planning Study<br>Alturas, California | Proposed Flow Diagram<br>Alternative 3<br>SHN 518004 |
| | December 2019 \| 518004-ALTURAS-WW2 | Figure 30 |

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The new headworks and pump station would be located near the existing control structure and utilize the existing bypass line (see Figure 29). Another location has potential but is not preferred. This other location is along the access road to the WWTP and next to an existing manhole, where a diversion could be constructed. The final location can be determined during final design. A new standby generator would be required for the new pump station.

The influent pump station would have the same design criteria as the effluent pump station for Alternative 2 but located as described in the previous paragraph.

A force main would run from the pump station along the WWTP access road to County Road 54, where it would run along the road shoulder, crossing the Pit River on the road bridge, to the entrance of the Manteca property. The force main would continue along the internal access road to the location of the aeration ponds.

The aeration ponds will be lined ponds with coarse and fine bubble aerators. The preliminary design has been made around the MARS lagoon aerator manufactured by Triplepoint Water Technologies (www.triplepointwater.com). There would be a two-cell pond system. Both ponds measure 400 ft by 240 ft at the surface with 3:1 side slopes and a 12-ft water depth. Three blowers (two duty and one standby) at 30 horsepower (hp) each would be housed in a 20-ft by 20-ft blower building and would provide air to the aerators. Additional design data from this manufacturer is provided in Appendix 5.

As in Alternative 2, two evaporation/percolation ponds will be constructed for disposal of the treated effluent, each designed to infiltration at least 0.5 MGD. Each pond will have a bottom area of two acres with a depth of six feet. Embankment side slopes will be 3H:1V on the inside and 2H:1V on the outside. It is anticipated that soils will be suitable and a balanced cut and fill construction will be feasible to minimize construction costs.

The existing office and lab will remain at the current location and will be used for staff. No office facilities will be constructed at the new WWTP location. However, a small storage building will be included to store tools and spare equipment.

Monitoring wells will be required to monitor groundwater quality and verify that the percolated effluent does not degrade groundwater quality. Existing groundwater quality will affect design criteria for final design. Typically, three monitoring wells are placed around the infiltration areas that will provide adequate coverage since exact groundwater flow direction is not known. Three wells would be placed around the pond locations. The depths of the monitoring wells would extend to the highest groundwater level in order to be able to take groundwater samples. Until further investigation is performed, groundwater depth is not known in this specific location where the wells will be located.

New 480-volt, three phase, electrical service at the aeration ponds will be required. Based on estimate electrical usage, the WWTP would require less than 200 amps. A standby generator will be required and will be located adjacent to the blower building.

The existing WWTP will be decommissioned. However, doing so will require approval from the State since there is an outstanding loan through 2028 on the most recent upgrades to the WWTP. Once approval is

obtained from the State, the City will still be required to pay the outstanding balance of the previous loan in accordance with the loan covenants.

### 5.6.2 Design Criteria

General design criteria were described in Section 5.2. This section provides additional design criteria specific to this alternative.

The package influent pump station would have three pumps, one at 350 gpm and two at 750 gpm, which matches the pump capacity configuration of the existing influent pump station. Total design head is estimated at approximately 200 ft. It is expected that the pump station will be a wetwell and drywell configuration using centrifugal pumps, but an option to use submersible pumps is left up to final design.

The force main would be eight inches in diameter to minimize headlosses and travel time and consist of high-density polyethylene (HDPE), except for the two Pit River crossings locations, where it will be ductile iron pipe. The trench for the force main will be approximately 18 inches wide and five feet deep.

As mentioned previously, the aeration system and associated ponds were designed around a particular manufacturer (Triplepoint Water Technologies). Slight modifications would be expected if the specific aeration units are different.

The disposal ponds are based on a percolation value of one foot per day, which was estimated from field testing and applying a factor of safety of four. Additional discussion of the percolation test results is provided in Appendix 3. Groundwater monitoring wells would be required around the percolation ponds and installed prior to construction. This will help determine baseline groundwater quality, which would the design criteria for the percolation ponds.

### 5.6.3 Environmental Impacts

Ground disturbing activities for this alternative are twofold: (1) Within the existing WWTP property, which has previously been disturbed, and (2) along County Road 54 and at the effluent disposal property. Estimated extents of these disturbances (area and depth) are provided in Table 8a. Additional detail of environmental impacts for this alternative are discussed in the CEQA documentation.

### 5.6.4 Land Requirements

A new parcel of land, located outside the Alturas city limits, will be required to site the disposal ponds. A parcel has been identified (County Road 54 property) as discussed earlier. Also, a utility easement or similar permission will be needed from Modoc County to place the force main along County Road 54.

### 5.6.5 Potential Construction Problems

Potential construction problems could be conflicts with other utilities along County Road 54.

### 5.6.6 Sustainability Considerations

This section discusses any design consideration with respect to water conservation, water reuse, energy efficient design, operational simplicity, appropriate technology, and other considerations.

The aeration ponds and effluent disposal ponds are simple in design and operation and therefore provides operational simplicity through the use of an appropriate disposal technology. The aeration component would require a new service connection/backup power component for the site and is energy intensive,the

City could install solar panels in the future on unused portions of the current WWTP property and where the new WWTP and disposal ponds are located to offset electrical costs.

From a plant classification standpoint, based on current State guidelines, this alternative does not require any change in current plant classification (Class II) or operator grade level (Grade II) which provides significant sustainability benefits in operations since higher-grade operators are difficult to hire in remote WWTPs.

### 5.6.7 Costs

Capital costs for Alternative 3 are shown in Table 9. Anticipated operational costs are presented in Table 10. Additional detail is provided in Appendix 4. It should be noted that the operational costs listed below exclude the current SRF Loan repayment of $95,844 annually through 2028 since this cost is the same for all alternatives. As stated previously, the 2006 SRF loan must be repaid regardless of whether the funded facilities are still in use or have been decommissioned.

**Table 9. Alternative 3 Opinion of Probable Project Costs[1,2]**
**City of Alturas Wastewater Planning Study**

| Item | Description | Item Cost |
|---|---|---|
| 1 | Decommission/Demolition | $25,000 |
| 2 | Generators | $124,000 |
| 3 | Flow meter | $15,000 |
| 4 | Helical Screw Screen | $309,000 |
| 5 | Influent Pump Station | $900,000 |
| 6 | Influent Force Main | $582,000 |
| 7 | Aeration Basins | $1,037,000 |
| 8 | Infiltration Ponds | $156,000 |
| 9 | Groundwater Monitoring Wells | $60,000 |
| 10 | Blower Building | $80,000 |
| | Mobilization (12%) | $395,000 |
| | Subtotal: | $3,263,000 |
| | Contingency (30%) | $979,000 |
| | **Subtotal Construction:** | **$4,242,000** |
| | Land Acquisition[3] | $361,000 |
| | Engineering/Construction Management (18%) | $764,000 |
| | Environmental/Permitting (5%) | $213,000 |
| | Administration/Legal (4%) | $170,000 |
| | **Total Project:** | **$5,750,000** |

1. See Appendix 4 for additional detail
2. Items not explicitly listed are incorporated with the listed items.
3. Land costs include basic sale at $1,000/acre plus $300/acres for closing costs, legal fees, survey, etc.

**Table 10. Alternative 3 Opinion of Annual Operational Costs[1,2]**
**City of Alturas Wastewater Planning Study**

| Description | Item Cost |
|---|---|
| Labor | $85,000 |
| Chemicals | $0 |
| Testing/Reporting | $24,500 |
| Sludge/solids Hauling | $1,000 |
| Electrical Costs | $48,800 |
| Permitting | $5,000 |
| **Annual O&M** | **$164,300** |

1. See Appendix 4 for additional detail
2. Some minor operational costs have not been included because they are assumed to be relatively equal for all alternatives. Detailed operational costs will be shown in a Rate Study being performed as part of this study.

# 6.0 Selection of an Alternative

## 6.1 Life Cycle Cost Analysis

A life cycle net present value cost analysis was used to compare the alternatives. The present value cost analysis is a basic evaluation of alternative costs utilizing the present value factors. The interest rate used is the real 20-year Federal discount rate from Appendix C of the Office of Management and Budget (OMB) Circular A-94. The most recent publication of Circular A-94 Appendix C is from November 2019, and the real discount rate is 0.3%. Table 11 shows the present value analysis results.

Salvage values can be difficult to determine, as various portions of each alternative have different useful lives. For this analysis, the average useful life for each alternative was assumed to be 30 years, which means that after 20 years, the salvage value is 33% using a straight-line depreciation.

**Table 11. Present Value Analysis[1]**
**City of Alturas Wastewater Planning Study**

| Item | Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|---|---|
| Capital Cost[2] | $12,890,000 | $11,642,000 | $5,750,000 |
| Annual O&M[3] | $250,500 | $186,900 | $164,300 |
| Present Value O&M | $4,855,598 | $3,622,799 | $3,184,729 |
| Salvage Value[4] | $4,253,7006 | $3,841,860 | $1,897,500 |
| Present Value Salvage | $4,006,344 | $3,618,452 | $1,787,159 |
| **Net Present Value[5]** | **$13,739,254** | **$11,646,347** | **$7,147,571** |

1. For 20-year period
2. Total project costs from tables in Section 5 in 2019 dollars.
3. O&M: Operations and Maintenance
4. Assumes straight line depreciation, 30-year life
5. Net Present Value = Capital Cost + Present Value O&M – Present Value Salvage.

The analysis reveals that Alternative 3 has the lowest net present value.

## 6.2 Non-Monetary Factors

The CVRWQCB has expressed preference for the City to use land discharge rather than continue to discharge to the Pit River. This favors Alternatives 2 and 3 significantly over Alternative 1.

# 7.0 Proposed Project

## 7.1 Description

The proposed project is Alternative 3 as described earlier, which includes the following key features:

- Decommissioning of the existing WWTP;
- New offsite aerated pond treatment system;
- Land discharge of treated effluent utilizing infiltration and evaporation; and
- No change in operator grade level over current WWTP.

## 7.2 Project Schedule

The project schedule is dependent on acquiring funding for final design and construction. The current Proposition 1 wastewater planning study will be completed by late 2020 with the CEQA documentation and construction funding application being the final tasks of the study to be completed.

Funding for final design and construction will likely not be available until the latter half of 2021. Once notice to proceed is issued in late 2021, the schedule shown in Table 12 would be anticipated.

**Table 12. Anticipated Project Schedule (Recommended Alternative)**
**City of Alturas Wastewater Planning Study**

| Activity | Estimated Start Date | Estimated Finish Date |
|---|---|---|
| Complete Proposition 1 Wastewater Planning Study, including funding application | N/A | January 31, 2021 |
| SRWCB[1] Funding Application Review | February 2021 | August 2021 |
| Monitoring Well Installation[2] | March 2021 | June 2021 |
| Funding Awarded and Notice to Proceed | September 2021 | September 2021 |
| Preliminary investigations: Survey and Geotechnical | October 2021 | December 2021 |
| Final Design | October 2021 | March 2022 |
| Bidding[3] | April 2022 | May 2022 |
| Construction | July 2022 | June 2023 |

1. SWRCB: State Water Resources Control Board
2. It is anticipated that the City will self-fund the installation of the monitoring wells.
3. The City has expressed interest in issuing multiple bid packages to allow local contractors to bid; this may affect the construction schedule.

## 7.3 Permit Requirements

Environmental clearances through the CEQA process is being completed under the current Proposition 1 Planning Grant. A Report of Waste Discharge will also be completed under the current grant. Other anticipated permit requirements to be obtained later include the following:

- Utility Easements from Modoc County for the force main along County Road 54;
- CVRWQCB Construction Stormwater permit;
- Building permits from Modoc County;
- SWRCB Division of Water Rights Change Permit; and
- RWQCB Groundwater Permit.

## 7.4 Sustainability Considerations

Sustainability considerations were discussed in Section 5.

## 7.5 Project Cost Estimate

The project cost estimate for the recommended alternative was presented in Table 9.

## 7.6 Annual Operating Budget

A separate Rate Study is being prepared as part of the Proposition 1 Wastewater Planning Grant. The Rate Study will include detailed information about operating budgets, proposed rate structure, income, and debt payments.

# 8.0 Conclusions and Recommendations

It is recommended that the City pursue Alternative 3 by securing the property and obtaining final design and construction funding.

# Sanitary Sewer Evaluation Study Summary

# 1

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803 Main Street, Suite 401, Klamath Falls, OR 97601

# *Technical Memorandum*

| | |
|---|---|
| Reference: | 518004.200 |
| Date: | November 4, 2020 |
| To: | Jason Diven, City of Alturas |
| From: | Phil McGovern, Anders Rasmussen |
| **Subject:** | SSES Report & I/I Analysis Summary |

## Purpose

This document provides supplemental information for the Preliminary Engineering Report (PER) and augments the 2020 Final Sanitary Sewer Evaluation Survey (SSES) prepared by SHN. The purpose of this document is to provide a comparison of infiltration and inflow (I/I) reduction cost compared to addressing I/I flows at the wastewater treatment plant (WWTP).

## SSES Summary

The 2020 Sanitary Sewer Evaluation Survey for the City of Alturas examined ten years (2007-2017) of influent flow data at the WWTP and determined that a significant amount of I/I is occurring in the collection system due in large part to high seasonal groundwater in various portions of the service area. The age and condition of the existing system is also a contributing factor to infiltration.

I/I is a common problem and cannot be completely avoided. Mitigation measures include I/I reduction within the collection system, or addressing increased flows at the WWTP, or a combination of both based on costs. The four alternatives for I/I reduction presented in the SSES are summarized in Table 1. The reader is referred to the full SSES report for additional information.

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**Table 1. I/I Reduction Alternatives and Total Project Cost Estimates**
**SSES Summary**
**Alturas, CA**

| Alternative | Description | I/I[1] Reduction Rate[2] | | Estimated Costs |
|---|---|---|---|---|
| | | Low | High | Project Total[3] |
| 1 | Address smoke test findings | 5% | 10% | Minimal |
| 2 | Address smoke test findings, plus mainline rehabilitation/replacement, including manhole rehabilitation/replacement in seasonally high groundwater areas only. | 20% | 40% | $ 22,943,640 |
| 3 | Address smoke test findings, plus mainline and manhole rehabilitation/replacement, plus service lateral rehabilitation/replacement from main to structure in seasonally high groundwater areas only. | 60% | 80% | $ 24,511,280 |
| 4 | Do Nothing | 0% | 0% | Additional costs at WWTP –see discussion |

1. I/I: Infiltration and Inflow
2. I/I reduction rates based on industry typical values and SHN experience but can vary based on specific system conditions and rehabilitation and/or construction methods.
3. Estimated Cost breakdown can be found in the original SSES document.

## Analysis

Flow data at the WWTP for the years 2008-2017 show that annual average flow through the WWTP is 125.77 million gallons (MG). For this period of record, the average annual Base Sanitary Flow (BSF) is estimated as 104.17 MG and average annual I/I volume is estimated as 21.60 MG.

Percentage reductions shown in Table 1 were applied to the estimated average I/I volume to determine the volume of I/I reduced by each alternative. The estimated cost for each alternative was then divided by the volume of I/I reduction to determine a capital cost per unit volume to be used as a comparison with addressing the additional flow at the WWTP. As a conservative measure, the average percentage reduction of the listed range was used for this calculation. Only Alternatives 2 and 3 are analyzed here, since there is no capital cost for Alternative 1.

Implementation of Alternative 2 is anticipated to reduce I/I volumes by 30%, that is, by approximately 6.48 MG. At an estimated cost of $22.9 million, this is a capital cost of $3.53 per gallon removed. Implementation of Alternative 3 is anticipated to reduce I/I volumes by 70%, that is, by approximately

15.12 MG. At an estimated cost of $24.5 million, this is a capital cost of $1.62 per gallon removed.

The design average dry weather flow (ADWF) for the WWTP is 0.5 million gallons per day (MGD) with a design peak flow of 1.0 MGD. Additional discussion related to this can be found in the PER. The current flows at the WWTP, including current I/I flows, are generally within those design limits. Therefore, no additional treatment or effluent storage capital costs are anticipated as a result of not reducing I/I flows. It should be noted that the SSES presented that additional effluent storage costs would be the only capital costs for I/I management at the WWTP; however, after additional review during the PER preparation, this additional cost does not appear to be needed given the design flows described above. This means that there is no additional capital cost at the WWTP for the additional I/I flow.

Additional operating costs at the WWTP to address I/I flows would generally only result from additional pumping from the influent pump station to the new WWTP under the preferred alternative. Annual pumping costs for the I/I volume reduced under Alternative 3, which is 15.12 MG, would be approximately $1,500 per year based on a power cost of $0.16 per kilowatt-hour (kWh) and energy consumption of 600 kWh per MG.

## Conclusions

From a capital cost perspective, no more than Alternative 1 for I/I reduction is recommended. From an operational cost perspective, the additional pumping expense is minor and does not warrant the large capital cost of significant I/I reduction.

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# Bird Mitigation Strategies 2

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1062 G St., Suite I, Arcata, CA 95521-5800 707-822-5785
Civil Engineering, Environmental Services, Geosciences, Planning & Permitting, Surveying

# *Technical Memorandum*

Reference: 518004.500
Date: November 12, 2018
To: Anders Rasmussen
From: Gretchen O'Brien
**Subject: Alturas Wastewater Pond - Bird Deterrent Methods Research**

**Background**
Bird strikes by airplanes is a common occurrence and most often happens when the aircraft is less than 500 feet off the ground during take-off and landing (DeVault et al., 2017). The Alturas Municipal Airport is just north of the Alturas wastewater treatment plant. Creating a treated wastewater retention pond with in such close proximity to the airport will require wildlife management mitigation measures to reduce the chance of bird strikes by aircraft. An internet research effort was conducted to create recommendations for implementing wildlife deterrents from the proposed pond(s).

Specific measures to deter birds from the proposed pond(s) near the Alturas Municipal Airport should take into consideration the types of species that occur in the region, the juxtaposition of other habitat, existing wildlife management techniques being utilized at the Alturas Municipal Airport, and necessary design features of the pond(s) to achieve project goals. Based on the location of the proposed pond(s) in the proximity of the Modoc National Wildlife Refuge and the waterfowl that breed, overwinter, or migrate through the area, the primary concern for bird strikes may be waterfowl and other larger water birds such as Canada Goose (*Branta canadensis*), although the Alturas Public Works director has reported that, to his knowledge, there has never been a bird strike by an aircraft at the Alturas Municipal Airport in the past ten years or so (Pers. Comm., Picotte, 2018).

**Research Results Summary**
Several studies have been conducted to test the efficacy of bird deterrents from airports, water sources, and agricultural crops. The common conclusions among the research papers investigated were that an integrative approach to bird deterrent methods, in combination with pond design and management, is the most effective.

**Pond Design**
Pond design recommendations include linear or circular shapes to minimize the perimeter and geographic isolation from other water sources (Blackwell et al., 2008). Geographic isolation of created ponds, away from other water sources, may decrease the probability of use by waterfowl (Blackwell et al., 2008). Bottom-lined ponds help to reduce vegetation growth which can provide a food source for waterfowl (National Academy of Sciences, 2011). Keeping the pond surface free of floating vegetation and the pond edges free of vegetative cover and woody debris can reduce the attractiveness to birds (Blackwell et al., 2008).

**Exclusion Methods**

Covering and dewatering ponds are considered the most effective bird deterrent from open water ponds, although this is not an option for the Alturas wastewater retention pond(s). Exclusion methods may need to be incorporated into the pond design. Overhead wires are the most researched and effective method of bird exclusion (National Academy of Sciences, 2011). Gridwire™ and Stealthnet™ products at BirdBarrier.com may be useful for waterfowl exclusion from ponds, installed in a grid pattern directly over the surface of the water. This will discourage birds from landing on the water while allowing for evaporation.

**Deterrents**

The National Academy of Sciences conducted a literature review to evaluate the relative effectiveness of bird repellent techniques. The research results determined that human effigies, or models, that moved frequently and were dressed in bright colors were the most effective as bird deterrents. This conclusion was also made by a study that specifically tested scarecrows and predator models for scaring birds away (Marsh et al., 1992). Studies also show that lifelike human effigies in combination with broadcasting a waterfowl distress call periodically was effective in deterring birds from a specific area (National Academy of Sciences, 2011; Marsh et al., 1992; DeVault et al., 2017). Birds often habituate to visual and auditory deterrents unless they are moved frequently, and by changing the look of an effigy (e.g. different clothing) and the distress call emitted, can also increase the effectiveness of the deterrents (DeVault et al., 2017, Marsh et al., 1992).

**Conclusion**

The combination of pond design, pond placement, and an integrative suite of avian deterrent methods will be the best approach to preventing the attraction of birds to a wastewater retention pond at the Alturas wastewater treatment plant. The following recommendations summarize a suggested plan for bird deterrents to help prevent bird strikes at the Alturas Municipal Airport.

**Recommendations**

- Design pond(s) in a circular or linear shape to reduce perimeter.
- Place pond(s) isolated, as far away as possible from other water sources.
- Manage vegetation and woody debris in and around the pond to reduce food and cover resources for birds.
- Use a combination of bird deterrent methods:
    - Exclusion: Grid wires placed over the surface of the pond(s), may also need anti-perch spikes on the wires to deter smaller birds from using the wires.
    - Visual deterrent: Lifelike human effigy dressed in brightly colored, loose-fitting clothing (to blow in the wind) placed on a floating island just big enough for the effigy (disallow space for birds to land). Most effective if the effigy moves and clothing changed periodically.
    - Audio deterrent: Broadcast a recording of various waterfowl distress calls, either periodically or motion detected. Most effective if the type of calls and location change periodically. According to the USDA, birds react most to sounds from 1 to 3 kHz.
    - Place all deterrents concurrently with pond creation before birds begin to investigate the resource.
- Coordinate with the Alturas Municipal Airport managers regarding wildlife management methods and monitoring bird strikes.

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DeVault, T.L., B.F Blackwell, J.L. Belant, and M.J. Begier. (2017). *Wildlife at Airports*. Wildlife Damage Management Technical Series. USDA, APHIS, WS National Wildlife Research Center. Fort Collins, Colorado. 19p.

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# Infiltration Testing 3

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Klamath Falls, OR 97601
Tel. 541/827-7855

| | | | |
|---|---|---|---|
| JOB | 518004 | | |
| SHEET NO. | 1 | OF | 1 |
| CALC'ED BY | AHR | DATE | 11/2/2020 |
| CHECKED BY | | DATE | |

Determine infiltration pond area required on Manteca (Hunter) property.

Approach for simplified calculation

1. Set pond area based on being able to infiltrate design flows.
   Area = daily flow / infiltration rate
2. Neglect precipitation and evaporation, which are small in comparison to infiltration.
3. This location has a net annual evaporation, so these calculations are conservative.
4. Infiltration rates from field testing results, adjusting for a factor of safety.
5. Assume infiltration occurs only on bottom of pond and not along embankments.

| | | | | |
|---|---|---|---|---|
| Data: | ADWF = | 0.5 | MGD | See PER for discussion on design flow |
| | PWWF = | 1 | MGD | See PER for discussion on design flow |
| | Infiltration rate = | 30 | | minutes/inch, based on field data from test pits 3, 4, and 5 |
| | Factor of safety = | 4 | | |
| | Design Infiltration Rate = | 120 | | minutes/inch (field infiltration * factor of safety) |
| | = | 12 | | inches/day |
| | Required Area for ADWF = | 1.53 | | acres; this is pond bottom area. |

Set one cell at 1.53 acres to handle the design flow with a second cell of equal size to handle peak wet weather flows. Add third pond for redundancy. Or have two ponds @ 2 acres each.
Since little storage is needed, set depth of pond at 6 ft.

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Civil Engineering, Environmental Services, Geosciences, Planning & Permitting, Surveying

# *Memorandum*

Reference: 518004.200

Date: December 11, 2019

To: Anders Rasmussen

From: Phil McGovern

**Subject: Infiltration Testing**

## Introduction:

Infiltration is the permeation of a liquid into something by filtration; in this case we are attempting to ascertain an empirical rate at which water infiltrates a soil matrix. Several tests can be performed to determine this empirical value; an Open Pit Falling Head Test was used on the Hunter Current SCP Manteca (HCSPCM) Parcel on November 8, 2019.

Prior to the field tests, SHN obtained a copy of the National Resource Conservation Service (NRCS) web soil survey report for the HCSCPM parcel (See Attached). The test pits according to the NRCS report are located in two different soil matrices, with two different referenced hydrologic soil types (See Figure 1). Site 1 was identified as a Ladd Sandy Loam, with a hydrologic soil classification of C. Site 1 is location is approximately 400 feet from County Road 54. Site 2 was identified as a Tuff Outcrop-Cause eroded Complex, with a hydrologic soil classification of D. Site 2 is significantly further from the public and is currently the preferred location for effluent disposal because it is further away from the public, limiting public's view and possible interaction with the effluent disposal site.

## Scope:

The scope of our field investigation was to determine percolation rate for the preliminary sizing of the proposed subsurface Rapid Infiltration Basins (RIB) located on the HCSPCM parcel. Secondly, SHN staff wanted to visit the parcel to determine if it is a feasible location for effluent disposal. Site 1 is where test pits one and two were dug and Site 2 was where test pits three (3), four (4), and five (5) where excavated (See Figure 1).

## Groundwater:

Two exploratory pits were dug around the proposed locations; one exploratory pit was dug south of Site 1 & 2, and the other pit was dug to the northeast of the two Sites (See Figure 1). The exploratory pits were dug to a depth of depth of 10 ft. Groundwater infiltrated into the pit at an approximate depth of 9.5 ft.

## Procedure:

The five test pits were dug with a backhoe loader; the pits were dug approximately 2' x 4'and a depth of approximately either two feet or four feet. The pits were filled with water prior to testing by the City of Alturas Staff. According to the testing procedure, the pits need to be soaked overnight prior to the test being performed in clay-based soils. For sandy soils if the water percolates through the soil matrix in less than 10 minutes (preformed 2 times), you are free to begin testing. This was the case for pits one (1) and two (2). Pits three (3), four (4), and five (5) were soaked overnight.

The holes were refilled on the day of the test. The pits were filled with at least 12 inches of clean water, and the depth of the water in the pit was recorded at the beginning of the test. The height of the water was then recorded in 20 minute intervals. The test was performed for a total of two hours or until the pit was empty.

## Results:

The estimated rate of percolation for the test pit/ RIB sites are as follows;

### SITE 1

Pit one (1) percolation rate was recorded to be 80 minutes/inch. This value may be misrepresenting the true percolation rate for this location. It was determined that Pit one (1) needed to have a certain amount of water depth to drive the water into the soil matrix. Once the water height reached about 5 inches from the bottom of the pit, the water infiltration rate diminished significantly. This pit was refilled after an hour and the infiltration rate significantly increased, but followed the same trend and diminished once a depth of five inches of water was again reached.

Pit two (2) final percolation rate was determined to be 42 minutes/inch. This test pit was dug to 2 ft in depth and filled with 1 ft of water.

The final percolation rate for Site 1 was determined to be 42 minutes/inch or 34.3 in/day.

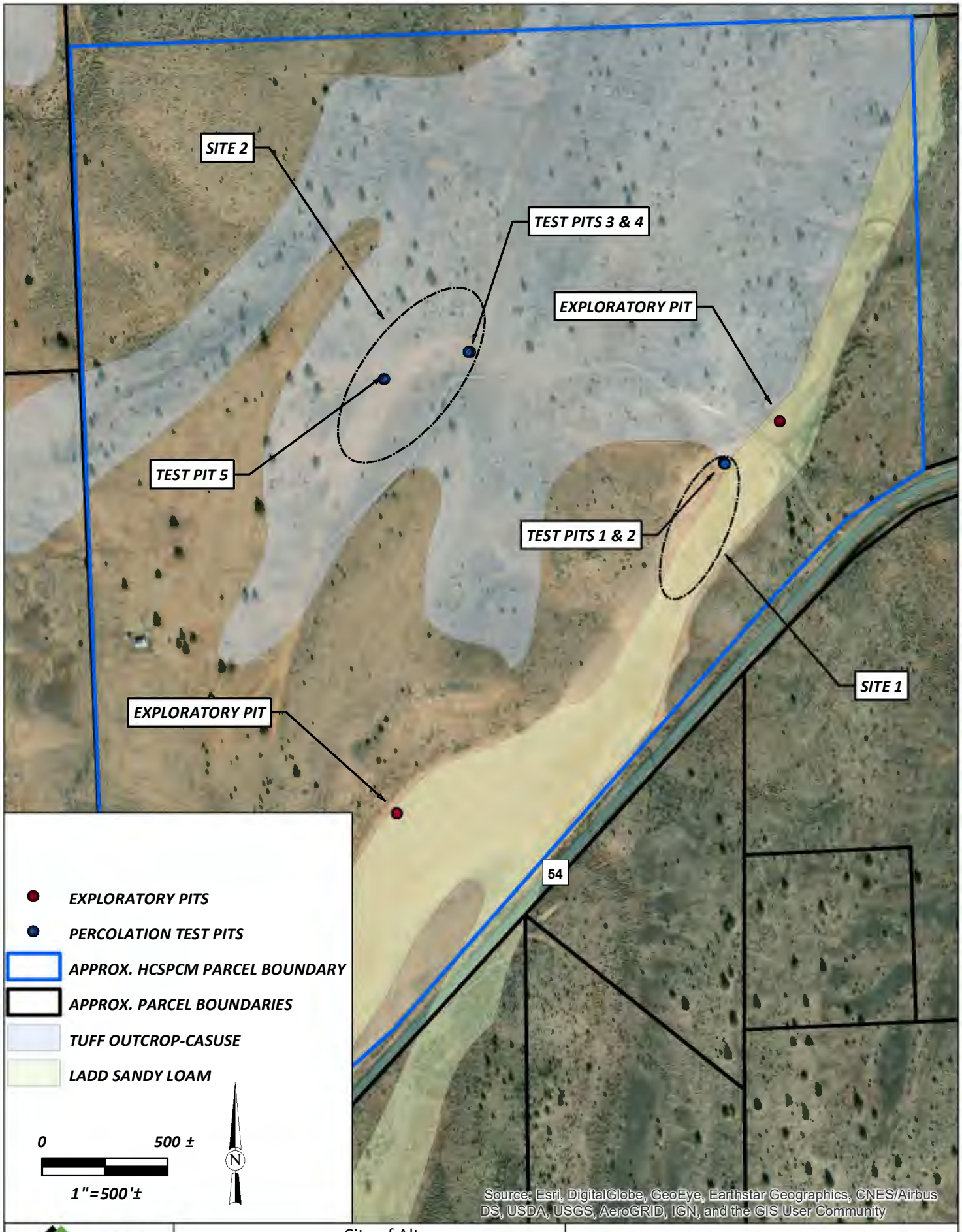
## SITE 2

Pit three (3) final percolation rate was found to be 24 minutes/inch. The depth of this pit was approximately 2 ft.
Pit four (4) final percolation rate was recorded to be 34 minutes/inch. The depth of this pit was approximately 4 ft.

Pit five (5) final percolation rate was recorded to be 31 minutes/inch. The depth of this pit was approximately 4 ft.

The overall estimated percolation rate used for the preliminary analysis for the sizing of infiltration ponds for Site 2, was 30 min/inch or 48 in/day.

One infiltration test was done for each of the pits, a more comprehensive infiltration test and soil analysis is recommended prior to final design. The procedure calls for multiple infiltration tests be done in the same pit to verify that the rates do not vary significantly from test to test.




Path: \\klamathsvr\projects\2018\518004-Alturas-WW\200-PER\GIS\PROJ_MXD\Infiltration_Testing.mxd User Name: pmcgovern DATE: 12/13/19, 12:09PM

City of Alturas
Perliminary Engineering Report
Alturas, CA

Infiltration Testing

SHN 518004

December 2019 | Infiltration_Testing | Figure 1

CONSULTING ENGINEERS & GEOLOGISTS, INC.
803 Main Street Suite 401, Klamath Falls, OR 97601 541-827-7855

## SOILS PERCOLATION TEST DATA SHEET 1 of 2

| | | | |
|---|---|---|---|
| **CLIENT** | CITY OF ALTURAS | **DATE** | 11/8/2019 |
| **JOB REF.** | 218018 | **APN** | 315-211-03 |
| TEST PIT No. | PP-1 (4') | TESTED BY | PM |
| DEPTH TESTED | 4 ft | DTW | >9.5' |
| | | | CLAY/SANDY |
| PRE-SOAK | 24 Hour | NRCS | LOAM |

NOTE: PIT LOCATIONS FOR PIT ONE (1) AND TWO (2) WERE OFFSET BY 5' TESTING DIFFERENT SOIL LAYERS.

| Reading No. | Start Time | Stop Time | Interval (Minutes) | Water Level Drop (Inches) | Percolation Rate (Minutes per Inch) |
|---|---|---|---|---|---|
| 1 | 10:59 | 11:19 | 20 | 7 3/4 | 2 4/7 |
| 2 | 11:19 | 11:39 | 15 | 1 1/4 | 12 |
| 3 | 11:39 | 11:59 | 20 | 1/4 | 80 |
| 4 | 11:59 | 12:19 | 20 | 3/8 | 53 1/3 |
| Tested again with Driving Head | | | | | |
| 1 | 12:42 | 12:54 | 12 | 11 1/2 | 1 |
| 2 | 12:54 | 1:07 | 13 | 3 | 4 1/3 |
| 3 | 1:07 | 1:47 | 40 | 1/2 | 80 |

**STABILIZED PERCOLATION RATE =** 80

| | | | |
|---|---|---|---|
| TEST PIT No. | PP 2 (2FT) | TESTED BY | PM |
| DEPTH TESTED | 24" | DTW | >9.5' |
| | | | CLAY/SANDY |
| PRE-SOAK | 24 Hour | NRCS | LOAM |

NOTE: PIT LOCATION PIT TWO (2) OFFSET FROM PIT ONE (1) TESTING DIFFERENT SOIL LAYERS.

| Reading No. | Start Time | Stop Time | Interval (Minutes) | Water Level Drop (Inches) | Percolation Rate (Minutes per Inch) |
|---|---|---|---|---|---|
| 1 | 11:03 | 11:23 | 20 | 2 5/8 | 7 5/8 |
| 2 | 11:23 | 11:43 | 20 | 1 1/8 | 17 7/9 |
| 3 | 11:43 | 12:03 | 20 | 3/4 | 26 2/3 |
| 4 | 12:03 | 12:23 | 20 | 5/8 | 32 |
| 5 | 12:23 | 13:08 | 45 | 1 1/8 | 40 |
| 6 | 13:08 | 13:45 | 37 | 7/8 | 42 2/7 |

**STABILIZED PERCOLATION RATE =** 42

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| | | | |
|---|---|---|---|
| TEST PIT No. | PP-3 | TESTED BY | PM |
| DEPTH TESTED | 24" | DTW | >9.5' |
| PRE-SOAK | 24 Hour | NRCS | TUFF CASUSE |

NOTE: PIT LOCATIONS FOR PIT THREE (3) AND FOUR (4) WERE OFFSET BY 5' TESTING

| Reading No. | Start Time | Stop Time | Interval (Minutes) | Water Level Drop (Inches) | Percolation Rate (Minutes per Inch) |
|---|---|---|---|---|---|
| 1 | 11:48 | 12:08 | 20 | 3 1/2 | 6 |
| 2 | 12:08 | 12:28 | 20 | 1 1/2 | 13 |
| 3 | 12:28 | 12:48 | 20 | 1 | 20 |
| 4 | 12:48 | 13:08 | 20 | 7/8 | 23 |
| 5 | 13:08 | 13:28 | 20 | 3/4 | 27 |
| 6 | 13:28 | 13:58 | 30 | 1 1/4 | 24 |

**STABILIZED PERCOLATION RATE = 24**

| | | | |
|---|---|---|---|
| TEST PIT No. | PP-4 | TESTED BY | PM |
| DEPTH TESTED | 48" | DTW | >9.5' |
| PRE-SOAK | 24 Hour | NRCS | TUFF CASUSE |

SOIL LAYERS (TOP OF HILL BY TRAILER)

| Reading No. | Start Time | Stop Time | Interval (Minutes) | Water Level Drop (Inches) | Percolation Rate (Minutes per Inch) |
|---|---|---|---|---|---|
| 1 | 11:45 | 12:05 | 20 | 2 1/8 | 9 |
| 2 | 12:05 | 12:27 | 22 | 1 3/8 | 16 |
| 3 | 12:27 | 12:47 | 20 | 3/4 | 27 |
| 4 | 12:47 | 13:09 | 22 | 1 | 22 |
| 5 | 13:09 | 13:27 | 18 | 1 | 18 |
| 6 | 13:27 | 13:57 | 30 | 7/8 | 34 |

**STABILIZED PERCOLATION RATE = 34**

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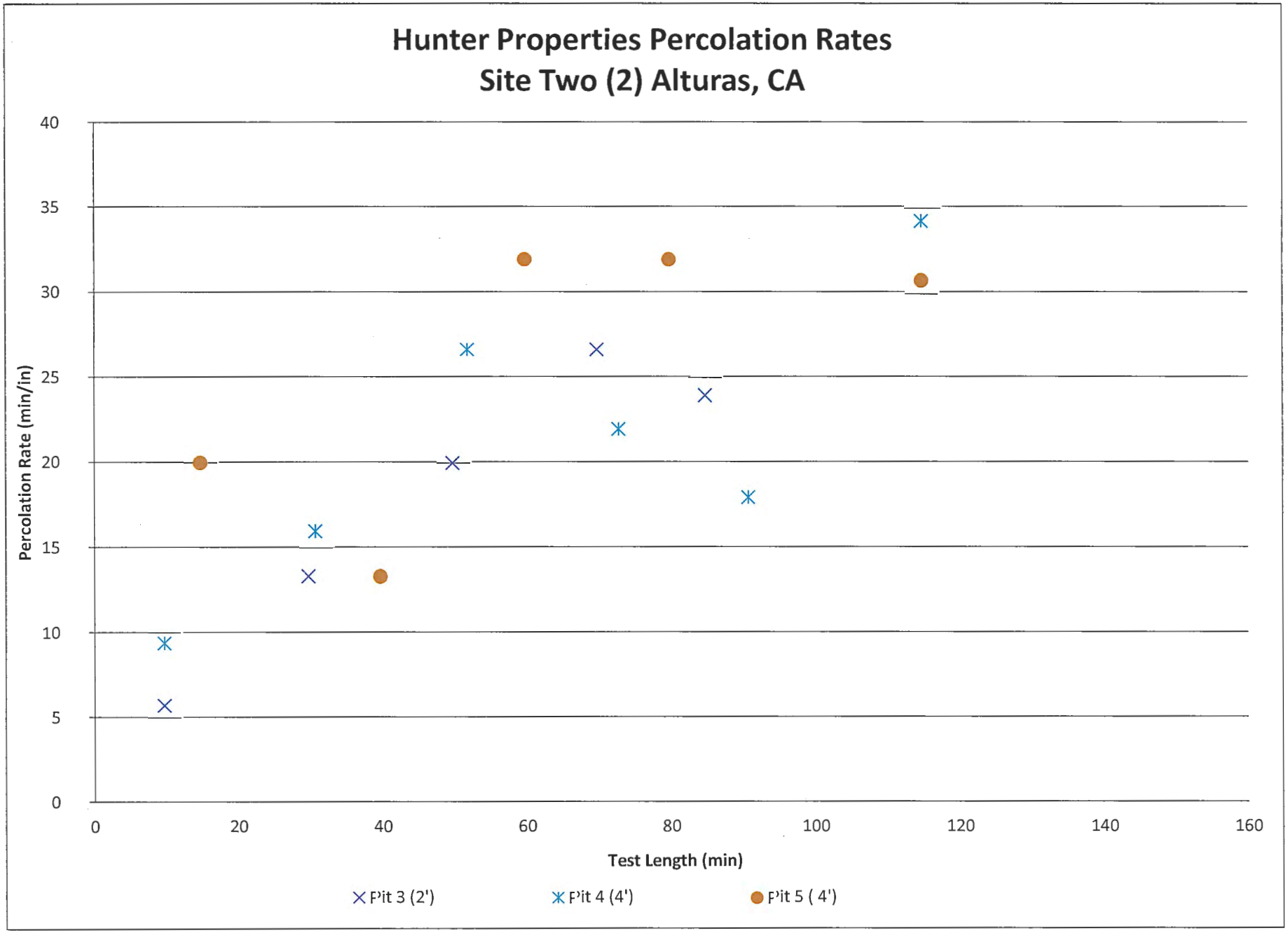
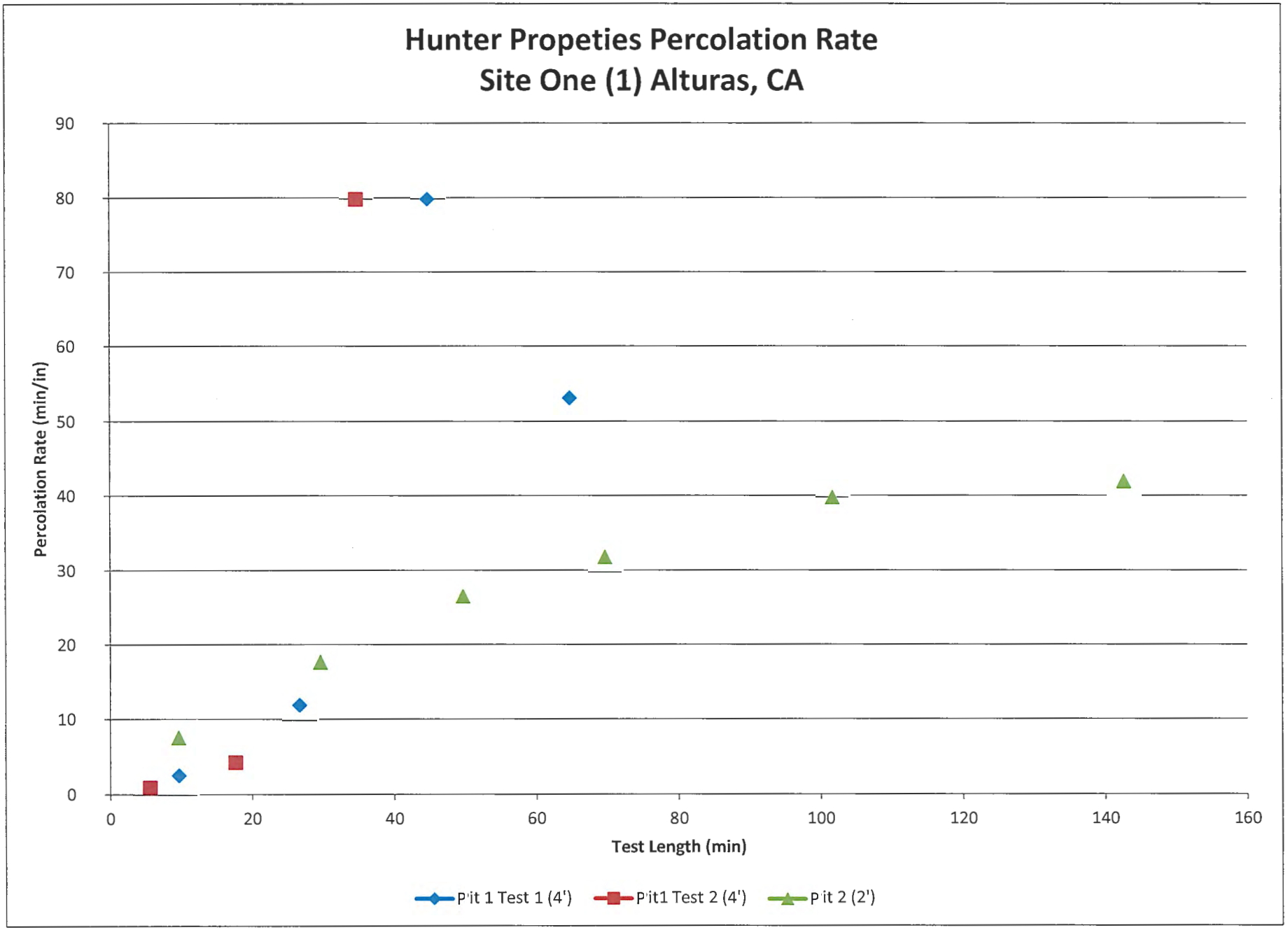
| | | | |
|---|---|---|---|
| TEST PIT No. | PP-5 | TESTED BY | PM |
| DEPTH TESTED | 24" | DTW | >10' |
| PRE-SOAK | 24 Hour | NRCS | TUFF CASUSE |

EXISTING POWERLINES (ABOVE TRAILER).

| Reading No. | Start Time | Stop Time | Interval (Minutes) | Water Level Drop (Inches) | Percolation Rate (Minutes per Inch) |
|---|---|---|---|---|---|
| 1 | 11:55 | 12:25 | 30 | 1 1/2 | 20 |
| 2 | 12:25 | 12:45 | 20 | 1 1/2 | 13 |
| 3 | 12:45 | 13:05 | 20 | 5/8 | 32 |
| 4 | 13:05 | 13:25 | 20 | 5/8 | 32 |
| 5 | 13:25 | 14:15 | 50 | 1 5/8 | 31 |

**STABILIZED PERCOLATION RATE = 31**


Hunter Properties Percolation Rates
Site Two (2) Alturas, CA
Percolation Rate (min/in)
40
35
30
25
20
15
10
5
0
0
20
40
60
80
100
120
140
160
Test Length (min)
Pit 3 (2')
Pit 4 (4')
Pit 5 ( 4')


Hunter Propeties Percolation Rate
Site One (1) Alturas, CA
Percolation Rate (min/in)
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
140
160
Test Length (min)
Pit 1 Test 1 (4')
Pit1 Test 2 (4')
Pit 2 (2')

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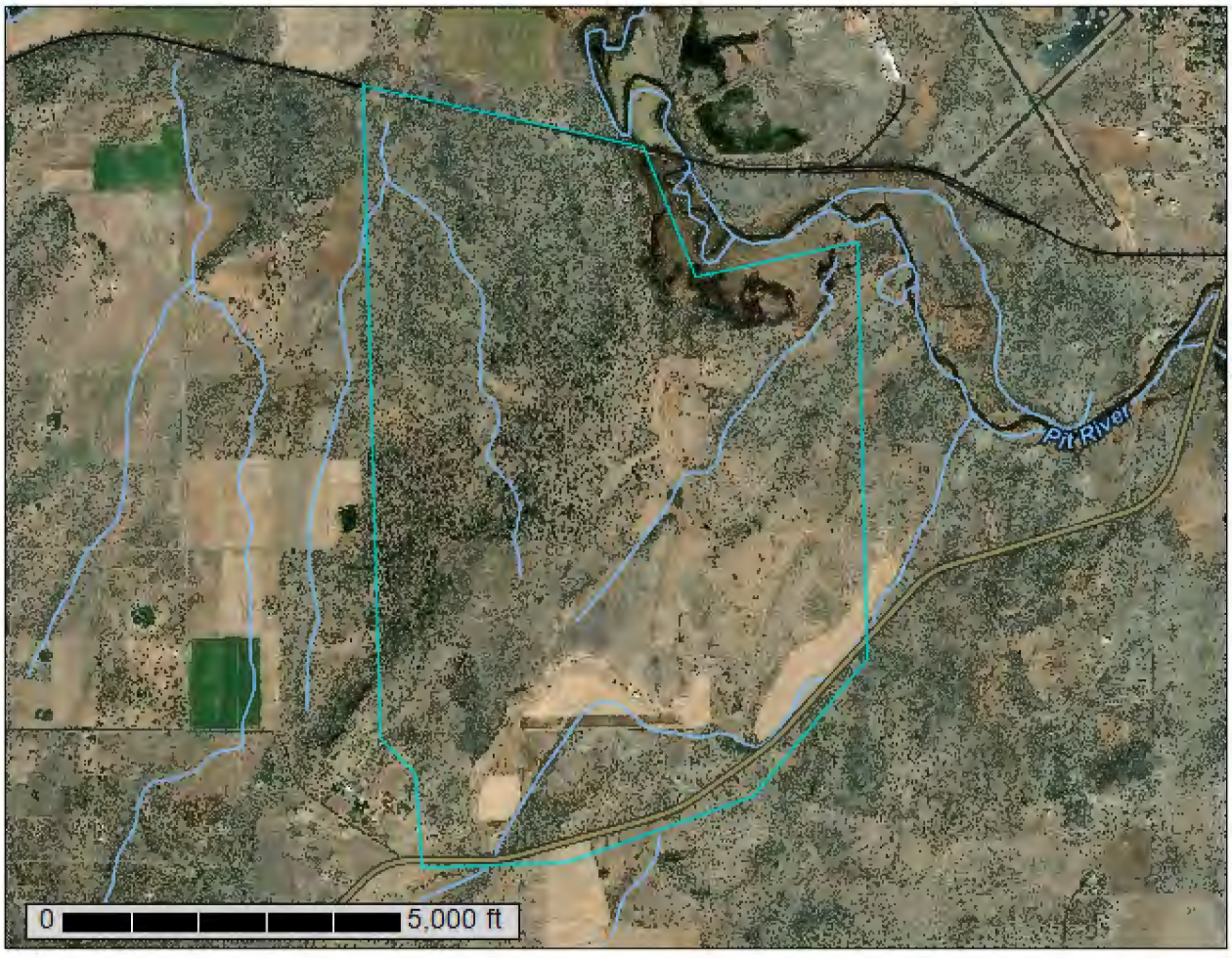
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Modoc County, California, Alturas Area




September 23, 2019

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# Contents

# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

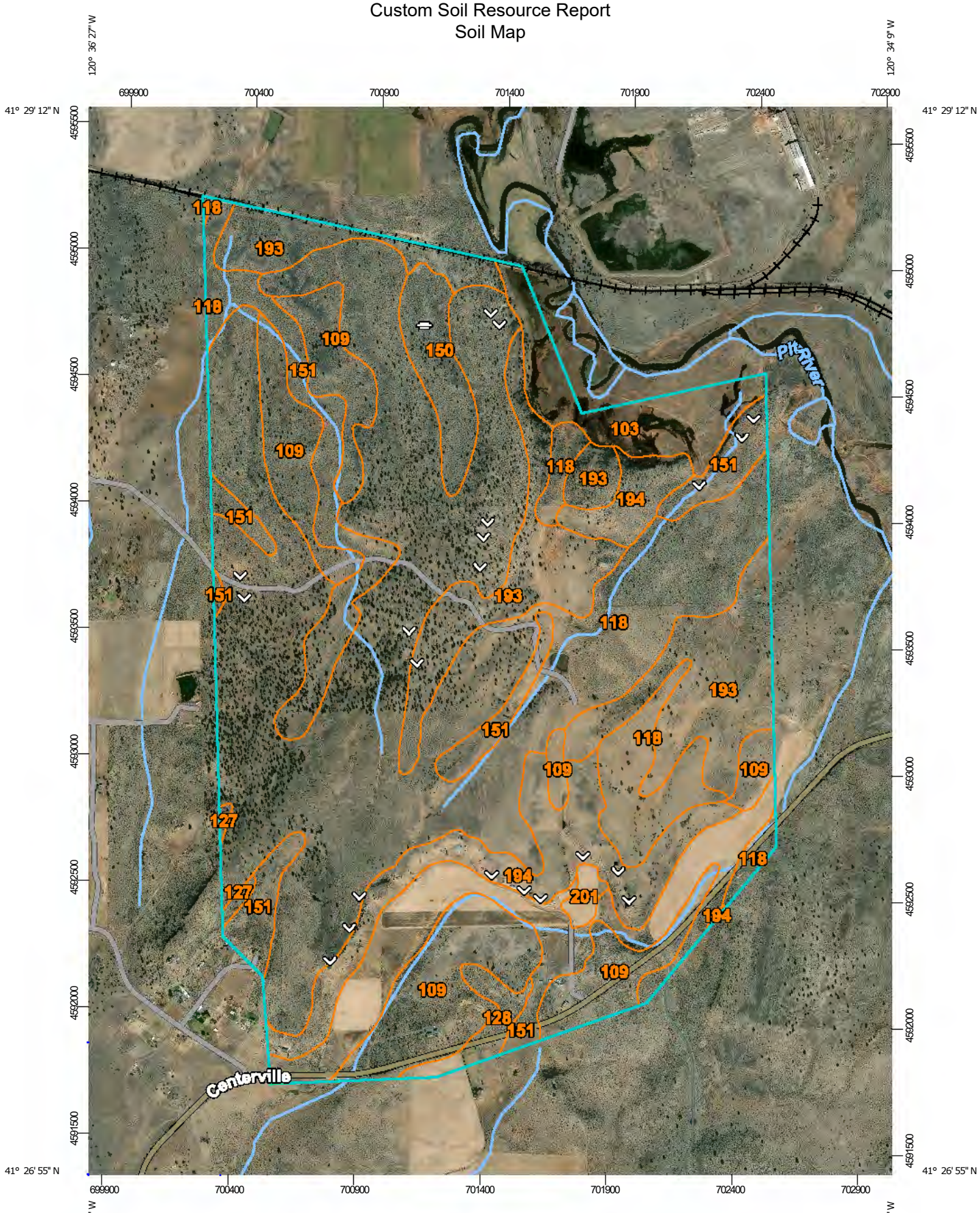
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report
## Soil Map




Map Scale: 1:20,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Modoc County, California, Alturas Area
Survey Area Data: Version 10, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 1, 2016—Oct 25, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 103 | Alturas loam | 57.8 | 3.7% |
| 109 | Bieber gravelly loam, 0 to 9 percent slopes | 187.3 | 12.0% |
| 118 | Casuse sandy loam, 2 to 9 percent slopes | 707.5 | 45.2% |
| 127 | Delma loam, 30 to 50 percent slopes | 3.4 | 0.2% |
| 128 | Delma cobbly loam, 0 to 9 percent slopes | 16.2 | 1.0% |
| 150 | Ladd sandy loam, 0 to 2 percent slopes | 35.3 | 2.3% |
| 151 | Ladd sandy loam, 2 to 9 percent slopes | 231.1 | 14.8% |
| 193 | Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes | 203.4 | 13.0% |
| 194 | Tuff outcrop-Casuse, eroded complex, 30 to 50 percent slopes | 117.4 | 7.5% |
| 201 | Water | 6.4 | 0.4% |
| **Totals for Area of Interest** | | **1,565.8** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties

and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Modoc County, California, Alturas Area

## 103—Alturas loam

### Map Unit Setting

*National map unit symbol:* jb3m
*Elevation:* 4,100 to 4,800 feet
*Mean annual precipitation:* 8 to 15 inches
*Mean annual air temperature:* 46 to 48 degrees F
*Frost-free period:* 80 to 130 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Alturas and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Alturas

#### Setting

*Landform:* Terraces
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from basic igneous rock

#### Typical profile

*H1 - 0 to 17 inches:* loam
*H2 - 17 to 42 inches:* clay loam
*H3 - 42 to 60 inches:* stratified sandy loam to gravelly loam

#### Properties and qualities

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* 40 to 50 inches to duripan
*Natural drainage class:* Moderately well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 30 to 60 inches
*Frequency of flooding:* Rare
*Frequency of ponding:* None
*Salinity, maximum in profile:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
*Sodium adsorption ratio, maximum in profile:* 15.0
*Available water storage in profile:* Moderate (about 6.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 3s
*Land capability classification (nonirrigated):* 3s
*Hydrologic Soil Group:* C
*Ecological site:* ALKALI TERRACE (R021XE136CA)
*Hydric soil rating:* No

**Minor Components**

**Rumbo**
*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Unnamed**
*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Buntingville**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Barnard, gravelly loam, 0-9%**
*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Salisbury, gravelly loam, 0-9%**
*Percent of map unit:* 1 percent
*Hydric soil rating:* No

## 109—Bieber gravelly loam, 0 to 9 percent slopes

**Map Unit Setting**
*National map unit symbol:* jb3t
*Elevation:* 4,300 to 5,000 feet
*Mean annual precipitation:* 10 to 14 inches
*Mean annual air temperature:* 46 to 48 degrees F
*Frost-free period:* 70 to 80 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**
*Bieber and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Bieber**

**Setting**
*Landform:* Terraces
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from basic igneous rock

**Typical profile**
*H1 - 0 to 6 inches:* gravelly loam
*H2 - 6 to 13 inches:* gravelly clay loam
*H3 - 13 to 18 inches:* gravelly clay

*H4 - 18 to 22 inches:* indurated
*H5 - 22 to 60 inches:* indurated

**Properties and qualities**

*Slope:* 0 to 9 percent
*Depth to restrictive feature:* 8 to 22 inches to duripan
*Natural drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 to 0.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Very low (about 2.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 4e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* HARDPAN TERRACE (R021XE137CA)
*Hydric soil rating:* No

**Minor Components**

**Barnard**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Lovejoy**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Daphnedale**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Casuse**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Pineal**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Delma**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

## 118—Casuse sandy loam, 2 to 9 percent slopes

### Map Unit Setting

*National map unit symbol:* jb43
*Elevation:* 4,300 to 4,700 feet
*Mean annual precipitation:* 8 to 14 inches
*Mean annual air temperature:* 46 to 50 degrees F
*Frost-free period:* 80 to 90 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Casuse and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Casuse

#### Setting

*Landform:* Terraces, escarpments
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Riser
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Weakly cemented residuum weathered from tuff

#### Typical profile

*H1 - 0 to 2 inches:* sandy loam
*H2 - 2 to 12 inches:* clay loam
*H3 - 12 to 60 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 2 to 9 percent
*Depth to restrictive feature:* 8 to 20 inches to paralithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Very low (about 2.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* SHALLOW LOAMY (R021XE133CA)
*Hydric soil rating:* No

**Minor Components**

**Unnamed**

*Percent of map unit:* 8 percent
*Hydric soil rating:* No

**Unnamed, moderately deep**

*Percent of map unit:* 7 percent
*Hydric soil rating:* No

## 127—Delma loam, 30 to 50 percent slopes

**Map Unit Setting**

*National map unit symbol:* jb4d
*Elevation:* 4,300 to 5,300 feet
*Mean annual precipitation:* 10 to 16 inches
*Mean annual air temperature:* 46 to 48 degrees F
*Frost-free period:* 80 to 100 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Delma and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Delma**

**Setting**

*Landform:* Escarpments, lake terraces
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Riser
*Down-slope shape:* Concave, linear
*Across-slope shape:* Convex, linear
*Parent material:* Lacustrine deposits derived from basic igneous rock

**Typical profile**

*H1 - 0 to 13 inches:* loam
*H2 - 13 to 18 inches:* clay
*H3 - 18 to 60 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 8 to 20 inches to paralithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Very low (about 2.8 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* SHALLOW LOAMY (R021XE133CA)
*Hydric soil rating:* No

**Minor Components**

**Daphnedale**
*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Casuse**
*Percent of map unit:* 4 percent
*Hydric soil rating:* No

**Ager**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Unnamed, eroded**
*Percent of map unit:* 2 percent

**Tuff outcrop**
*Percent of map unit:* 1 percent

## 128—Delma cobbly loam, 0 to 9 percent slopes

**Map Unit Setting**
*National map unit symbol:* jb4f
*Elevation:* 4,300 to 5,300 feet
*Mean annual precipitation:* 10 to 16 inches
*Mean annual air temperature:* 46 to 48 degrees F
*Frost-free period:* 80 to 100 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**
*Delma and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Delma**

**Setting**
*Landform:* Lake terraces, escarpments
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Lacustrine deposits derived from basic igneous rock

**Typical profile**

*H1 - 0 to 13 inches:* cobbly loam
*H2 - 13 to 18 inches:* clay
*H3 - 18 to 60 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 0 to 9 percent
*Depth to restrictive feature:* 8 to 20 inches to paralithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Very low (about 2.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* SHALLOW LOAMY (R021XE133CA)
*Hydric soil rating:* No

**Minor Components**

**Daphnedale**

*Percent of map unit:* 8 percent
*Hydric soil rating:* No

**Ager**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Barnard**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Casuse**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 150—Ladd sandy loam, 0 to 2 percent slopes

**Map Unit Setting**

*National map unit symbol:* jb54
*Elevation:* 4,300 to 5,050 feet

*Mean annual precipitation:* 12 to 16 inches
*Mean annual air temperature:* 45 to 46 degrees F
*Frost-free period:* 80 to 100 days
*Farmland classification:* Prime farmland if irrigated

**Map Unit Composition**

*Ladd and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Ladd**

**Setting**

*Landform:* Alluvial fans
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from basic igneous rock

**Typical profile**

*H1 - 0 to 12 inches:* sandy loam
*H2 - 12 to 40 inches:* clay loam
*H3 - 40 to 60 inches:* sandy loam

**Properties and qualities**

*Slope:* 0 to 2 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Moderate (about 8.7 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3s
*Land capability classification (nonirrigated):* 4s
*Hydrologic Soil Group:* C
*Ecological site:* LOAMY (R021XE131CA)
*Hydric soil rating:* No

**Minor Components**

**Unnamed, calcareous subsoil**

*Percent of map unit:* 6 percent
*Hydric soil rating:* No

**Buntingville**

*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Ladd, sandy loam, 2 to 9% slopes**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Calimus**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, loam surface**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 151—Ladd sandy loam, 2 to 9 percent slopes

**Map Unit Setting**

*National map unit symbol:* jb55
*Elevation:* 4,300 to 5,050 feet
*Mean annual precipitation:* 12 to 16 inches
*Mean annual air temperature:* 45 to 46 degrees F
*Frost-free period:* 80 to 100 days
*Farmland classification:* Prime farmland if irrigated

**Map Unit Composition**

*Ladd and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Ladd**

**Setting**

*Landform:* Alluvial fans
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from basic igneous rock

**Typical profile**

*H1 - 0 to 12 inches:* sandy loam
*H2 - 12 to 40 inches:* clay loam
*H3 - 40 to 60 inches:* sandy loam

**Properties and qualities**

*Slope:* 2 to 9 percent
*Depth to restrictive feature:* More than 80 inches
*Natural drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Moderate (about 8.7 inches)

**Interpretive groups**
*Land capability classification (irrigated):* 3e
*Land capability classification (nonirrigated):* 4e
*Hydrologic Soil Group:* C
*Ecological site:* LOAMY (R021XE131CA)
*Hydric soil rating:* No

**Minor Components**

**Unnamed, calcareous subsoil**
*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Buntingville**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Calimus**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Lakeview, 0 to 2% slopes**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Modoc**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 193—Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes

**Map Unit Setting**
*National map unit symbol:* jb6j
*Elevation:* 4,000 to 4,700 feet
*Mean annual precipitation:* 8 to 14 inches
*Mean annual air temperature:* 46 to 50 degrees F
*Frost-free period:* 80 to 90 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**
*Tuff outcrop:* 55 percent
*Casuse and similar soils:* 35 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tuff Outcrop

#### Setting

*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Free face
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Tuff

#### Typical profile

*H1 - 0 to 10 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 2 to 15 percent
*Depth to restrictive feature:* About 0 inches to lithic bedrock
*Runoff class:* Very high
*Available water storage in profile:* Very low (about 0.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8s
*Hydric soil rating:* No

### Description of Casuse

#### Setting

*Landform:* Terraces
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Residuum weathered from tuff

#### Typical profile

*H1 - 0 to 2 inches:* sandy loam
*H2 - 2 to 12 inches:* clay loam
*H3 - 12 to 60 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 2 to 15 percent
*Depth to restrictive feature:* 8 to 20 inches to paralithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 to 0.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Very low (about 2.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* SHALLOW LOAMY (R021XE133CA)

*Hydric soil rating:* No

**Minor Components**

**Daphnedale, cobbly loam, 0 to 9% slopes**
*Percent of map unit:* 7 percent
*Hydric soil rating:* No

**Ladd**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

## 194—Tuff outcrop-Casuse, eroded complex, 30 to 50 percent slopes

**Map Unit Setting**
*National map unit symbol:* jb6k
*Elevation:* 4,000 to 4,700 feet
*Mean annual precipitation:* 8 to 14 inches
*Mean annual air temperature:* 46 to 50 degrees F
*Frost-free period:* 80 to 90 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**
*Tuff outcrop:* 60 percent
*Casuse and similar soils:* 30 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Tuff Outcrop**

**Setting**
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Free face
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Tuff

**Typical profile**
*H1 - 0 to 60 inches:* bedrock

**Properties and qualities**
*Slope:* 30 to 50 percent
*Depth to restrictive feature:* About 0 inches to paralithic bedrock
*Runoff class:* Very high
*Available water storage in profile:* Very low (about 0.0 inches)

**Interpretive groups**
*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8s
*Hydric soil rating:* No

### Description of Casuse

#### Setting

*Landform:* Escarpments
*Landform position (two-dimensional):* Toeslope, shoulder
*Landform position (three-dimensional):* Free face, side slope
*Down-slope shape:* Linear, concave
*Across-slope shape:* Linear, convex
*Parent material:* Residuum weathered from tuff

#### Typical profile

*H1 - 0 to 2 inches:* cobbly sandy loam
*H2 - 2 to 12 inches:* clay loam
*H3 - 12 to 60 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 8 to 20 inches to paralithic bedrock
*Natural drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 to 0.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water storage in profile:* Very low (about 2.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* SHALLOW LOAMY (R021XE133CA)
*Hydric soil rating:* No

### Minor Components

#### Casuse, sandy loam, 2 to 9% slopes

*Percent of map unit:* 6 percent
*Hydric soil rating:* No

#### Daphnedale

*Percent of map unit:* 4 percent
*Hydric soil rating:* No

## 201—Water

### Map Unit Composition

*Water:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

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# Budgetary Cost Estimates

# 4

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**Opinion of Probable Project Cost**
**City of Alturas WWTP**
**Alternative 1 Cost Summary**

| Item | Description | Units | Quantity | Unit Cost | Total Cost |
|---|---|---|---|---|---|
| Demolition | | | | | |
| 1 | Decommission Plant Components[2] | LS | 1 | $ 25,000 | $ 25,000 |
| 2 | Removing Existing Trickling Filter | LS | 1 | $ 41,000 | $ 41,000 |
| New Unit Processes | | | | | |
| 3 | Spiralift 1/4" Screen and Housing | LS | 1 | $ 309,000 | $ 309,000 |
| 4 | New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.) | LS | 1 | $ 1,744,000 | $ 1,744,000 |
| 5 | Nitrification/Denitrification | LS | 1 | $ 900,000 | $ 900,000 |
| 6 | New Aerobic Digester | EA | 2 | $ 386,000 | $ 772,000 |
| 7 | Metals Removal | LS | 1 | $ 1,500,000 | $ 1,500,000 |
| Rehabiltiated/Upgraded Facilities | | | | | |
| 8 | Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping | LS | 1 | $ 200,000 | $ 200,000 |
| 9 | Convert disinfection system to hypochlorite | LS | 1 | $ 50,000 | $ 50,000 |
| 10 | Rehabilitate Secondary Clarifier (No. 1) | LS | 1 | $ 300,000 | $ 300,000 |
| 11 | Replace Back-up Generator and Electrical | LS | 1 | $ 57,000 | $ 57,000 |
| | | | | Mobilization (12%): | $ 708,000 |
| | | | | Subtotal : | $ 6,606,000 |
| | | | | Contingency (30%): | $ 1,982,000 |
| | | | | ***Subtotal Construction:*** | **$ 8,588,000** |
| | | | | Engineering/Construction Management (18%): | $ 1,546,000 |
| | | | | Environmental/Permitting (5%): | $ 430,000 |
| | | | | Administration/Legal (4%): | $ 344,000 |
| | | | | ***Total Project:*** | ***$ 12,890,000*** |

Notes:

1. Refer to subsequent pages for additional information on each line item.

2. Decommissioning components of the existing plant involve terminatation of electrical connections throughout the plant and remove elevated mechanical infrastructure from the site. Components include Grit Chamber, Grinder, Primary Clarifier, and Digester. Concrete Substructures to remain.

3. Values rounded up to nearest $1,000

CONSULTING ENGINEERS & GEOLOGISTS, INC.
803 Main St, Suite 401
Klamath Falls, OR 97601
Tel. (541)-827-7855

| JOB | 518004 | | ALT 1. |
|---|---|---|---|
| SHEET NO. | 2 | OF | 7 |
| CALC'ED BY | PCM | DATE | 3/12/2020 |
| CHECKED BY | AHR | DATE | 11/6/2020 |

**Item No.: 1** **Decommision Plant Components**

Terminate Electrical Connections to WWTF treatment components and Removal of Existing Mechanical Infrastructure including the secondary clarifier distribution arm/baffling, Grit Chamber baffles and Mixer, Digester Roof and Mixer, and Primary Clarifier Scum baffles, drive housing, decking, etc.

$ 25,000.00 Allowance

**Item No.: 2** **Removing Existing Trickling Filter**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Remove Existing Media Bed | 1 | LS | $ 2,500.00 | $ 2,500.00 | 3 |
| Removal of Existing Piping/Emmiters | 1 | LS | $ 1,750.00 | $ 1,750.00 | 3 |
| Cleaning piping, media, and emmiters | 1 | LS | $ 3,000.00 | $ 3,000.00 | 3 |
| Drain and Cap Existing Piping | 1 | LS | $ 2,250.00 | $ 2,250.00 | 3 |
| Clean out Trickling Filter Basin | 1 | LS | $ 3,000.00 | $ 3,000.00 | 1 |
| Demolish CMU block retaining wall | 3000 | SF | $ 3.63 | $ 10,903.20 | 4 |
| Demolish Original Concrete Wall | 11940 | CF | $ 0.68 | $ 8,171.74 | 4 |
| Earthwork back to Existing Grade | 757 | CY | $ 12.39 | $ 9,383.36 | 4 |
| | | | Subtotal : | $ 41,000.00 | |

Notes:
1. CMU Wall 8" wide CMU Blocks 2 walls L = 142' H = 7' ; 2 walls L = 72' H = 7'
2. Original Concrete Structure 2 walls L = 142' H = 5' W =1'; 2 walls L = 72' H = 5' W = 1'; Concrete Floor L = 140' H = 1' W = 70'
3. Earthwork to Existing Grade Dimensions Assumed; L = 142' W = 72' H =2' and Fill could be allocated from location onsite.

Sources:

1. Per Steve B
2. Per Anders R.
3. Per Phil M.
4. DCD Simple Estimator 2018

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**Item No.: 3** **Spiralift 1/4" Screen and Housing**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Franklin Miller Spiralift | 1 | LS | $ 87,000.00 | $ 87,000.00 | 1 |
| Installation of Spiralift | 1 | LS | $ 174,000.00 | $ 174,000.00 | 2 |
| Building for New Headworks | 240 | SF | $ 200.00 | $ 48,000.00 | 2 |
| | | | Subtotal: | $ 309,000.00 | |

Note:
Installation Cost Assumed to be 2 x the Unit Budgetary Cost
Building Approximately 12' x 20' around Spiralift to protect it from the Environment

Sources:
1. Franklin Miller Budgetary Cost Estimate
2. Per Anders R.

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**Item No.: 4 New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.)**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Clearing and Grubbing Area | 0.34 | Acre | $ 6,127.76 | $ 2,083.44 | 4 |
| Rough Grading | 1097 | CY | $ 12.39 | $ 13,592.66 | 3 |
| Ditch Excavation | 587 | CY | $ 14.48 | $ 8,499.76 | 4 |
| General Excavation | 1047 | CY | $ 4.99 | $ 5,226.99 | 3 |
| Class 2 Agg Base (2' compacted) | 94 | Ton | $ 24.08 | $ 2,269.49 | 4 |
| Concrete Tanks (Forms and | 188 | CY | $ 954.00 | $ 179,352.00 | 2 |
| Material Cost and Installation Cost for 27' Distribution Arms | 1 | LS | $ 606,000.00 | $ 606,000.00 | 5 |
| Material and Installation Cost for Drive System and Control Panel | 1 | LS | $ 140,000.00 | $ 140,000.00 | 5 |
| Material and Installation Cost for Trickling Filter Media/Supports | 4 | EA | $ 132,000.00 | $ 528,000.00 | 6 |
| Piping | 1057 | LF | $ 150.00 | $ 158,550.00 | 1 |
| Recirculation Pumps, Control Boxes, Valving | 1 | LS | $ 100,000.00 | $ 100,000.00 | 1 |
| | | | Subtotal: | $ 1,744,000.00 | |

Notes:
1. Trickling Filter Beds Demensions; Diameter = 27', Height = 18'
2. Total Construction Cost (2 x the Unit Budgetary Cost)

Source:
1. Per Anders
2. Per Steve
3. DCD Simple Estimator
4. Odot 2018 Weighted Averages Awarded Price
5. WesTech Budgetary Quote
6. Brentwood Budgetary Quote Please note the distribution system for the TF don't include a steel bridge that supports the whole drive unit.

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**Item No.: 5** **Nitrification/Denitrification**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Budgetary Quote from Triplepoint Environmental, NitrOx+D | 1 | LS | $ 600,000.00 | $ 600,000.00 | - |
| Site Work Installation | 1 | LS | $ 3,000,000.00 | $ 300,000.00 | - |
| | | | Subtotal Per NitrOx+D Unit | $ 900,000.00 | |

**Item No.: 6** **New Aerobic Digester**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Exacavation and Grading | 1 | LS | $ 7,500.00 | $ 7,500.00 | 1 |
| Rebar and Foundation | 1 | LS | $ 10,000.00 | $ 10,000.00 | 1 |
| Piping including Earthwork | 1 | LS | $ 81,000.00 | $ 81,000.00 | 1 |
| Mixer | 1 | LS | $ 97,000.00 | $ 97,000.00 | 1 |
| Installation of Mixer | 1 | LS | $ 145,500.00 | $ 145,500.00 | 4 |
| Digester with Reinforcement | 1 | LS | $ 45,000.00 | $ 45,000.00 | 1 |
| | | | Subtotal Per Digester: | $ 386,000.00 | |

Notes:
1. 20% added to vendor costs to account for contractor markup
2. Aerobic Digester Demensions; H = 18' Dia 30'
3. Mixer cost provided by WesTech
4. Installation of Mixer assumed to be 1.5 x Unit Budgetary Cost

Sources:
1. 2007 National Construction Estimator

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**Item No.:** **7** **Metals Removal**

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Metals Removal | 1 | LS | $ 1,500,000.00 | $ 1,500,000.00 | - |

Subtotal: $ 1,500,000.00

Notes:

Sources:
1. Jim Coskey, JBI Water

Process:
Precipitation using contact clarifier
Need pH above 10.3
Will require pH reduction after process
See report text for additional description

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**Item No.: 8 Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| 750 HP Variable Drive Pump | 2 | EA | $ 30,000.00 | $ 60,000.00 | 1 |
| 350 HP Variable Drive Pump | 1 | EA | $ 15,000.00 | $ 15,000.00 | 1 |
| Piping, Valving, and Support | 1 | LS | $ 40,000.00 | $ 40,000.00 | 2 |
| Crane and Access Point | 1 | LS | $ 75,000.00 | $ 75,000.00 | 1 |
| Improve Existing Electrical | 1 | LS | $ 10,000.00 | $ 10,000.00 | 1 |
| | | | Subtotal : | $ 200,000.00 | |

Notes:
1. 20% added from Vendors Price for Shipping:
2. (2) 750 Hp Variable Drive Pumps
3. (1) 350 Hp Variable Drive Pump
4. Currently No Crane/ Access to remove Pumps Safely

Sources:
1. Per Anders R.
2. DCD Simple Estimator 2018

**Item No.: 9 Convert disinfection system to hypochlorite**

Additional detail for capital construction line items

Assume conversion from gaseous to liquid disinfection and dechlorination in existing building.

Allowance: $50,000

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**Item No.: 10** **Rehabilitate Secondary Clarifier (No. 1)**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Material and Installation Cost for | 1 | LS | $ 260,000.000 | $ 260,000.000 | 1 |
| Material and Installation Cost for | 1 | LS | $ 16,000.00 | $ 16,000.00 | 1 |
| Replace Existing Valving | 1 | LS | $ 15,000.00 | $ 15,000.00 | 2 |
| Miscellaneous Repair of | 1 | LS | $ 5,000.00 | $ 5,000.00 | 3 |
| Sludge Pump | LS | 1 | $ 4,000.00 | $ 4,000.00 | 3 |
| | | | Subtotal: | $ 300,000.000 | |

Notes:
1. (1) 12" Ductile Iron Gate Valve
2. Total Construction Cost Assumed to be 2 x the Unit Budgetary Cost

Sources:
1. WesTech Budgetary Quote (Clarifier has steel bridge associated with the distributor arm that holds the wieght of
2. DCD Simple Estimator 2018
3. Per Anders R.

**Item No.: 11** **Replace Back-up Generator and Electrical**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Generac Commercial 150KW | 1 | LS | $ 34,000.00 | $ 34,000.00 | 1 |
| Earthwork and Concrete Pad for | 1 | LS | $ 3,000.00 | $ 3,000.00 | 2 |
| Electrical Connection | 1 | LS | $ 20,000.00 | $ 20,000.00 | 3 |
| | | | Subtotal: | $ 57,000.00 | |

Sources:
1. Generac Website
2. DCD Simple Estimator 2018
3. Per Anders R.

**Opinion of Probable Project Cost**

**City of Alturas WWTP**

**Alternative 2 Cost Summary**

| Item | Description | Units | Quantity | Unit Cost | Total Cost |
|---|---|---|---|---|---|
| Demolition | | | | | |
| 1 | Decommission Plant Components[2] | LS | 1 | $ 25,000 | $ 25,000 |
| 2 | Remove Existing Trickling Filter | LS | 1 | $ 41,000 | $ 41,000 |
| New Unit Processes | | | | | |
| 3 | Spiralift 1/4" Screen and Housing | LS | 1 | $ 309,000 | $ 309,000 |
| 4 | New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.) | LS | 1 | $ 1,744,000 | $ 1,744,000 |
| 5 | New Aerobic Digester | EA | 2 | $ 386,000 | $ 772,000 |
| 6 | Effluent Pump Station | LS | 1 | $ 900,000 | $ 900,000 |
| 7 | Effluent Force Main | LS | 1 | $ 582,000 | $ 582,000 |
| 8 | Infitration Ponds | LS | 1 | $ 157,000 | $ 157,000 |
| Rehabilitated/Upgraded Facilities | | | | | |
| 9 | Replace Back-up Generator and Electrical | LS | 1 | $ 56,000 | $ 56,000 |
| 10 | Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping | LS | 1 | $ 200,000 | $ 200,000 |
| 11 | Rehabilitate Secondary Clarifier (No. 1) | LS | 1 | $ 300,000 | $ 300,000 |
| 12 | Effluent Flow Meter | LS | 1 | $ 15,000 | $ 15,000 |
| Other | | | | | |
| 13 | Groundwater Monitoring Wells | LS | 1 | $ 60,000 | $ 60,000 |
| | | | | Mobilization (12%): | $ 620,000 |
| | | | | Subtotal : | $ 5,781,000 |
| | | | | Contingency (30%): | $ 1,735,000 |
| | | | | ***Subtotal Construction:*** | **$ 7,516,000** |
| | | | | Land Acquisition: | $ 361,000 |
| | | | | Engineering/Construction Management (18%): | $ 1,353,000 |
| | | | | Environmental/Permitting (5%): | $ 376,000 |
| | | | | Administration/Legal (4%): | $ 301,000 |
| | | | | ***Total Project:*** | ***$ 11,642,000*** |

Notes:

1. Refer to subsequent pages for additional information on each line item.

2. Decommissioning components of the existing plant involve terminatation of electrical connections throughout the plant and remove elevated mechanical infrastructure from the site. Components include Grit Chamber, Grinder, Primary Clarifier, and Digester. Concrete Substructures to remain.

3. Values rounded up to nearest $1,000

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**Item No.: 1** **Decommision Plant Components**

Terminate Electrical Connections to WWTF treatment components and Removal of Existing Mechanical Infrastructure including the secondary clarifier distribution arm/baffling, Grit Chamber baffles and Mixer, Digester Roof and Mixer, and existing Grinder, and Primary Clarifier Scum baffles, drive housing, decking, etc.

$ 25,000.00 Allowance

**Item No.: 2** **Remove Existing Trickling Filter**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Remove Existing Media Bed | 1 | LS | $ 2,500.00 | $ 2,500.00 | 3 |
| Removal of Existing Piping/Emmiters | 1 | LS | $ 1,750.00 | $ 1,750.00 | 3 |
| Cleaning piping, media, and emmiters | 1 | LS | $3,000 | $ 3,000.00 | 3 |
| Drain and Cap Existing Piping | 1 | LS | $2,250 | $ 2,250.00 | 3 |
| Clean out Trickling Filter Basin | 1 | LS | $3,000 | $ 3,000.00 | 1 |
| Demolish CMU block retaining wall | 3000 | SF | $ 3.63 | $ 10,903.20 | 4 |
| Demolish Original Concrete Wall | 11940 | CF | $ 0.68 | $ 8,171.74 | 4 |
| Earthwork back to Existing Grade | 757 | CY | $ 12.39 | $ 9,379.23 | 4 |
| | | | Subtotal : | $ 41,000.00 | |

Notes:

1. CMU Wall 8" wide CMU Blocks 2 walls L = 142' H = 7' ; 2 walls L = 72' H = 7'
2. Original Concrete Structure 2 walls L = 142' H = 5' W =1'; 2 walls L = 72' H = 5' W = 1'; Concrete Floor L = 140' H = 1' W = 70'
3. Earthwork to Existing Grade Demensions Assumed; L = 142' W = 72' H =2' and Fill could be allocated from location onsite.

Sources:

1. Per Steve B
2. Per Anders R.
3. Per Phil M.
4. DCD Simple Estimator 2018

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**Item No.: 3** **Spiralift 1/4" Screen and Housing**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Franklin Miller Spiralift Screen | 1 | LS | $ 87,000.00 | $ 87,000.00 | 1 |
| Installation fo Spiralift | 1 | LS | $ 174,000.00 | $ 174,000.00 | 2 |
| Building for New Headworks | 240 | SF | $ 200.00 | $ 48,000.00 | 2 |
| | | | Subtotal: | $ 309,000.00 | |

Note:
Installation Cost Assumed to be 2 x the Unit Budgetary Cost.
Building 12' x 20' around Helicoil Sieve to protect it from freezing.

Sources
1. Franklin Miller Budgetary Cost Estimate
2. Per Anders R.

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**Item No.: 4** **New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.)**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Clearing and Grubbing Area | 0.34 | Acre | $ 6,127.76 | $ 2,083.44 | 4 |
| Rough Grading | 1097 | CY | $ 12.39 | $ 13,592.66 | 3 |
| Ditch Excavation | 587 | CY | $ 14.48 | $ 8,499.76 | 4 |
| General Excavation | 1047 | CY | $ 4.99 | $ 5,226.99 | 3 |
| Class 2 Agg Base (2' compacted) | 94 | Ton | $ 24.08 | $ 2,263.52 | 4 |
| Concrete Tanks Forms and | 188 | CY | $ 954.00 | $ 179,352.00 | 2 |
| Material and Installation Cost for 27' Distribution Arms (x4) | 1 | LS | $ 606,000.00 | $ 606,000.00 | 5 |
| Material and Installation Cost for Drive System and Control Panel (x4) | 1 | LS | $ 140,000.00 | $ 140,000.00 | 5 |
| Material and Installation Cost for Trickling Filter Media/Supports | 4 | EA | $ 132,000.00 | $ 528,000.00 | 6 |
| Piping | 1057 | LF | $ 150.00 | $ 158,550.00 | 3 |
| Recirculation Pumps, Control Boxes, Va | 1 | LS | $ 100,000.00 | $ 100,000.00 | 1 |
| | | | Subtotal: | $ 1,744,000.00 | |

Notes:
1. Trickling Filter Beds Demensions; Diameter = 27', Height = 18'
2. Total Construction Cost (2 x the Unit Budgetary Cost)

Source:
1. Per Anders
2. 2007 National Construction Estimator
3. DCD Simple Estimator
4. Odot 2018 Weighted Averages Awarded Price
5. WesTech Budgetary Quote
6. Brentwood Budgetary Quote

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**Item No.: 5** **New Aerobic Digester**

Additional detail for capital construction line items

Notes:

| Item | Quantity | Unit | Unit Cost | Total | Source | |
|---|---|---|---|---|---|---|
| Exacavation and Grading | 1 | LS | $ 7,500.00 | $ 7,500.00 | 1 | $ 7,500.00 |
| Rebar and Foundation | 1 | LS | $ 10,000.00 | $ 10,000.00 | 1 | $ 10,000.00 |
| Piping including Earthwork | 1 | LS | $ 81,000.00 | $ 81,000.00 | 1 | $ 75,000.00 |
| Mixer | 1 | LS | $ 97,000.00 | $ 97,000.00 | 1 | $ 97,000.00 |
| Installation of Mixer | 1 | LS | $ 145,500.00 | $ 145,500.00 | 4 | $ 145,500.00 |
| Digester with Reinforcement | 1 | LS | $45,000 | $ 45,000.00 | 1 | $ 45,000.00 |
| | | | Subtotal Per Digester: | $ 386,000.00 | | |

Notes:
1. 20% added to vendor costs to account for contractor markup
2. Digester Demensions H = 18' Dia 30'
3. Mixer cost provided by WesTech
4. Installation of Mixer assumed to be 1.5 x Unit Budgetary Cost

Sources:

1. 2007 National Construction Estimator

**Item No.: 6** **Effluent Pump Station**

Additional detail for capital construction line items

Notes:

This would include the installation of a dry and wet well with capacity to pump from the post treated plant to the new infiltration beds. This would include (3) pumps. This amount would include connection to electric.

$ 900,000.00 Allowance

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**Item No.: 7** **Effluent Force Main**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Install 8" Force Main From WWTF to Infiltration Ponds | 11000 | LF | $ 50.00 | $ 550,000.00 | 1 |
| Install 8" Force Main Ductile Iron Bridge Crossing with Supports | 500 | LF | $ 60.00 | $ 30,000.00 | 1 |
| Bridge Supports | 1 | LS | $ 1,300.00 | $ 1,300.00 | 2 |
| | | | Subtotal: | $ 582,000.00 | |

Note:
1. Cal Trans Guidence for Zone 1 & 2
2. DCD Simple Estimator

**Item No.: 8** **Infitration Ponds**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Earthwork | 26482 | CY | $ 4.94 | $ 130,932.30 | 1 |
| Valving, Piping, and Restraints | 1 | LS | $ 17,070.00 | $ 17,070.00 | 1 |
| Eriosion Control | 1 | LS | $ 8,000.00 | $ 8,000.00 | 2 |
| | | | Subtotal: | $ 157,000.00 | |

Notes:
1. 20% added to vendor costs to account for contractor markup

Source:
1. 2018 DCD Simple Estimator
2. Per Anders

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**Item No.: 9** **Replace Back-up Generator and Electrical**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| 150 KW Generator | 1 | EA | $ 34,000.00 | $ 34,000.00 | 1 |
| Earthwork and Concrete Pad for | 1 | EA | $ 2,000.00 | $ 2,000.00 | 2 |
| Electrical Connection | 1 | EA | $ 20,000.00 | $ 20,000.00 | 3 |
| | | | Subtotal: | $ 56,000.00 | |

Notes:
1. One generator to replace existing plant back-up generator, second generator to be placed at new pump station.

Source:

1. Generac Website
2. 2018 DCD Simple Estimator
3. Per Anders R.

**Item No.: 10** **Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| 750 HP Variable Drive Pump | 2 | EA | $ 30,000.00 | $ 60,000.00 | 1 |
| 350 HP Variable Drive Pump | 1 | EA | $ 15,000.00 | $ 15,000.00 | 1 |
| Piping, Valving, and Support | 1 | LS | $ 40,000.00 | $ 40,000.00 | 2 |
| Crane and Access Point | 1 | LS | $ 75,000.00 | $ 75,000.00 | 1 |
| Improve Existing Electrical System in | 1 | LS | $ 10,000.00 | $ 10,000.00 | 1 |
| | | | Subtotal : | $ 200,000.00 | |

Notes:
1. 20% added from Vendors Price for Shipping:
2. (2) 750 Hp Variable Drive Pumps
3. (1) 350 Hp Variable Drive Pump
4. Currently No Crane/ Access to remove Pumps Safely

Sources:
1. Per Anders
2. DCD Simple Estimator

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**Item No.: 11** **Rehabilitate Secondary Clarifier (No. 1)**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| (1) 28' Rake Arm, Surface Skimmer, and Walkway | 1 | LS | $ 260,000.000 | $ 260,000.000 | 1 |
| FRP Effluent Weir & Baffles | 1 | LS | $ 16,000.00 | $ 16,000.00 | 1 |
| Replace Existing Valving | 1 | LS | $ 15,000.00 | $ 15,000.00 | 2 |
| Miscellaneous Repair of Concrete | 1 | LS | $ 5,000.00 | $ 5,000.00 | 3 |
| Sludge Pump | 1 | LS | $ 4,000.00 | $ 4,000.00 | |
| | | | Subtotal: | $ 300,000.000 | |

Notes:
1. Construction Cost Assumed to be 2 x the Unit Budgetary Cost.
2. 12" Ductile Iron Gate Valve

Sources:
1. WesTech Budgetary Quote
2. 2018 DCD for Gate Valve

**Item No.: 12** **Effluent Flow Meter**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Flow meter (mag meter) | 1 | EA | $ 15,000.00 | $ 15,000.00 | 1 |
| | | | Subtotal: | $ 15,000.00 | |

Notes:

Sources:
1. Per Anders

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| | | | |
|---|---|---|---|
| JOB | 518004 | | ALT 2. |
| SHEET NO. | 9 | OF | 9 |
| CALC'ED BY | PCM | DATE | 3/12/2020 |
| CHECKED BY | AHR | DATE | 11/6/2020 |

**Item No.: 13** **Groundwater Monitoring Wells**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Groundwater Monitoring Wells | 3 | EA | $ 20,000.00 | $ 60,000.000 | 1 |
| | | | Subtotal: | $ 60,000.000 | |

Notes:
1. Actual cost of the monitoring wells dependent on depth to groundwater.

Sources:
1. Per Anders

**Cost of Purchasing Property for Ponds**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Parcel Property | 277 | AC | $ 1,300.00 | $ 360,100.000 | 1 |
| | | | Subtotal: | $ 361,000.000 | |

Notes:
1. Parcel Cost was provided by City of Alturas. Cost of parcel is $1000/ac. Estimated cost ($1300/ac) includes additional transaction fees (closing costs), legal costs, survey, etc.

Sources:
1. Per Anders

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**Opinion of Probable Project Cost**
**City of Alturas WWTP**
**Alternative 3 Cost Summary**

| Item | Description | Units | Quantity | Unit Cost | Total Cost |
|---|---|---|---|---|---|
| Demolition | | | | | |
| 1 | Decommission Existing Plant[2] | LS | 1 | $ 25,000 | $ 25,000 |
| New Unit Processes | | | | | |
| 2 | Back-up Generators[3] | LS | 1 | $ 124,000 | $ 124,000 |
| 3 | Flow monitoring | LS | 1 | $ 15,000 | $ 15,000 |
| 4 | Spiralift 1/4" Screen w/ Construction and Housing | EA | 1 | $ 309,000 | $ 309,000 |
| 5 | Influent Pump Station | LS | 1 | $ 900,000 | $ 900,000 |
| 6 | Influent Force Main | LS | 1 | $ 582,000 | $ 582,000 |
| 7 | Aeration Basin | LS | 1 | $ 1,037,000 | $ 1,037,000 |
| 8 | Infiltration Ponds | LS | 1 | $ 156,000 | $ 156,000 |
| 9 | Groundwater Monitoring Wells | LS | 1 | $ 60,000 | $ 60,000 |
| 10 | Blower Building | SF | 400 | $ 200 | $ 80,000 |
| | | | | Mobilization (12%): | $ 395,000 |
| | | | | Subtotal : | $ 3,263,000 |
| | | | | Contingency (30%): | $ 979,000 |
| | | | | ***Subtotal Construction:*** | **$ 4,242,000** |
| | | | | Land Acquisition: | $ 361,000 |
| | | | | Engineering/Construction Management (18%): | $ 764,000 |
| | | | | Environmental/Permitting (5%): | $ 213,000 |
| | | | | Administration/Legal (4%): | $ 170,000 |
| | | | | ***Total Project:*** | ***$ 5,750,000*** |

Notes:

1. Refer to subsequent pages for additional information on each line item.
2. Decommissioning of the most existing plant components including terminatation of electrical connections throughout the plant and removal of elevated mechanical infrastructure from the site. Concrete substructures to remain.

3. According to the Operator of Record for the City of Alturas WWTF, the current generator is not a reliable back-up power source. With new infrastructure being proposed, it should also have a source of backup power, therefore two (2) generators have been recommended for this upgrade. One (1) generator to provide backup power for the influent pump station and one (1) generator to provide backup power the aeration ponds.

4. Values rounded up to the nearest $1,000

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**Item No.: 1** **Decommission Existing Plant**

Terminate Electrical Connections to WWTF treatment components and Removal of Existing Mechanical Infrastructure.

$ 25,000.00 Allowance

**Item No.: 2** **Back-up Generators**

Additional detail for capital construction line items

Notes:

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| 150 KW Generator[1] | 2 | EA | $ 34,000.00 | $ 68,000.00 | 2 |
| Electrical connection, automatic transfer switch | 2 | EA | $ 25,000.00 | $ 50,000.00 | |
| Earthwork and Concrete Pad for Generator | 2 | LS | $ 3,000.00 | $ 6,000.00 | 1 |
| | | | Subtotal: | $ 124,000.00 | |

Note:

1. Two Generator have been specified for this Alternative to provide back up power at both the Pump Station and the Aeration Ponds. The generator at the pump station will replace the existing generator lcoated at the existing WWTP.

Source:
1. DCD Simple Estimator
2. Generac Website

**Item No.: 3** **Flow monitoring**

Additional detail for capital construction line items

Allowance for influent flow monitoring: $ 15,000
Magmeter at influent pump station discharge

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**Item No.: 4** **Spiralift 1/4" Screen w/ Construction and Housing**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Franklin Miller Spiralift Screen | 1 | LS | $ 87,000.00 | $ 87,000.00 | 1 |
| Installation of Spiralift | 1 | LS | $ 174,000.00 | $ 174,000.00 | 2 |
| Building for New Headworks | 240 | SF | $ 200.00 | $ 48,000.00 | 2 |
| | | | Subtotal: | $ 309,000.00 | |

Note:
Installation Cost Assumed to be 3 x the Unit Cost
Building 12' x 20' around Helicoil Sieve

Sources:
1. Franklin Miller Budgetary Cost Estimate
2. Per Anders R.

**Item No.: 5** **Influent Pump Station**

Additional detail for capital construction line items

| | | | |
|---|---|---|---|
| Installed | $ 900,000 | As per Anders and previous projects experience | |
| | Subtotal: | $ 900,000 | |

**Item No.: 6** **Influent Force Main**

Additional detail for capital construction line items

Notes: 1. 20% added to vendor costs to account for contractor markup

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Install 8" Force Main From WWTF | 11000 | LF | $ 50.00 | $ 550,000.00 | 1 |
| Install 8" Ductile Iron From WWTF | 500 | LF | $ 60.00 | $ 30,000.00 | 1 |
| 8" Bridge Support | 1 | LS | $ 1,300.00 | $ 1,300.00 | |
| | | | Subtotal: | $ 582,000.00 | |

Source:
1. Per Anders

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**Item No.: 7** **Aeration Basin**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Excavation | 55543 | CY | $ 4.12 | $ 228,737.18 | 2 |
| Rough Grading | 21450 | CY | $ 4.94 | $ 106,053.09 | 2 |
| Electrical Connection | 1 | LS | $ 40,000.00 | $ 40,000.00 | 1 |
| Valving and Piping | 1 | LS | $ 20,195.00 | $ 20,195.00 | 2 |
| 60 mm Pond Liner | 145368 | SF | $ 0.80 | $ 116,294.40 | 1 |
| Triple Lagoon System | 1 | LS | $ 505,000.00 | $ 505,000.00 | 3 |
| Pontoon Boat with Jib for | 1 | LS | $ 20,000.00 | $ 20,000.00 | 1 |
| | | | Subtotal: | $ 1,037,000.00 | |

Note:
1. Total Construction cost (2 x Budgetary Unit value)
2. Backup Generator accounted for under Item 1.

Sources:
1. Per Anders R.
2. DCD Simple Estimator 2018
3. Triple Point Lagoons

**Item No.: 8** **Infiltration Ponds**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Earthwork | 26482 | CY | $ 4.94 | $ 130,932.30 | 3 |
| Valving, Piping, and Restraints | 1 | LS | $ 20,000.00 | $ 20,000.00 | 3 |
| Erosion Control | 1 | LS | $ 5,000.00 | $ 5,000.00 | 1 |
| | | | Subtotal: | $ 156,000.00 | |

Source:
1. Per Anders
2. 2007 National Construction Editor
3. DCD Simple Estimator

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**Item No.: 9** **Groundwater Monitoring Wells**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Groundwater Monitoring Wells | 3 | EA | $ 20,000.00 | $ 60,000.00 | 1 |
| | | | Subtotal: | $ 60,000.00 | |

Sources:
1. Per Anders

**Item No.: 10** **Blower Building**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Blower Building | 400 | SF | $ 200.00 | $ 80,000.00 | 1 |
| | | | Subtotal: | $ 80,000.00 | |

Notes:
1. 20' x 20' shed for Blower infrasturcture and storage of equipment.

Sources:
1. Per Anders

**Cost of Purchasing Property for Ponds**

Additional detail for capital construction line items

| Item | Quantity | Unit | Unit Cost | Total | Source |
|---|---|---|---|---|---|
| Property | 277 | AC | $ 1,300.00 | $ 361,000.00 | 1 |
| | | | Subtotal: | $ 361,000.00 | |

Source:
1. Per City of Alturas

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**Opinion of Annual Wastewater Operational Costs**
**City of Alturas Wastewater Planning Study**

| Item | Description | Alternative 1 Rehab WWTP w/ River Discharge | Alternative 2 Rehab WWTP w/ Land Discharge | Alternative 3 New WWTP w/ Land Discharge |
|---|---|---|---|---|
| 1 | Labor | $ 85,000 | $ 85,000 | $ 85,000 |
| 2 | Chemicals | $ 95,000 | $ 39,500 | $ - |
| 3 | Testing/Reporting | $ 35,000 | $ 24,500 | $ 24,500 |
| 4 | Sludge/solids hauling | $ 2,000 | $ 2,000 | $ 1,000 |
| 5 | Electrical Costs | $ 28,500 | $ 30,900 | $ 48,800 |
| 6 | Permitting | $ 5,000 | $ 5,000 | $ 5,000 |
| | Annual O&M costs: | $ 250,500 | $ 186,900 | $ 164,300 |

Notes:
1. Other costs not listed are considered relatively equal between the three alternatives.

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**Operations Cost Details for all alternatives**

**Item No.: 1 Labor**

For all three alternatives, assume the following for labor including benefits for one full time person.
Per Jason Diven, City of Alturas

Annual Labor: $ 85,000 per year

**Item No.: 2 Chemicals**

For FY 2018/2019, the City spent $98,647 on chemicals, which include:
pH adjustment, coagulation, chlorination, dechlorination
No further breakdown of costs was available.

Assume the following:
1. For Alternative 1, assume minor reduction in coagulation, but increase for lime and pH adjustment.
2. For Alternative 2, assume reduction in coagulation, chlorination, and dechlorination, use 40% of recent costs.
3. For Alternative 3, assume full elimination of chemicals, use $0.

| | Alt 1 | Alt 2 | Alt 3 |
|---|---|---|---|
| Chem costs: | $ 95,000 | $ 39,500 | $ - |

**Item No.: 3 Testing/Reporting**

Current budget for testing fees is $35,000.
Assume same for Alt 1 with river discharge.
For Alts 2 and 3, reduced effluent testing but groundwater monitoring; assume 70% of current budget.

| | Alt 1 | Alt 2 | Alt 3 |
|---|---|---|---|
| Testing: | $ 35,000 | $ 24,500 | $ 24,500 |

**Item No.: 4 Sludge/solids hauling**

Sludge handling in most recent year was $973.
Alt 1 includes solids removal at headworks plus sludge handling.
Alt 2 includes solids removal at headworks plus sludge handling.
Alt 3 includes only solids removal at headworks.
Assume following:

| | Alt 1 | Alt 2 | Alt 3 |
|---|---|---|---|
| Testing: | $ 2,000 | $ 2,000 | $ 1,000 |

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**Operations Cost Details for all alternatives**

**Item No.: 5 Electrical Costs**

Notes: 1. Assumed rate of: $0.17 per kWh Pacific Power
$0.07 per kWh Surprise Valley Electric
Rates cover meter charges for SVE

Notes:
2. 1 hp = 0.746 kW
3. Electrical budget for current FY is $28,500

*Alt 1 Rehab WWTP w/ River Discharge*
Assume same electrical costs as currently: $ 28,500 per year

*Alt 2 Rehab WWTP w/ Land Discharge*
Assume same electrical costs as currently: $ 28,500
Plus effluent pumping of approximately: $ 2,400
Total: $ 30,900 per year
Effluent pumping based on 108 MG pumped per year using 14,000 kwh
All power in Pacific Power service area.

*Alt 3 New WWTP w/ Land Dishcarge*
Headworks plus pumping in Pacific Power service area
Blowers at new WWTP in SVE service area

Headworks screen (allowance): $ 600
Influent pumping (same as Alt 2): $ 2,400

Blowers (2x50hp=746 kW), running 24/7 = 653,496 kwh per year
Electrical cost for blower: $ 45,800
Total: $ 48,800

**Item No.: 6 Permitting**

Notes: Annual permit estimates were derived from the following fee equation, provided in the California Code of Regulations (Fee Schedule) by the California State Water Resources Control Board:

"Fee equals $2,572 plus 4,548 multiplied by the permitted flow, in mgd"

flow = 0.5 mgd
Annual Permit Fee = $ 4,846 *

* The annual permit fee is rounded to the nearest thousands for the planning stage.

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**Present Value Analysis**
**City of Alturas Wastewater Planning Study**

Data mostly from other spreadsheets

Discount rates from OMB Circular A-94 Appendix C November 2019

| | |
|---|---|
| Duration | 20 years |
| Nominal rate | 2.3% |
| Real rate | 0.3% |

| Project Component Alternatives | Capital Cost | Annual O&M | Present Value O&M | Salvage Value | Present Value Salvage | Net Present Value |
|---|---|---|---|---|---|---|
| Alternative 1 | $ 12,890,000 | $ 250,500 | $4,855,598 | $ 4,253,700 | $ 4,006,344 | $ 13,739,254 |
| Alternative 2 | $ 11,642,000 | $ 186,900 | $3,622,799 | $ 3,841,860 | $ 3,618,452 | $ 11,646,347 |
| Alternative 3 | $ 5,750,000 | $ 164,300 | $3,184,729 | $ 1,897,500 | $ 1,787,159 | $ 7,147,571 |

For salvage value, assume overall average 30-year life w/ straightline depreciation, so after 20 years, salvage is 33%.
Net Present Value = Capital Cost + Present Worth O&M - Present Worth Salvage.

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# Aerator Manufacturer Design Data

5

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**Basis of Design**

Alturas, CA

16-Oct-19

Aeration Design Calculations

## *SUMMARY - General Design Parameters*

| *v3.6.3* | | **Design Scenario Name** | | **ADF** |
|---|---|---|---|---|
| | 1 | Influent Flowrate | MGD | 0.500 |
| | 2 | Influent Concentration | mg/L | 240.0 |
| | 3 | Effluent Concentration (summer) | mg/L | 10.7 |
| | 4 | Effluent Concentration (winter) | mg/L | 29.0 |
| | 5 | Actual Oxygen Supplied | lb/day | 1522.8 |
| | 6 | Has air been provided for nitrification? | | No |
| | 7 | Number of Aerators | | 27 |
| | 8 | Estimated Tubing Length | ft | 4000 |
| | 9 | Airflow | scfm | 955 |
| | 10 | Design Pressure (includes cushion) | psig | 7.51 |
| | 11 | Projected Brake Horsepower | bhp | 35.55 |
| | 12 | Min. Design Horsepower | hp | 53 |

## *SUMMARY - Aerators*

**Air Supplied Via:** Manifolds

| **Cell Name** | **Aerator Type** | |
|---|---|---|
| Cell 1 | 750T | 21 |
| Cell 2 | 750T | 6 |
| Cell 3 | 750T | 0 |
| Cell 4 | 750T | 0 |
| Cell 5 | 750T | 0 |
| Cell 6 | 750T | 0 |

## *SUMMARY - Biological Treatment Calculations*

| | **Item** | **Description** | **Units** | **ADF** |
|---|---|---|---|---|
| | 1 | Number of Treatment Cells | | 2 |
| | 2 | Flow Regime | | Series |
| | 3 | Site Elevation - HWL | MSL - ft | 4370 |
| **Cell 1** | | | | |
| | 4 | Wastewater Flowrate | MGD | 0.500 |
| | 5 | Treatment Volume | M-Gal | 6.7 |
| | 6 | Treatment Time | days | 13.3 |
| | 7 | Treatment Type | - | Partial Mix |
| | 8 | Standard Reaction Rate, $k_{20}$ | $days^{-1}$ | 0.28 |
| **Summer** | 9 | Design Water Temp | °C | 20 |
| | 10 | Design Reaction Rate, $k_T$ | $days^{-1}$ | 0.122 |
| | 11 | Biological Treatment Efficiency | % | 78.9% |
| | 12 | Influent BOD Loading | lb/day | 1,000 |
| | 13 | Influent BOD Concentration | mg/L | 240.0 |
| | 14 | BOD Removed | lb/day | 788 |
| | 15 | Effluent BOD Loading | lb/day | 211 |
| | 16 | Effluent BOD Concentration | mg/L | 50.7 |
| **Winter** | 17 | Design Water Temp | °C | 0.5 |
| | 18 | Biological Treatment Efficiency | % | 65.2% |
| | 19 | BOD Removed | lb/day | 651.8 |
| | 20 | Effluent BOD Concentration | mg/L | 83.5 |
| | N1 | Influent NBOD Loading | lb/day | 104 |
| | N2 | Influent NBOD Concentration | mg/L | 25.0 |
| | N3 | NBOD Removed* (Assumed) | lb/day | - |
| | N4 | Effluent NBOD Loading* | lb/day | 104 |
| | N5 | Effluent NBOD Concentration* | mg/L | 25 |
| **Cell 2** | | | | |

| | | | | |
|---|---|---|---|---|
| | 17 | Wastewater Flowrate | MGD | 0.500 |
| | 18 | Treatment Volume | M-Gal | 6.7 |
| | 19 | Treatment Time | days | 13.3 |
| | 21 | Treatment Type | - | Partial Mix |
| | 22 | Standard Reaction Rate, $k_{20}$ | $days^{-1}$ | 0.28 |
| | 20 | Design Water Temp | °C | 20 |
| | 23 | Design Reaction Rate, $k_T$ | $days^{-1}$ | 0.122 |
| **Summer** | 24 | Biological Treatment Efficiency | % | 78.9% |
| | 25 | Influent BOD Loading | lb/day | 211 |
| | 26 | Influent BOD Concentration | mg/L | 50.7 |
| | 27 | BOD Removed | lb/day | 166 |
| | 28 | Effluent BOD Loading | lb/day | 45 |
| | 29 | Effluent BOD Concentration | mg/L | 10.7 |
| | 17 | Design Water Temp | °C | 0.5 |
| **Winter** | 18 | Biological Treatment Efficiency | % | 65.2% |
| | 19 | BOD Removed | lb/day | 226.8 |
| | 20 | Effluent BOD Concentration | mg/L | 29.0 |
| | N6 | Influent NBOD Loading | lb/day | 104 |
| | N7 | Influent NBOD Concentration | mg/L | 25.0 |
| | N8 | NBOD Removed* (Assumed) | lb/day | - |
| | N9 | Effluent NBOD Loading* | lb/day | 104 |
| | N10 | Effluent NBOD Concentration* | mg/L | 25 |
| **Cell 3** | | | | |
| **Cell 4** | | | | |
| **Cell 5** | | | | |
| **Cell 6** | | | | |

***SUMMARY - Aeration Calculations***

| | Item | Description | Units | ADF |
|---|---|---|---|---|
| | 1 | Site Elevation | ft | 4370 |
| | N1 | $O_2$ Loading Factor ($BOD_5$) | lb-O2/lb-BOD | 1.5 |
| | N2 | $O_2$ Loading Factor ($NBOD_5$) | lb-O2/lb-NBOD | 4.6 |
| | 2 | Alpha-value, α | | 0.60 |
| | 3 | Beta-value, β | | 0.95 |
| | 4 | Theta-value, θ | | 1.02 |
| **Cell 1** | | | | |
| | 5 | Lagoon Side Water Depth | ft | 12 |
| | 6 | Air Release Depth | ft | 11.25 |
| | N3 | AOR - BOD | lb/day | 1183 |
| | N4 | AOR - NBOD | lb/day | 0 |
| | 7 | AOR - Total | lb/day | 1183 |
| | 8 | SOTE/ft | %/ft | 1.89% |
| | 9 | SOTE | % | 21.27% |
| | 10 | Design DO Concentration | mg/L | 2.0 |
| | 11 | FTE | | 6.36% |
| | 12 | Air requirement | scfm | 742 |
| | 13 | Airflow per aeration unit | scfm/unit | 35.3 |
| | 14 | Aerator Type | | 750T |
| | 15 | Number of aeration units | units | 21 |
| | 16 | Water Pressure | psi | 4.87 |
| | 17 | Aerator Pressure Loss | psi | 0.75 |
| | 18 | Header/Feeder Pressure Allowance | psi | 0.89 |
| | 19 | Total Operating Pressure | psig | 6.51 |
| | 20 | Design Motor Pressure | psig | 7.51 |
| **Cell 2** | | | | |
| | 21 | Lagoon Side Water Depth | ft | 12 |
| | 22 | Air Release Depth | ft | 11.25 |
| | N5 | AOR - BOD | lb/day | 340 |
| | N6 | AOR - NBOD | lb/day | 0 |
| | 23 | AOR | lb/day | 340 |

| | | | |
|---|---|---|---|
| 24 | SOTE/ft | %/ft | 1.89% |
| 25 | SOTE | % | 21.27% |
| 26 | Design DO Concentration | mg/L | 2.0 |
| 27 | FTE | | 6.36% |
| 28 | Air requirement | cfm | 213 |
| 29 | Airflow per aeration unit | cfm | 35.6 |
| 30 | Aerator Type | | 750T |
| 31 | Number of aeration units | units | 6 |
| 32 | Water Pressure | psi | 4.87 |
| 33 | Aerator Pressure Loss | psi | 0.75 |
| 34 | Header/Feeder Pressure Allowance | psi | 0.89 |
| 35 | Total Operating Pressure | psig | 6.51 |
| 36 | Design Motor Pressure | psig | 7.51 |

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**BUDGETARY ESTIMATE – LAGOON AERATION**

**PROJECT NO.:** 3339
**PROJECT NAME:** Alturas WWTP
**PROJECT LOCATION:** Alturas, CA
**DATE:** October 22, 2019

**PREPARED FOR**

Anders Rasmussen, P.E.
SHN Engineers & Geologists

c/o
Kyle Menath
JBI Water & Wastewater

**PREPARED BY**

Triplepoint Environmental, LLC
Tom Daugherty, Western Region Manager
Office: (312) 428-4634
Fax: (312) 957-4712
Cell: (208) 699-7090
Email: tom@lagoons.com

## Basis of Design

Site desires to evaluate lagoon based treatment using diffused aeration. A summary basis of design is in the table below. A detailed basis of design is attached herewith.

| Parameter | Influent Average | Effluent Design Criteria |
|---|---|---|
| Design Flow | 0.50 MGD | 0.50 MGD[1] |
| BOD | 240 mg/L | 25 mg/L |
| TSS | 300 mg/L | TBD |
| NH3-N | 25 mg/L | TBD |

1. It is understood daily peaks may reach 1.0 MGD. If the max month/average day is > 500,000 gpd TPE will recalculate and provide an updated scope of supply.

## Discussion

**Layout:** Triplepoint designed a two cell lagoon system. Both cells measure 400' x 240' at the surface with 3:1 slope and 12' water depth. Each cell has a volume 0f 6.67 MG featuring 13.3 treatment days. Cell 1 will receive 21 aerators and Cell 2 will receive six aerators based on the design inputs.

**Blower and Control Panel:** Three Blowers are proposed at 30 HP each at the specified design depth. Two blowers are duty and one is standby. The NEMA 3R control panel features dual VFDs and switching to allow the third blower to be operated by an existing VFD.

**Installation:** Triplepoint will provide a turnkey installation quote upon request.

Triplepoint has a robust solution for retrofitting a lagoon or servicing individual aerators without dewatering.

*The aerators are placed into position from a floating vessel. Buoys are attached to the aerators by stainless cables facilitating individual retrieval for maintenance. No electrical or moving parts are in the water.*

## Scope of Supply

| Equipment | Quantity | Unit |
|---|---|---|
| Ares 750T Tube Aerators with Coarse and Fine Bubble | 27 | ea |
| Buoys with SS tether cables, SS quick disconnects | 27 | ea |
| High-flow Flexible Weighted Airline | 4200 | ft |
| SS Full-Port Ball valves for individual aerator control and barb set | 27 | ea |
| 6-port Custom Welded 304 SS air distribution manifold (2 caps) | 4 | ea |
| 4-port Custom Welded 304 SS air distribution manifold | 2 | ea |
| 316 Stainless Steel hose clamps | 60 | ea |
| 30 HP 460/60/3 Blower with Sound and Weather package (two duty one standby) | 3 | ea |
| NEMA 3R Control Panel with dual VFDs and A/B switch | 1 | ea |
| Blower spares, filter, belts, oil, spec grease | 1 | lot |
| Detailed Installation and layout plan (Shop Drawings) | 1 | ea |
| Person Days Triplepoint Installation Supervision, Start-up, and Training | 4 | ea |
| Optional: DO Real timer Blower Control ($9,000-$18,000 depending on options) | 0 | ea |
| Optional: Additional Year of Warranty ($5,616) | 0 | ea |
| Installation quote upon request | 0 | ea |
| Freight FOB factory (TBD) | 0 | lot |
| **TOTAL PRICE**: | **$252,479** | |

**Conditions of Sale**

*Price and Payment*

The quote in this proposal is in US Dollars and does not include applicable federal or state taxes, fees, or tariffs. It remains valid for a period of 45 days. Fifty (50) percent of the quote price is due upon contract acceptance, forty (40) percent upon shipment and ten (10) percent upon startup.

*Installation*

Triplepoint Environmental will provide installation supervision as part of this proposal along with certification of proper installation once complete. All installation labor is the responsibility of the customer. A separate proposal can be supplied for aeration installation. A floating vessel is required for installation unless cells are drained.

*Supplied by Others*

Air headers are not included in this scope of supply. Installation and blower connection to air distribution header and integration to SCADA or other plant specific data recording schema are not included. Site specific preferred embodiments of installation such as exterior conduit runs, cable ties, and the like are not included.

*Delivery*

The MARS Aeration diffusers and tubing will be delivered within a period of 10-14 weeks after submittal approval or receipt of purchase order. All packing and shipping costs are FOB origination unless otherwise quoted herein. Customer is responsible for paying all taxes and fees associated with shipping.

*Blowers*

All blowers to provide the recommended airflow for each MARS option at the recommended pressure found in the basis of design document attached herewith.

*Warranty*

Triplepoint Environmental offers the most competitive warranty in the industry, ensuring that your MARS/Ares products are free from defects in material or workmanship for a period of one (1) year from the date of installation completion.

*Limits of Liability*

Triplepoint Environmental shall not be liable for any loss of profits, business, goodwill, interruption of business, nor for incidental or consequential merchantability or fitness of purpose, damages related to this quote.

**CONFIDENTIALITY NOTICE**

The MARS/Ares Aeration system is the subject of one or more confidential patents filed in the United States Patent Office. The Client, Engineer, and any other parties contracted recognize the importance of maintaining the continued confidentiality of the design of the MARS/Ares Aeration system. The Client, Engineer and any other parties contracted agree that they shall not sell, transfer or disclose any such confidential information relating to the design of the MARS/Ares Aeration system to any other person, organization, or corporation without the express written authorization of Triplepoint Environmental LLC and pursuant to an enforceable agreement of confidentiality, except as required by law or as necessary in connection with the use, operation, maintenance, repair, or replacement of the system. Additionally, The Client, Engineer and any other parties contracted all agree to preserve the confidentiality of this proposal and all materials attached and not to distribute or copy such materials for any other parties not previously authorized by Triplepoint Environmental LLC.

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Eureka, CA | Arcata, CA | Redding, CA | Willits, CA | Coos Bay, OR | Klamath Falls, OR

**www.shn-engr.com**

Phone: (541) 827-7855 Email: info@shn-engr.com Web: shn-engr.com
803 Main Street, Suite 401, Klamath Falls, OR 97601

# *Technical Memorandum*

| | |
|---|---|
| Reference: | 518004 |
| Date: | 9/16/2021 |
| To: | Bruce Grove, SHN |
| From: | Anders Rasmussen, PE, Jonathan Blout, EIT |
| **Subject:** | **City of Alturas Wastewater Treatment Plant Hydrologic Analysis for Wastewater Discharge Reduction** |

This memorandum presents data regarding the wastewater discharge flow from the City of Alturas Wastewater Treatment Plant (WWTP) with respect to in-stream flows in the Pit River and provides analysis of the effect to Pit River flows of removing the WWTP discharge.

The City of Alturas WWTP currently discharges treated effluent to the Pit River. The proposed project entails discharge to new percolation and evaporation ponds in lieu of discharge to the Pit River. Under the city's existing NPDES permit, the WWTP is prohibited from contributing more than five percent (5%) of the in-stream flow in the Pit River.

Data collected by the City of Alturas WWTP, as provided in Figure 1, is a daily record of dilution ratios (shown as a percentage of discharge to in-stream flow) collected between the dates of January 2017 - June 2021. A summary of this data is provided in Table 1. The new proposed wastewater treatment process would result in, what is in our opinion, an insignificant reduction in total flow in the Pit River. The maximum percentage of in-stream flows represented by the WWTP discharge is 5% (1/20), and a mean value of 0.36% (1/277).

The Pit River experiences annual fluctuations in depth ranging between two feet and eight feet (Data provided by USGS water monitoring station of the Pit River 11348500 near Canby, CA). According to the USGS water monitoring station, the average flow is 61 cfs. Also, provided is a USGS stage-discharge chart (Figure 2) that shows the Pit River has an average depth of 2.8 feet. Of this 2.8 feet, the discharged effluent contributes, on average, a depth of 0.12 inches.

Analysis of the Pit River at its minimum depth of 2 feet shows that the release of treated water to the Pit River contributes minimally to the total flow. The maximum allowable dilution ratio is 5% which means that the Pit River flow must be a minimum of 20 times the effluent flow. The measured dilution ratio approaches this value when the Pit River is experiencing its minimum flow rate. In this case, maximum discharge from the WWTP equates to a height of approximately 1.2 inches in contribution to the depth of the river.

Lastly, it should be noted that the measured dilution ratios between January 2017 – June 2021 infrequently exceed 2.6% (less than 10% of days measured during the 54-month time period). The dilution ratio only exceeds 2.6% when the Pit River experiences its lowest flows in the winter months.

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803 Main Street, Suite 401, Klamath Falls, OR 97601

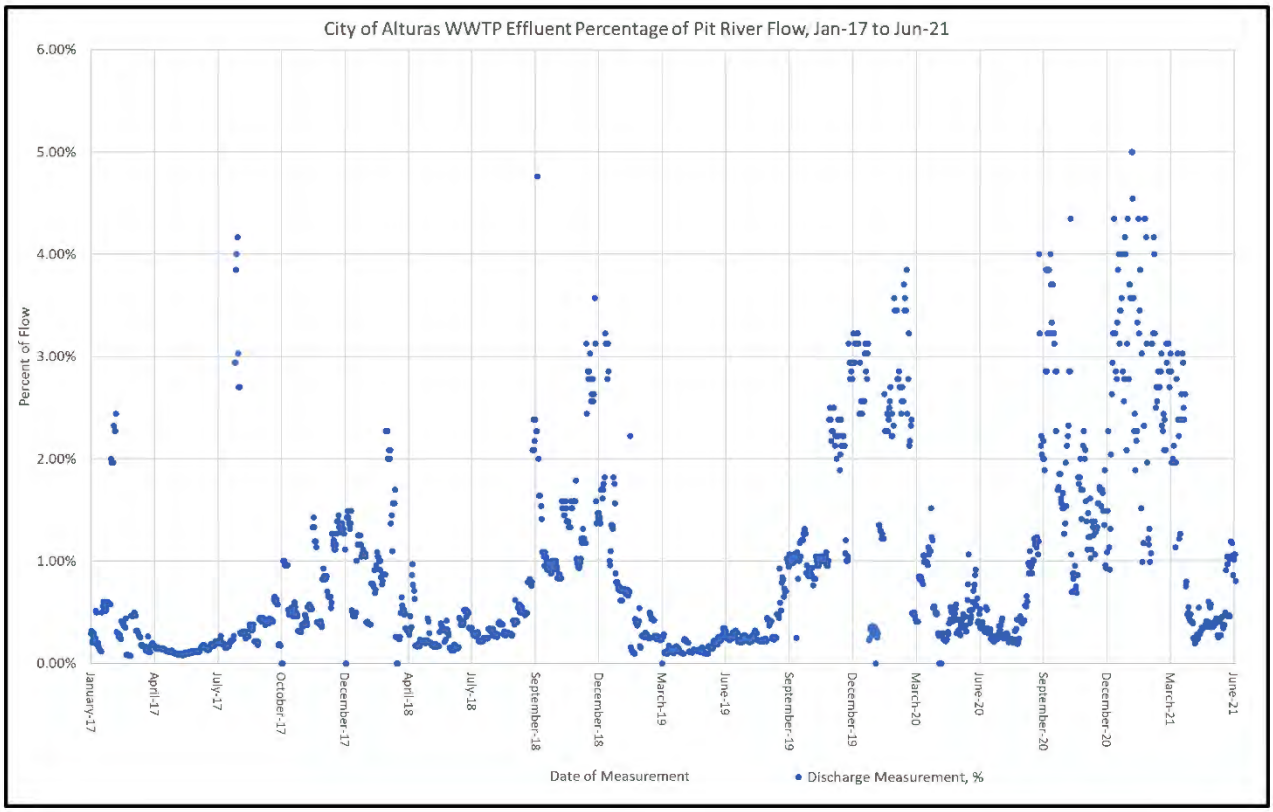


**Figure 1.** Measured Dilution as Percentage of Pit River In-Stream Flow.

**Table 1. Summary Comparison of Discharge Flow Rate**
**Hydrologic Analysis**
**Alturas, California**

| Statistic | Percentage[1] |
|---|---|
| Median | 0.49% |
| Average | 0.36% |
| 90th Percentile | 2.56% |
| 99th Percentile | 4.0% |
| Maximum | 5.0% |

1. Flow rate as percentage of Pit River in-stream flow rate.

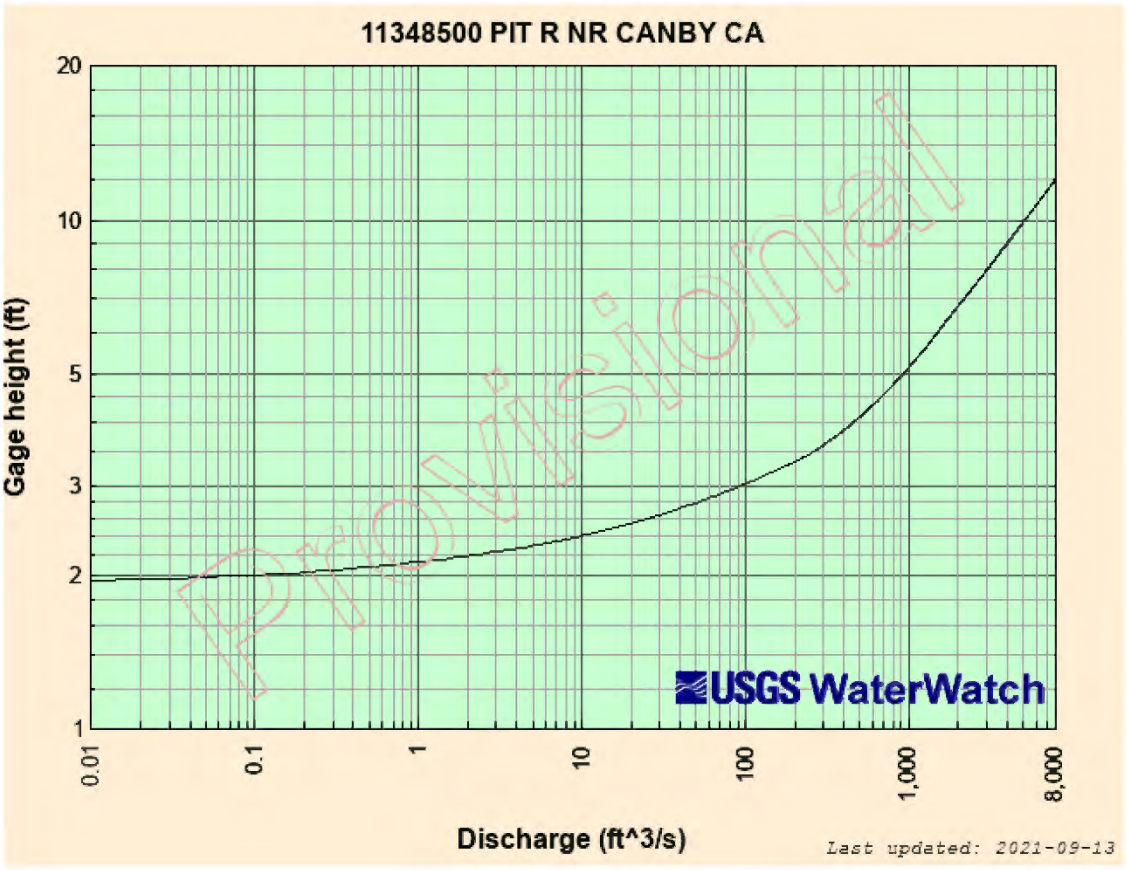


**Figure 2.** USGS Pit River Rating Chart.

\\Kfalls\Projects\2018\518004-Alturas-WW\500-ENVIRONMENTAL\Rpts\20210916AltruasFlowTechmemo.docx

# Appendix B

Aquatic Resource Delineation Report

# Aquatic Resource Delineation Report

## Alturas Wastewater Treatment Plant
## Modoc County, California

*Prepared for:*

**City of Alturas**

October 2020

374-08

ENPLAN

3179 Bechelli Lane Suite 100

Redding, CA 96002

# Alturas Wastewater Treatment Plant Improvement Project
# Aquatic Resource Delineation Report

**Applicant/Land Owner:**
City of Alturas
200 W. North Street
Alturas, CA 96101
Attn: Jason Diven

**Access:**
The wastewater treatment plant and site of the proposed treatment ponds are located along County Road 54 southwest of the City of Alturas. The improvement areas are accessible from County Road 54.

## I. INTRODUCTION

The City of Alturas owns and operates a wastewater treatment plant (WWTP) just south of the City limits, on County Road 54 (N. West Street), in Modoc County. The WWTP is located along the north bank of the North Fork Pit River at its confluence with the South Fork Pit River. The WWTP provides primary and secondary treatment. Treated effluent is discharged to the Pit River. The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand, total suspended solids, total coliform, toxicity, and total suspended solids. Therefore, the City is proposing improvements to WWTP to enhance system efficiency and comply with Central Valley Regional Water Quality Control Board (CVRWQCB) requirements.

As currently proposed, the City would decommission the existing WWTP; pump the raw wastewater to new, offsite aeration ponds; and dispose of the treated wastewater through land discharge via evaporation/percolation ponds at the offsite location. The new offsite facilities would be located on a portion of Modoc County Assessor's Parcel 022-130-042, which is on the northwest side of County Road 54, over a mile southwest of the current WWTP. A new pipeline would be constructed from the current WWTP to the new location in the County Road 54 right-of-way. The new ±2.1-mile force main would be attached to the existing Road 54 bridges over the North and South Forks of the Pit River; no in-water work would occur.

As shown in Figure 1 (Appendix A), the ±106-acre study site is situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East ,of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The site ranges in elevation between 4,360 and 4,490 feet above sea level. The study consists of a portion of the developed

WWTP parcel, about 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment/disposal site.

The existing WWTP site is primarily developed or intensively disturbed, although some sagebrush scrub habitat is present in places. The adjoining reach of the Pit River supports an herbaceous riparian community. Disturbed ruderal habitats and some intact sagebrush scrub habitat are present in the road right-of-way. The disposal site consists of a large, previously leveled and irrigated terrace near County Road 54 as well as rolling terrain with a very weedy, grazed, sagebrush scrub community.

The sagebrush scrub community is characterized by relatively open stands of big sagebrush (*Artemisia tridentata*, UPL), scattered western junipers (*Juniperus occidentalis*, UPL), and an herbaceous layer dominated by downy brome (*Bromus tectorum*, UPL) and red-stemmed filaree (*Erodium cicutarium*, UPL). In intact sagebrush scrub habitats along the road corridor, the understory includes many native species, including cushion pussytoes (*Antenarria dimorpha*, UPL), cold-desert phlox (*Phlox stansburyi*, UPL), and panicled zigadene (*Toxicoscorion paniculatum*, UPL). Ruderal species include puncture vine (*Tribulus terrestrus*, UPL), summer-cypress (*Kochia scoparia ssp. scoparia*, UPL), and Russian-thistle (*Salsola tragus*, UPL). Plant species associated with the Pit River and its floodplain include Baltic rush (*Juncus balticus* ssp. *ater*, FACW), alkali ryegrass (*Elymus triticoides*, FAC), and prickly lettuce (*Lactuca serriola*, FACU).

According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2020), seven soil units have been mapped within the study site (Table 1). None of these soil units is considered hydric; however, Buntingville clay loam may contain inclusions of the Pit soil unit, which is hydric. A soils map is provided in Figure 2 (Appendix A).

The climate of the project vicinity consists of mild summers and cold winters. The average July maximum temperature in the City of Alturas is 88.2º F and the average minimum temperature in January is 16.5º F. Annual precipitation averages ±12.32 inches. (WRCC, 2016).

**Table 1**
**Summary of On-Site Soil Units**

| Map Symbol | Soil Unit Name | Hydric Soil? | Hydric Inclusions Present? | Hydric* Criteria | Hydric Landforms |
|---|---|---|---|---|---|
| 103 | Alturas loam | N | N | — | — |
| 109 | Bieber gravelly loam, 0 to 9 percent slopes | N | N | — | — |
| 112 | Buntingville clay loam, 0 to 2 percent slopes | N | Y | 2, 3, 4 | Floodplains, basin floors, drainageways, depressions |
| 118 | Casuse sandy loam, 2 to 9 percent slopes | N | N | — | — |
| 151 | Ladd sandy loam, 2 to 9 percent slopes | N | N | — | — |
| 193 | Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes | N | N | — | — |
| 194 | Tuff outcrop-Casuse, eroded complex, 30 to 50 percent slopes | N | N | — | — |

* 2 Map unit components in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups.

3. Map unit components that are frequently ponded for long duration or very long duration during the growing season.

4. Map unit components that are frequently flooded for long duration or very long duration during the growing season.

In all cases, the map unit components must also:(a) based on the range of characteristics for the soil series, at least in part meet one or more Field Indicators of Hydric Soils in the United States, or (b) show evidence that the soils meet the definition of a hydric soil.

# II. METHODOLOGY

The field investigation was conducted on May 20, July 13, and September 26, 2020. Using the Army Corps of Engineers Antecedent Precipitation Calculator (U.S. Department of the Army, Corps of Engineers, 2020), it was determined that rainfall totals were sufficient to identify the presence/absence of wetlands, and establish the typical year flow regime/ordinary high-water mark of other waters (see Appendix B for results). Prior to undertaking the field study, National Wetlands Inventory maps (U.S. Fish and Wildlife Service, 2020) were reviewed to determine if any waters have been previously mapped in the study site.

The limit of the Corps of Engineers' jurisdiction over streams is concurrent with the typical year flow regime. As described in the Navigable Waters Protection Rule, the typical year means when precipitation and other climatic variables are within the normal periodic range (e.g., seasonally, annually) for the geographic area of the applicable aquatic resource based on a rolling thirty-year period.

The limit of State jurisdiction over streams is concurrent with the extent of the ordinary high water mark. For the purposes of jurisdiction, the State utilizes the Code of

Federal Regulations Title 33: Navigation and Navigable Waters-Sec. 328.3(e), which defines the ordinary high water mark as the line on the shore established by fluctuations of water indicated by physical characteristics. These may include a clear/natural line on the bank, shelving, changes in soil, destruction of terrestrial vegetation, presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The field investigation was conducted in accordance with technical methods outlined in the *Corps of Engineers Wetlands Delineation Manual* (U.S. Department of the Army, Corps of Engineers, 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Department of the Army, Corps of Engineers, 2008), and the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley, 2008) (limited to determining State jurisdiction).

Scientific nomenclature for plants cited in this report is in accordance with *The Jepson Manual* (Baldwin et al., 2012). The indicator status of plants in this report is in accordance with the National Wetland Plant List (NWPL) (US Department of the Army, Corps of Engineers, 2018).

Wetland boundaries and the ordinary high water marks of the South Fork Pit River and North Fork Pit River were identified in the field and recorded with a global positioning system (GPS) unit capable of sub-meter accuracy. Coordinates for the centerlines of smaller streams were collected with the GPS unit, and stream widths were measured in the field. The GPS coordinates were downloaded into ArcMap for mapping and acreage calculations.

## III. RESULTS

Review of the National Wetlands Inventory maps showed that the Pit River and two intermittent streams have been mapped in the study area. The Pit River crosses under County Road 54 in two places (as the North Fork Pit River and South Fork Pit River) and abuts the study area at the site of the existing WWTP. This feature is designated as R2UBH (Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded). The two intermittent streams are mapped in the proposed

treatment/disposal site. One is shown in the previously leveled and irrigated terrace while the other is mapped in the rolling terrain northwest of the lower terrace. The intermittent streams are designated as R4SBC (Riverine, Intermittent, Streambed, Seasonally Flooded).

As a result of the field delineation effort, 17 features were mapped on the site within four categories: perennial stream, ephemeral stream, seasonal wetland, and wet meadow (Figures 3 - 5, Appendix A). The feature types are characterized below, with representative photos presented in Appendix C.

Neither of the two intermittent streams shown on the National Wetlands Inventory maps was observed in the field. A culvert is present under the treatment/disposal site access road at the lower end of the lower terrace, but no scouring or other evidence of a stream was observed. The mapped location of the stream in the rolling terrain consists of a broad upland swale with no evidence of stream formation. Photographs of the two purported stream locations are included in Appendix C.

Wetland determination data forms are provided in Appendix D. A table identifying the Cowardin type of each feature is provided in Appendix E.

**Perennial Stream:** Perennial streams are drainage channels with apparent bed and bank features that flow year-round. Flow from upstream channel reaches is the primary source of water; other sources include direct precipitation and seepage from surrounding soils. The onsite perennial streams are the North Fork Pit River and South Fork Pit River.

**Ephemeral Stream:** Ephemeral streams are drainage channels that have flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral streams are located above the water table year-round. Runoff from rainfall or snowmelt is the primary source of water for stream flow. Groundwater is not a source of water for ephemeral streams. The predominant indicators of high flows in on-site ephemeral streams were scour and the presence of litter and debris.

**Wet Meadow:** Wet meadows are grasslands with sufficient water to support plants typically occurring in wetlands. Wet meadows generally have a dense cover of graminoid species and may be in areas with a high ground water table. Characteristic plant species in the on-site wet meadows include reed canary grass (*Phalaris arundinacea*, FACW), salt grass (*Distichlis spicata*, FAC), alkali ryegrass (*Elymus triticoides*, FAC), Baltic rush (*Juncus balticus* ssp. *ater*, FACW), and smooth scouring rush (*Equisetum laevigatum*, FACW).

**Seasonal Wetland:** Seasonal wetlands are inundated during the winter wet season and dry during the dry season. They generally have a sparse to moderate cover of forb species and are subject to long-term surface ponding. The dominant plant species in the on-site seasonal wetlands is cognate popcorn flower (*Plagiobothrys cognatus*, FACW).

## IV. JURISDICTIONAL CONSIDERATIONS

Under the final Navigable Waters Protection Rule (NWPR), four categories of waters are federally regulated:

- The territorial seas and traditional navigable waters,
- Perennial and intermittent tributaries to those waters,
- Certain lakes, ponds, and impoundments, and
- Wetlands adjacent to jurisdictional waters.

A total of ±0.670 acres of waters were delineated on the site. This total includes two perennial streams (11:PS and 17:PS: ±0.293 acres); five wet meadows in the floodplain of the Pit River (12:WM, 13:WM, 14:WM, 15:WM, 16:WM: ±0.301 acres); seven isolated wet meadows (1:WM, 2:WM, 3:WM, 4:WM, 5:WM: ±0.032 acres); two isolated seasonal wetlands (9:SW, 10:SW: ±0.039 acres); and one on-site ephemeral streams (6:ES: ±0.004 acres).

The perennial streams appear to be subject to federal jurisdiction because they are tributary to traditional navigable waters. The ephemeral stream dissipates to uplands and clearly is not subject to federal jurisdiction under the NWPR. The seven wet meadows and two seasonal wetlands west of Westside Road (Features 1-5 and 7-10) do not appear to be subject to federal jurisdiction because they are not adjacent to jurisdictional waters. The five wet meadows in the Pit River floodplain (Features 12-16) warrant close examination with respect to their jurisdictional status.

12:WM and 13:WM are located on the west side of County Road 54. An elevated historical road corridor is present further west, more-or-less paralleling County Road 54 between the North and South Forks of the Pit River. The historical road separates the wetlands from the North Fork Pit River. A culvert entrance is present in the historical road berm northwest of Data Point 8 but appears to be blocked; no outlet was observed. Likewise, a constructed berm/historical bridge footing is present at the

south end of 12:WM, between the wetland and the South Fork Pit River. River flows do not appear to overtop the berm in a typical year. Therefore, because 12:WM and 13:WM are not subject to flooding in a typical year and the road berms do not allow for a direct hydrologic surface connection during a typical year, these features do not appear to be subject to federal jurisdiction.

14:WM, 15:WM, and 16:WM are on the east side of County Road 54. An agricultural field is present to the east of the features. The field has been leveled and checked for surface irrigation. A berm and access road are on the north side of the field, adjacent to the North Fork Pit River. What appears to be a natural berm separates 16:WM from 15:WM. An access ramp from County Road 54 to the field separates 15:WM and 14:WM. 14:WM abuts the South Fork Pit River. As a wetland adjacent to a jurisdictional water (South Fork Pit River), 14:WM is subject to federal jurisdiction. 15:WM and 16:WM do not appear to be subject to federal jurisdiction because they do not abut a jurisdictional water, do not appear to be subject to flooding in a typical year, and are separated from the Pit River by created berms that do not allow for a surface connection to the Pit River in a typical year.

The applicant elects to use a “preliminary jurisdictional determination” for the ±0.459 acres of mapped waters (Pit River and 14:WM) that are anticipated to be subject to Corps jurisdiction under the Navigable Waters Protection Rule. If needed, an “approved jurisdictional determination” would be used to document that the remaining waters are not subject to Corps jurisdiction.

For the purposes of State Water Resources Control Board, all on-site waters appear to be subject to State jurisdiction in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.

## V. REFERENCES


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Lichvar, R.W. and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. ERDC/CRREL TR-08-12. Hanover, New Hampshire.

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_____. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.* U.S. Army Engineer Research and Development Center, Vicksburg, MS.

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U.S. Department of Agriculture, Natural Resources Conservation Service. 2020. Web Soil Survey, accessed August 2020. *<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.*

U.S. Fish and Wildlife Service. National Wetlands Inventory Wetlands Mapper, accessed August 2020. *<http://www.fws.gov/wetlands/Data/Mapper.html>*

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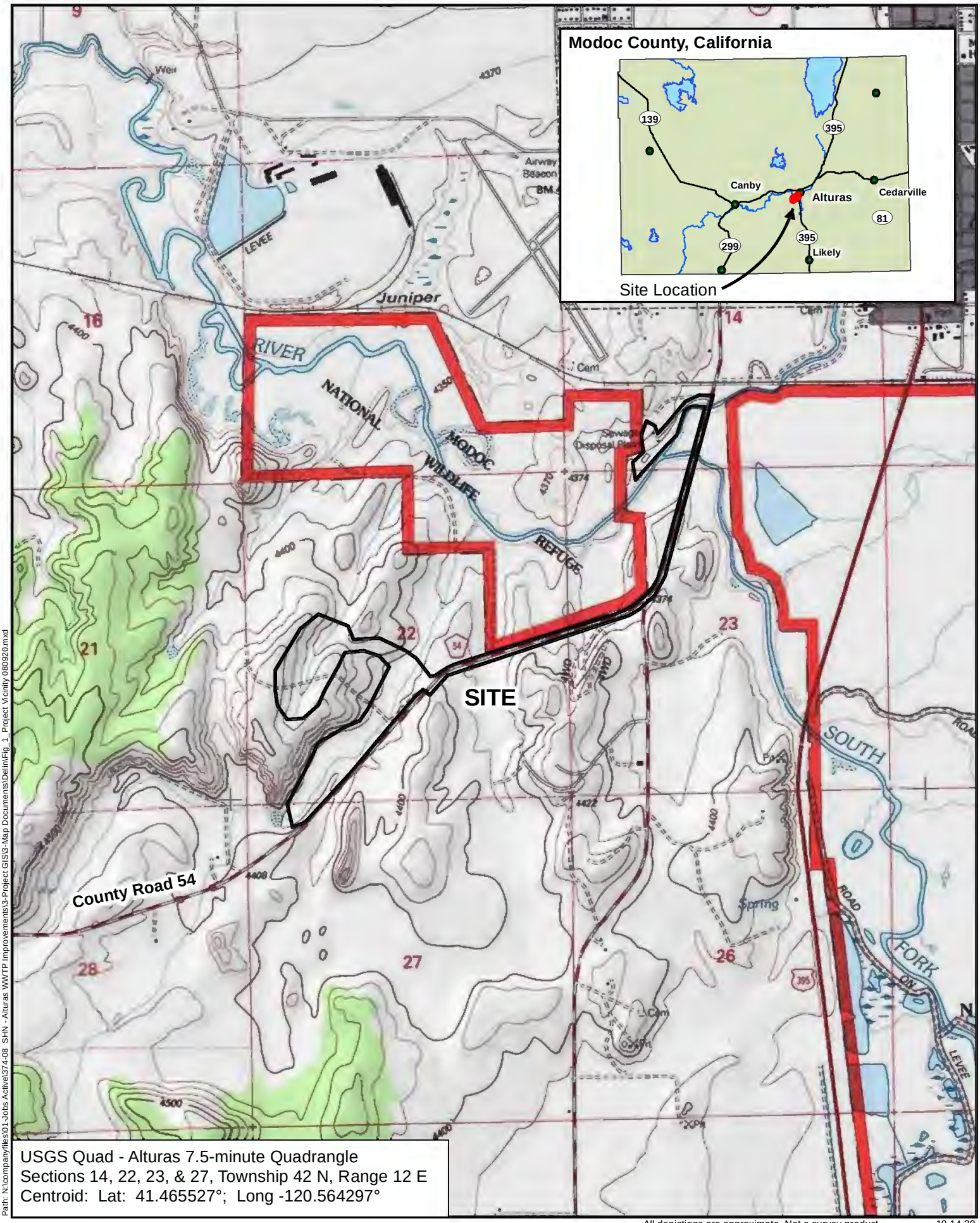
Western Regional Climate Center. 2016. Alturas, California (040161). *< https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0161>*

# APPENDIX A

## Maps




USGS Quad - Alturas 7.5-minute Quadrangle
Sections 14, 22, 23, & 27, Township 42 N, Range 12 E
Centroid: Lat: 41.465527°; Long -120.564297°

Path: N:\companyfiles\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Fig_1_Project Vicinity 080920.mxd

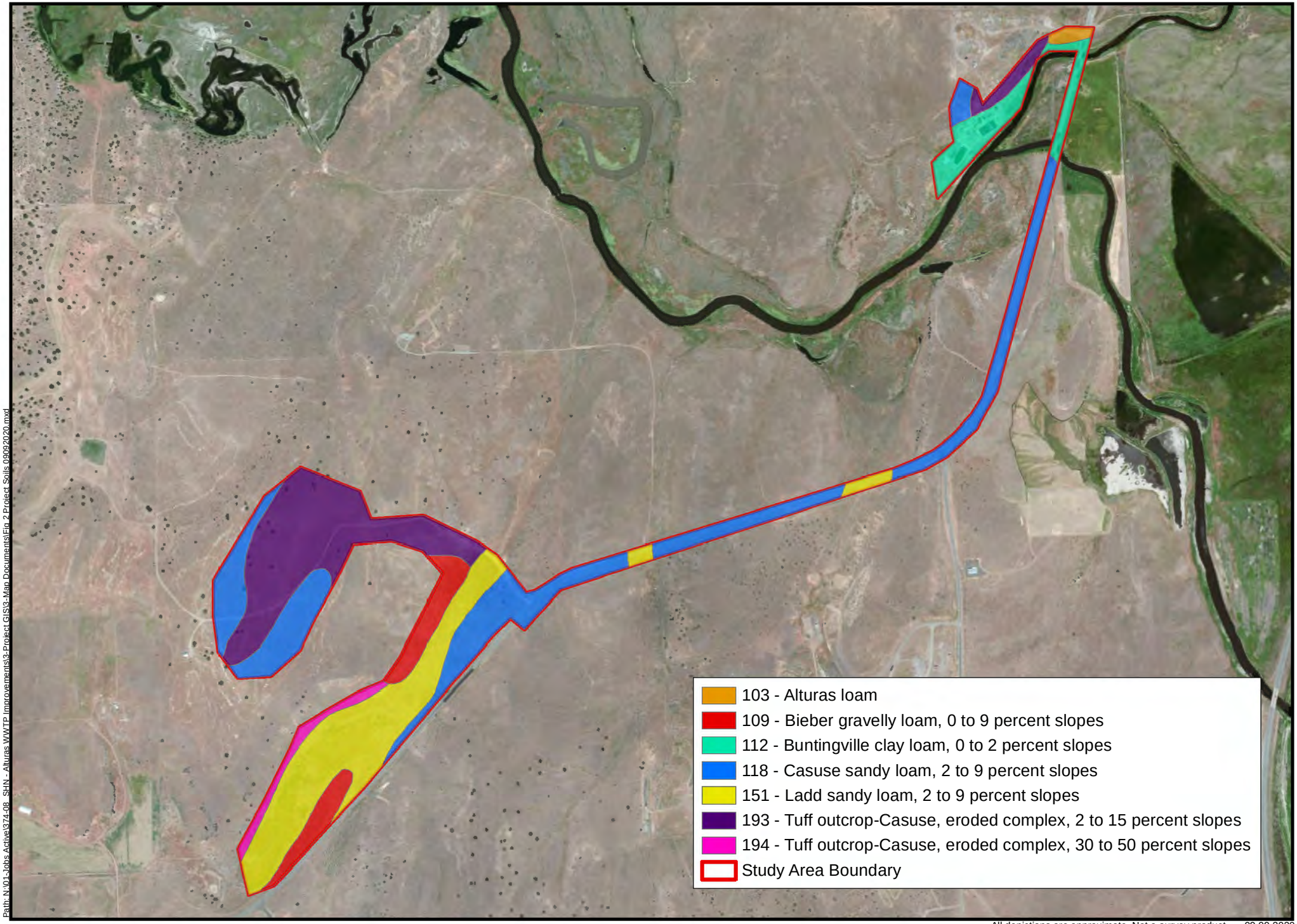
All depictions are approximate. Not a survey product. 10.14.20

0 2,000 Feet

Figure 1

# Project Vicinity

ENPLAN

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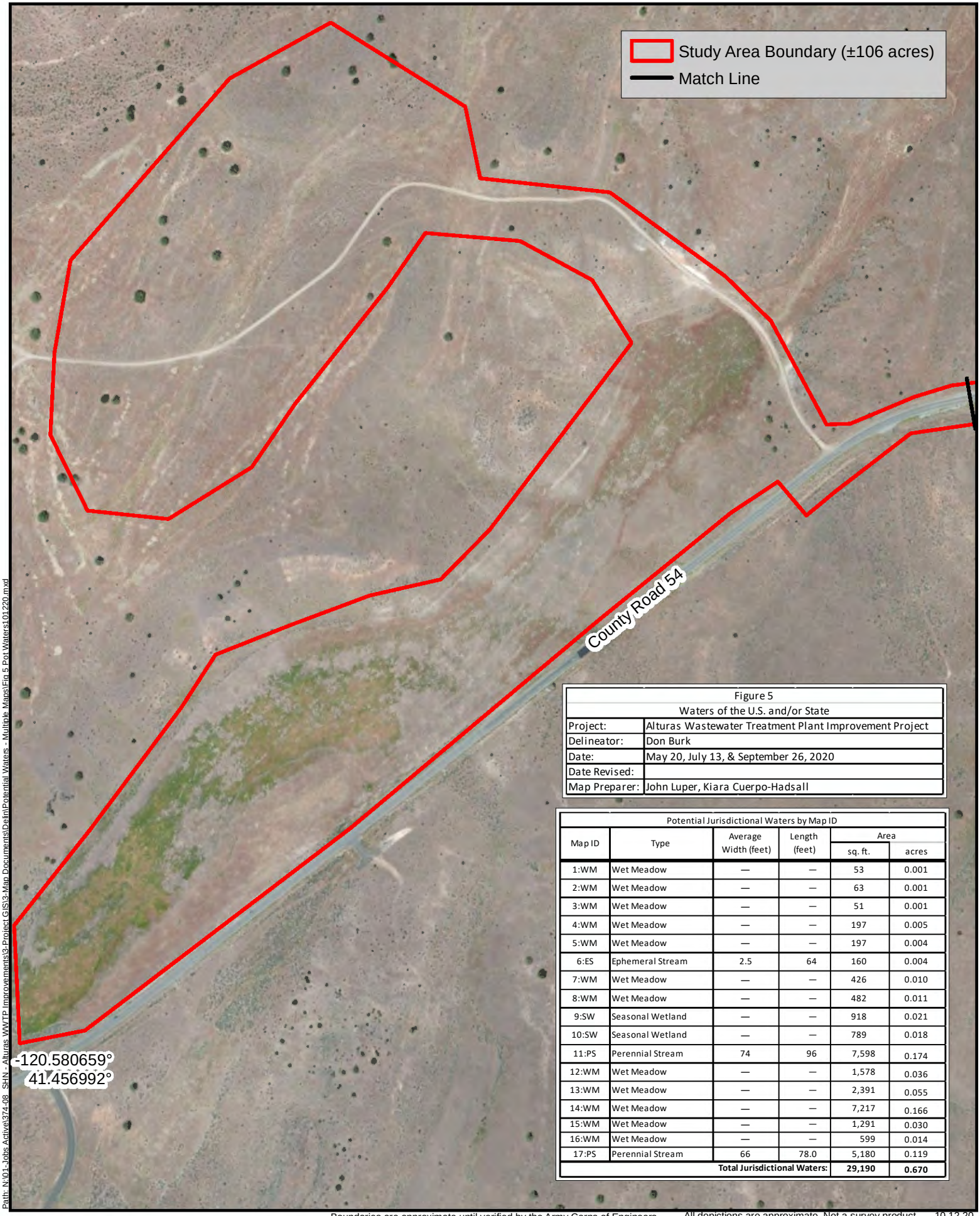
All depictions are approximate. Not a survey product. 09.09.2020

0 1,000 Feet

Figure 2

# Project Soils

ENPLAN




| Figure 5 | |
|---|---|
| Waters of the U.S. and/or State | |
| Project: | Alturas Wastewater Treatment Plant Improvement Project |
| Delineator: | Don Burk |
| Date: | May 20, July 13, & September 26, 2020 |
| Date Revised: | |
| Map Preparer: | John Luper, Kiara Cuerpo-Hadsall |

Potential Jurisdictional Waters by Map ID

| Map ID | Type | Average Width (feet) | Length (feet) | Area | |
|---|---|---|---|---|---|
| | | | | sq. ft. | acres |
| 1:WM | Wet Meadow | — | — | 53 | 0.001 |
| 2:WM | Wet Meadow | — | — | 63 | 0.001 |
| 3:WM | Wet Meadow | — | — | 51 | 0.001 |
| 4:WM | Wet Meadow | — | — | 197 | 0.005 |
| 5:WM | Wet Meadow | — | — | 197 | 0.004 |
| 6:ES | Ephemeral Stream | 2.5 | 64 | 160 | 0.004 |
| 7:WM | Wet Meadow | — | — | 426 | 0.010 |
| 8:WM | Wet Meadow | — | — | 482 | 0.011 |
| 9:SW | Seasonal Wetland | — | — | 918 | 0.021 |
| 10:SW | Seasonal Wetland | — | — | 789 | 0.018 |
| 11:PS | Perennial Stream | 74 | 96 | 7,598 | 0.174 |
| 12:WM | Wet Meadow | — | — | 1,578 | 0.036 |
| 13:WM | Wet Meadow | — | — | 2,391 | 0.055 |
| 14:WM | Wet Meadow | — | — | 7,217 | 0.166 |
| 15:WM | Wet Meadow | — | — | 1,291 | 0.030 |
| 16:WM | Wet Meadow | — | — | 599 | 0.014 |
| 17:PS | Perennial Stream | 66 | 78.0 | 5,180 | 0.119 |
| | | | **Total Jurisdictional Waters:** | **29,190** | **0.670** |

Path: N:\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Potential Waters - Multiple Maps\Fig 5 Pot Waters101220.mxd

1 inch = 400 feet

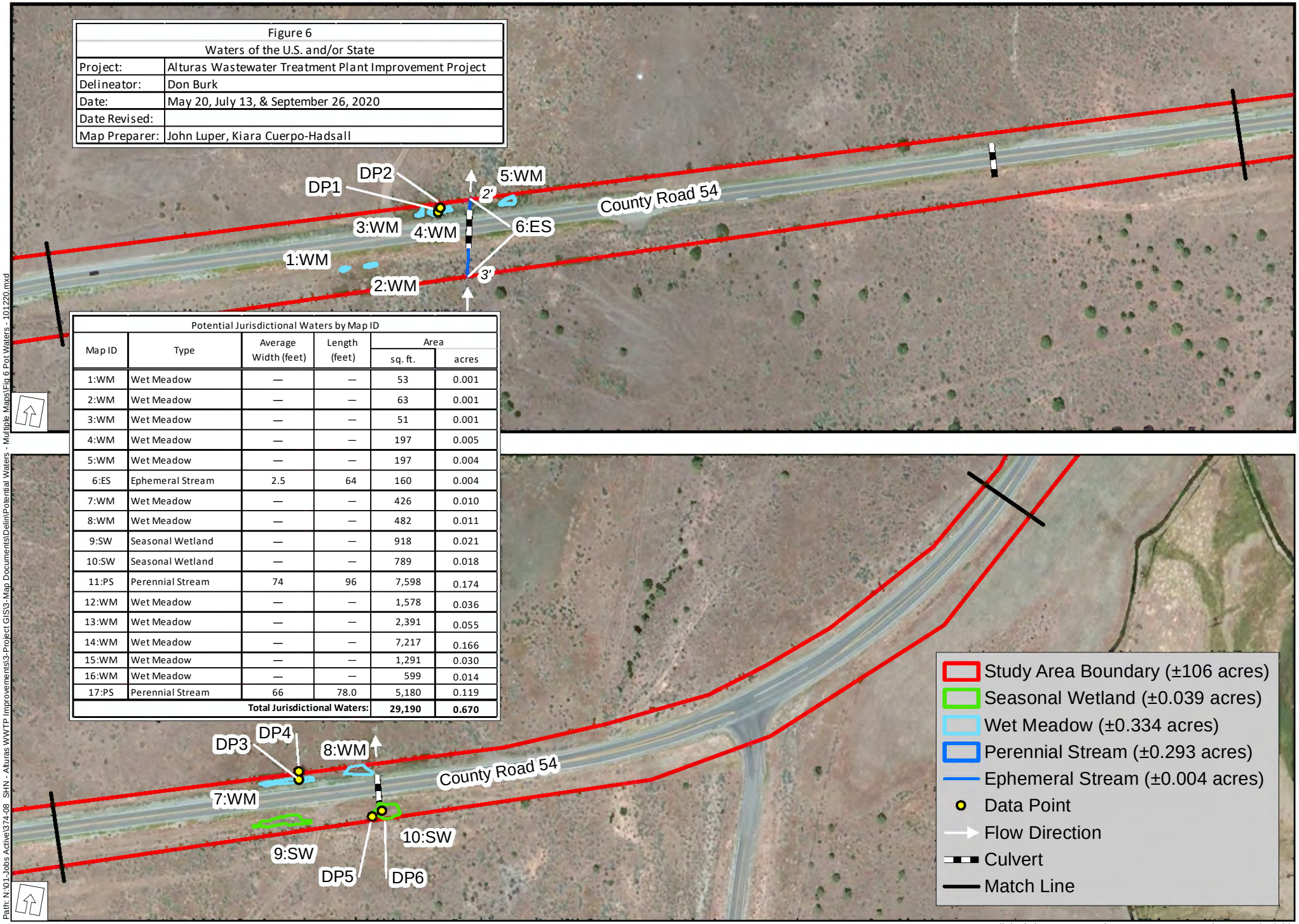
0 400 Feet

Boundaries are approximate until verified by the Army Corps of Engineers and Regional Water Quality Control Board.

All depictions are approximate. Not a survey product. 10.12.20

ENPLAN

| Figure 6 | |
|---|---|
| Waters of the U.S. and/or State | |
| Project: | Alturas Wastewater Treatment Plant Improvement Project |
| Delineator: | Don Burk |
| Date: | May 20, July 13, & September 26, 2020 |
| Date Revised: | |
| Map Preparer: | John Luper, Kiara Cuerpo-Hadsall |




Potential Jurisdictional Waters by Map ID

| Map ID | Type | Average Width (feet) | Length (feet) | Area | |
|---|---|---|---|---|---|
| | | | | sq. ft. | acres |
| 1:WM | Wet Meadow | — | — | 53 | 0.001 |
| 2:WM | Wet Meadow | — | — | 63 | 0.001 |
| 3:WM | Wet Meadow | — | — | 51 | 0.001 |
| 4:WM | Wet Meadow | — | — | 197 | 0.005 |
| 5:WM | Wet Meadow | — | — | 197 | 0.004 |
| 6:ES | Ephemeral Stream | 2.5 | 64 | 160 | 0.004 |
| 7:WM | Wet Meadow | — | — | 426 | 0.010 |
| 8:WM | Wet Meadow | — | — | 482 | 0.011 |
| 9:SW | Seasonal Wetland | — | — | 918 | 0.021 |
| 10:SW | Seasonal Wetland | — | — | 789 | 0.018 |
| 11:PS | Perennial Stream | 74 | 96 | 7,598 | 0.174 |
| 12:WM | Wet Meadow | — | — | 1,578 | 0.036 |
| 13:WM | Wet Meadow | — | — | 2,391 | 0.055 |
| 14:WM | Wet Meadow | — | — | 7,217 | 0.166 |
| 15:WM | Wet Meadow | — | — | 1,291 | 0.030 |
| 16:WM | Wet Meadow | — | — | 599 | 0.014 |
| 17:PS | Perennial Stream | 66 | 78.0 | 5,180 | 0.119 |
| | | | **Total Jurisdictional Waters:** | **29,190** | **0.670** |

Path: N:\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Potential Waters - Multiple Maps\Fig 6 Pot Waters - 101220.mxd

1 inch = 200 feet

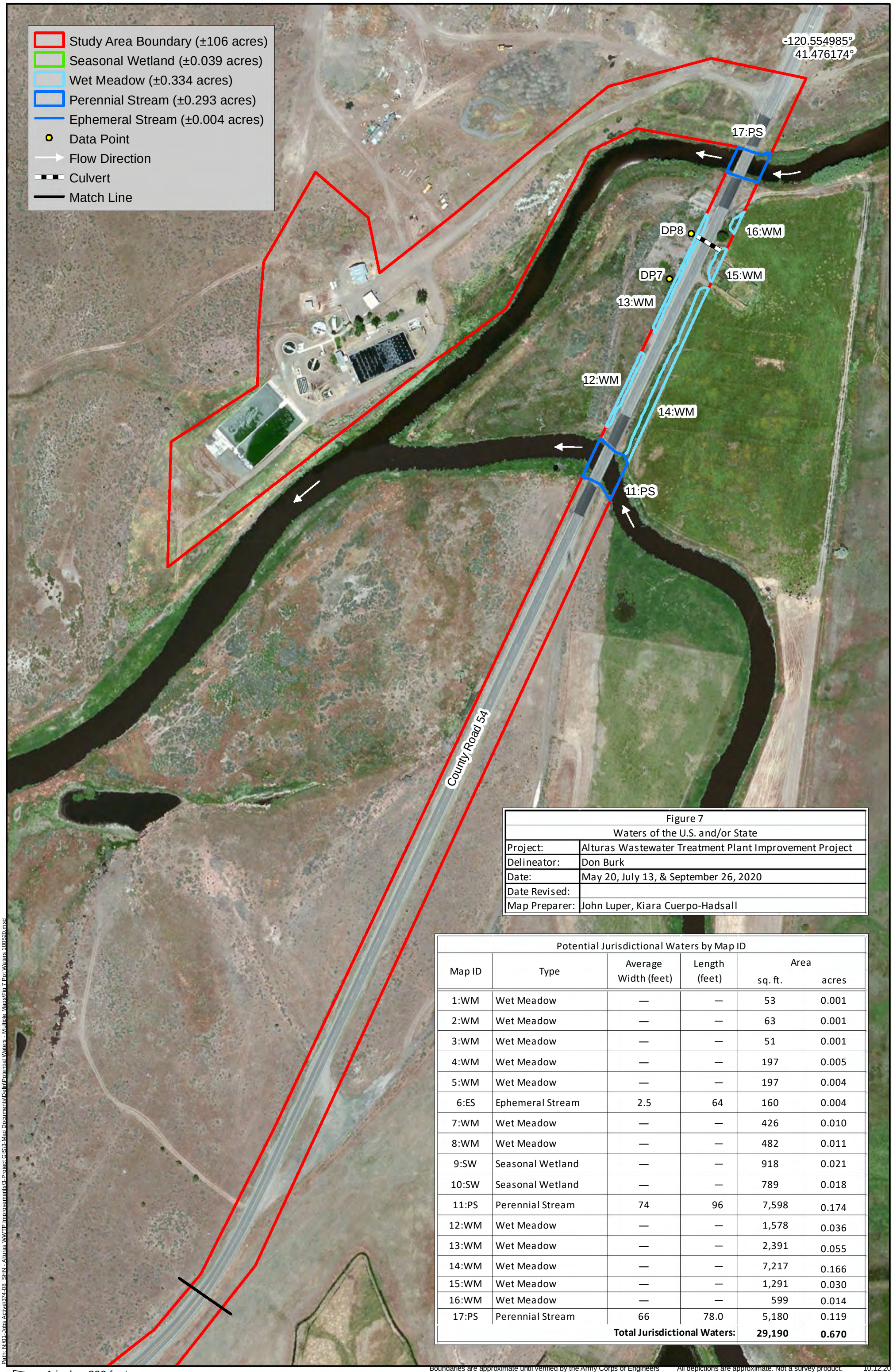
Feet

0 200

Boundaries are approximate until verified by the Army Corps of Engineers and Regional Water Quality Control Board.

All depictions are approximate. Not a survey product. 10.12.20

ENPLAN




| Figure 7 | |
|---|---|
| Waters of the U.S. and/or State | |
| Project: | Alturas Wastewater Treatment Plant Improvement Project |
| Delineator: | Don Burk |
| Date: | May 20, July 13, & September 26, 2020 |
| Date Revised: | |
| Map Preparer: | John Luper, Kiara Cuerpo-Hadsall |

Potential Jurisdictional Waters by Map ID

| Map ID | Type | Average Width (feet) | Length (feet) | Area | |
|---|---|---|---|---|---|
| | | | | sq. ft. | acres |
| 1:WM | Wet Meadow | — | — | 53 | 0.001 |
| 2:WM | Wet Meadow | — | — | 63 | 0.001 |
| 3:WM | Wet Meadow | — | — | 51 | 0.001 |
| 4:WM | Wet Meadow | — | — | 197 | 0.005 |
| 5:WM | Wet Meadow | — | — | 197 | 0.004 |
| 6:ES | Ephemeral Stream | 2.5 | 64 | 160 | 0.004 |
| 7:WM | Wet Meadow | — | — | 426 | 0.010 |
| 8:WM | Wet Meadow | — | — | 482 | 0.011 |
| 9:SW | Seasonal Wetland | — | — | 918 | 0.021 |
| 10:SW | Seasonal Wetland | — | — | 789 | 0.018 |
| 11:PS | Perennial Stream | 74 | 96 | 7,598 | 0.174 |
| 12:WM | Wet Meadow | — | — | 1,578 | 0.036 |
| 13:WM | Wet Meadow | — | — | 2,391 | 0.055 |
| 14:WM | Wet Meadow | — | — | 7,217 | 0.166 |
| 15:WM | Wet Meadow | — | — | 1,291 | 0.030 |
| 16:WM | Wet Meadow | — | — | 599 | 0.014 |
| 17:PS | Perennial Stream | 66 | 78.0 | 5,180 | 0.119 |
| | | **Total Jurisdictional Waters:** | | **29,190** | **0.670** |

Path: N:\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Potential Waters - Multiple Maps\Fig 7 Pot Waters 100520.mxd

1 inch = 200 feet
0 200 Feet

Boundaries are approximate until verified by the Army Corps of Engineers and Regional Water Quality Control Board.

All depictions are approximate. Not a survey product.

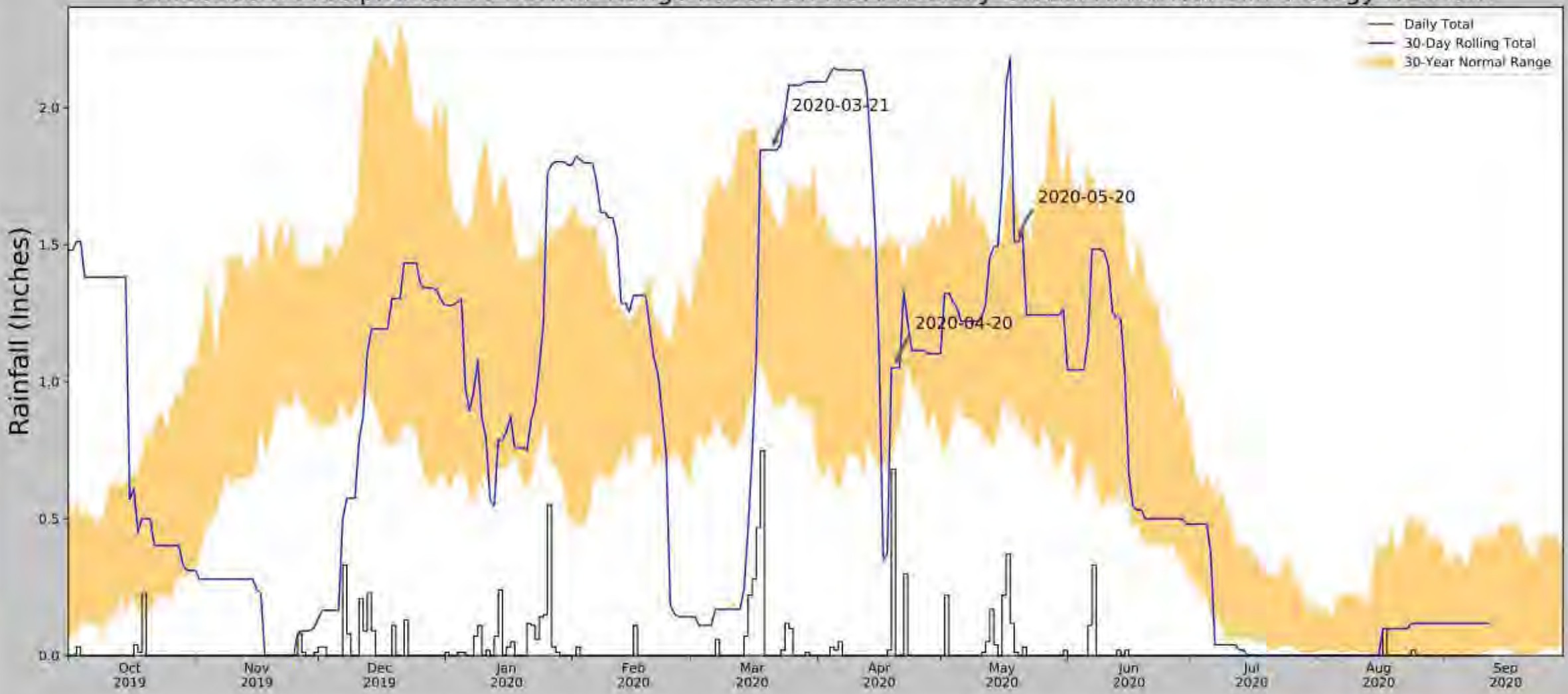
10.12.20

ENPLAN

# APPENDIX B

## Antecedent Precipitation Calculator Results

# Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network




| | |
|---|---|
| Coordinates | 41.456992, -120.580659 |
| Observation Date | 2020-05-20 |
| Elevation (ft) | 4386.93 |
| Drought Index (PDSI) | Mild drought |
| WebWIMP $H_2O$ Balance | Dry Season |

| 30 Days Ending | 30th %ile (in) | 70th %ile (in) | Observed (in) | Wetness Condition | Condition Value | Month Weight | Product |
|---|---|---|---|---|---|---|---|
| 2020-05-20 | 0.880315 | 1.605512 | 1.511811 | Normal | 2 | 3 | 6 |
| 2020-04-20 | 0.827165 | 1.514173 | 1.051181 | Normal | 2 | 2 | 4 |
| 2020-03-21 | 0.919685 | 1.612205 | 1.846457 | Wet | 3 | 1 | 3 |
| Result | | | | | | | Normal Conditions: 13 |

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

| Weather Station Name | Coordinates | Elevation (ft) | Distance (mi) | Elevation Δ | Weighted Δ | Days (Normal) | Days (Antecedent) |
|---|---|---|---|---|---|---|---|
| ALTURAS MUNI AP | 41.4914, -120.5644 | 4375.0 | 2.522 | 11.93 | 1.165 | 7746 | 90 |
| ALTURAS | 41.49, -120.5436 | 4377.953 | 2.98 | 8.977 | 1.368 | 3592 | 0 |
| CANBY 3 SW | 41.4219, -120.9017 | 4310.04 | 16.805 | 76.89 | 8.854 | 3 | 0 |
| CEDARVILLE | 41.53, -120.1792 | 4687.992 | 21.38 | 301.062 | 16.058 | 11 | 0 |

# APPENDIX C

## Representative Photos

Typical upland roadside, with sagebrush, rubber rabbitbrush, Russian-thistle, and downy brome. View to north from near proposed disposal site.

Junction of North Fork and South Fork Pit River, with WWTP and uplands on left, view to northeast.

Ephemeral stream 1:ES, view to south.


Seasonal wetland10:SW and Data Point 6, view to east.

12:WM, view to north. Note historic road berm on left, colonized by sagebrush, and County Road 54 on right.

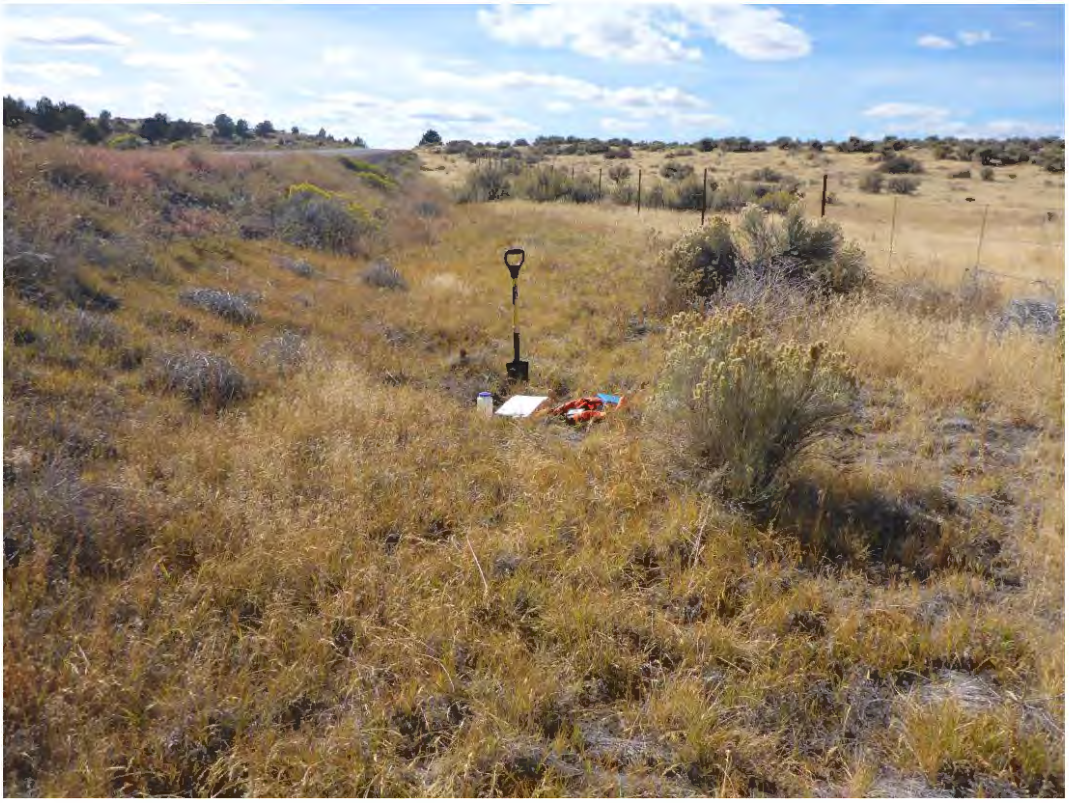
12:WM, view to south. Note historic bridge abutment/berm (behind telephone pole) separating WM from South Fork Pit River.

14:WM, dominated by *Elymus triticoides* (FAC). View to south, between the forks of the Pit River.

14:WM, view to south, closer to South Fork Pit River. Shovel marks elevation breakpoint, where vegetation transitions from *Elymus triticoides* (FAC) to *Phalaris arundinacea* (FACW).

Road/berm on north side of 16:WM, separating wetland from the North Fork Pit River.

5:WM with *Juncus balticus* (FACW) as dominant vegetation.



4:WM, with *Distichlis spicata* (FAC) as dominant vegetation.

Culvert under County Road 54 (on right) in upland situation with *Elymus caput-medusae* (UPL) as dominant vegetation.  Midway between 5:WM and 7:WM.

Non-jurisdictional erosional rill channeling roadside runoff to uplands, view to north. Midway between 8:WM and Westside Road (County Road 60).

Leveled terrace at disposal site supporting rye (*Secale cereale*, UPL), view from low point of access road to south (mapped as an intermittent stream on NWI, but no evidence observed in field).

Low area within western arm of treatment/disposal site, view to north (mapped as an intermittent stream on NWI, but no evidence observed in field).

Upper portion of treatment/disposal site, view to west.  Site is on both sides of road from foreground to ridge.

# APPENDIX D

## Wetland Determination Data Forms

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ | No _____ | **Is the Sampled Area within a Wetland?** Yes ✓ No _____ |
| Hydric Soil Present? | Yes ✓ | No _____ | |
| Wetland Hydrology Present? | Yes ✓ | No _____ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| **Herb Stratum** (Plot size: 5' x 5') | | | |
| 1. Juncus balticus | 50 | Y | FACW |
| 2. Sidalcea oregana | 30 | Y | FACW |
| 3. Distichlis spicata | 10 | N | FAC |
| 4. Miscellaneous | 10 | N | - |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No _____

Remarks:

## SOIL

Sampling Point: DP 1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-2 | 7.5YR 3/3 | 100 | | | | | loam | |
| 2-14 | 7.5 YR 2.5/2 | 95 | black/yellow | 5 | | | loam | faint mottles |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: hardpan

Depth (inches): 14"

**Hydric Soil Present? Yes ✓ No ___**

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

**Wetland Hydrology Present? Yes ✓ No ___**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP2

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 53.09" Long: 120° 34' 6.02" Datum: NAD83

Soil Map Unit Name: Cayuse sandy loam , 2-9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No ✓ | **Is the Sampled Area within a Wetland?** Yes _____ No ✓ |
| Hydric Soil Present? | Yes _____ | No ✓ | |
| Wetland Hydrology Present? | Yes _____ | No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 5' x 5') | | | |
| 1. Artemisia tridentata | 40 | Y | UPL |
| 2. Ericameria nauseosus | 20 | Y | UPL |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| **Herb Stratum** (Plot size: 5' x 5') | | | |
| 1. Elymus trachycaulis | 40 | Y | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species _____ | x 1 = | _____ |
| FACW species _____ | x 2 = | _____ |
| FAC species _____ | x 3 = | _____ |
| FACU species _____ | x 4 = | _____ |
| UPL species 100 | x 5 = | 500 |
| Column Totals: 100 (A) | | 500 (B) |

Prevalence Index = B/A = 5

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes _____ No ✓

Remarks:

## SOIL

Sampling Point: DP2

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 7.5 YR 2.5/2 | 100 | | | | | loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes _____ No ✓**

Remarks:

No indicators observed. Glass at 3 inches.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

**Wetland Hydrology Present? Yes _____ No ✓**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators observed.

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP3

Investigator(s): Donald Burk Section, Township, Range: Sec 23, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 57.83" Long: 120° 33' 44.42" Datum: NAD83

Soil Map Unit Name: Ladd sandy loam , 2-9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ | No _____ | **Is the Sampled Area within a Wetland?** Yes ✓ No _____ |
| Hydric Soil Present? | Yes ✓ | No _____ | |
| Wetland Hydrology Present? | Yes ✓ | No _____ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: 5' x5' ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| Herb Stratum (Plot size: 5' x 5' ) | | | |
| 1. Distichlis spicata | 80 | Y | FACW |
| 2. Lactuca serriola | 10 | N | FACU |
| 3. Bromus tectorum | 10 | N | UPL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | _____ = Total Cover | | |
| Woody Vine Stratum (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No _____

Remarks:

## SOIL

Sampling Point: DP3

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-6 | 7.5 YR 2.5/2 | 95 | Black | 5 | | | clay loam | faint mottles |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: hardpan

Depth (inches): 6"

**Hydric Soil Present? Yes** ✓ **No** ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

**Wetland Hydrology Present? Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP4

Investigator(s): Donald Burk Section, Township, Range: Sec 23, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 57.97" Long: 120° 33' 44.41" Datum: NAD83

Soil Map Unit Name: Ladd sandy loam , 2-9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No ✓ | **Is the Sampled Area within a Wetland?** Yes _____ No ✓ |
| Hydric Soil Present? | Yes _____ | No ✓ | |
| Wetland Hydrology Present? | Yes _____ | No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 5' x5') | | | |
| 1. Ericameria nauseosus | 10 | Y | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| **Herb Stratum** (Plot size: 5' x 5') | | | |
| 1. Bromus tectorum | 70 | Y | UPL |
| 2. Lactuca serriola | 10 | N | FACU |
| 3. Elymus caput-medusae | 10 | N | UPL |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | _____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species _____ | x 1 = | _____ |
| FACW species _____ | x 2 = | _____ |
| FAC species _____ | x 3 = | _____ |
| FACU species 10 | x 4 = | 40 |
| UPL species 80 | x 5 = | 400 |
| Column Totals: 90 (A) | | 440 (B) |

Prevalence Index = B/A = 4.89

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes _____ No ✓

Remarks:

"Bare ground" is actually matted dead grass from last year.

## SOIL

Sampling Point: DP4

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10 | 7.5 YR 2.5/2 | 100 | | | | | clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes _____ No ✓**

Remarks:

No indicators observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

**Wetland Hydrology Present? Yes _____ No ✓**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators observed.

# WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 5/20/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP5

Investigator(s): Donald Burk Section, Township, Range: Sec 23, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): gentle slope Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 57.44" Long: 120° 33' 42.73" Datum: NAD83

Soil Map Unit Name: Ladd sandy loam, 2-9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No ✓ | **Is the Sampled Area within a Wetland?** Yes _____ No ✓ |
| Hydric Soil Present? | Yes _____ | No ✓ | |
| Wetland Hydrology Present? | Yes _____ | No ✓ | |

Remarks:

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 5' x 5') | | | |
| 1. Artemisia tridentata | 25 | Y | UPL |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 25 = Total Cover | | |
| **Herb Stratum** (Plot size: 5' x 5') | | | |
| 1. Elymus caput-medusae | 75 | Y | UPL |
| 2. Bromus tectorum | 20 | Y | UPL |
| 3. Poa secunda | 5 | N | FACU |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 100 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species | x 1 = | |
| FACW species | x 2 = | |
| FAC species | x 3 = | |
| FACU species 5 | x 4 = | 20 |
| UPL species 120 | x 5 = | 600 |
| Column Totals: 125 (A) | | 620 (B) |

Prevalence Index = B/A = 4.96

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes _____ No ✓

Remarks:

## SOIL

Sampling Point: DP5

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-15 | 7.5YR 3/2 | | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes _____ No ✓**

Remarks:

No hydric soil indicators observed.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

**Wetland Hydrology Present? Yes _____ No ✓**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 5/20/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP6

Investigator(s): Donald Burk Section, Township, Range: Sec 23, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 57.54" Long: 120° 33' 42.52" Datum: NAD83

Soil Map Unit Name: Ladd sandy loam, 2-9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ | No _____ | **Is the Sampled Area within a Wetland?** Yes ✓ No _____ |
| Hydric Soil Present? | Yes ✓ | No _____ | |
| Wetland Hydrology Present? | Yes ✓ | No _____ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| **Herb Stratum** (Plot size: 5' x 5') | | | |
| 1. Plagiobothrys cognatus | 40 | Y | FACW |
| 2. Rumex sp. | 5 | N | FAC ? |
| 3. Distichlis spicata | 5 | N | FAC |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 50 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No _____

Remarks:

P cognatus = P scouleri var. penicillatus

## SOIL

Sampling Point: DP6

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-8 | 7.5YR 2.5/1 | | | | | | Clay | |
| 8-15 | 7.5YR 3/2 | 95 | 5YR 4/4 | 5 | | | Clay | impermeable below 15" |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: bedrock

Depth (inches): 15

**Hydric Soil Present? Yes ✓ No ___**

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

**Wetland Hydrology Present? Yes ✓ No ___**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water ponds behind an elevated culvert inlet.

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 7

Investigator(s): Donald Burk Section, Township, Range: Sec 14, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): D Lat: 41° 28' 29.11" Long: 120° 33' 21.15" Datum: NAD83

Soil Map Unit Name: Buntingville clay loam, 0-2 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes _____ | No ✓ | **Is the Sampled Area within a Wetland?** Yes _____ No ✓ |
| Hydric Soil Present? | Yes ✓ | No _____ | |
| Wetland Hydrology Present? | Yes _____ | No ✓ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| **Herb Stratum** (Plot size: 5' x 5') | | | |
| 1. Cirsium arvense | 100 | Y | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | _____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species _____ | x 1 = | _____ |
| FACW species _____ | x 2 = | _____ |
| FAC species _____ | x 3 = | _____ |
| FACU species 100 | x 4 = | 400 |
| UPL species _____ | x 5 = | _____ |
| Column Totals: 100 (A) | | _____ (B) |

Prevalence Index = B/A = 4.0

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes _____ No ✓

Remarks:

Test pit on low rise.

## SOIL

Sampling Point: DP 7

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 7.5YR 2.5/1 | 100 | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes** ✓ **No** ✓

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

**Wetland Hydrology Present? Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Slightly elevated.

## WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP8

Investigator(s): Donald Burk Section, Township, Range: Sec 14, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 28' 30.33" Long: 120° 33' 20.65" Datum: NAD83

Soil Map Unit Name: Buntingville clay loam, 0-2 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ✓ | No _____ | **Is the Sampled Area within a Wetland?** Yes ✓ No _____ |
| Hydric Soil Present? | Yes ✓ | No _____ | |
| Wetland Hydrology Present? | Yes ✓ | No _____ | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| **Herb Stratum** (Plot size: 5' x 5') | | | |
| 1. Elymus triticoides | 80 | Y | FAC |
| 2. Elymus cinereus | 15 | Y | FAC |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| | 95 = Total Cover | | |
| **Woody Vine Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: |
|---|---|
| OBL species _____ | x 1 = _____ |
| FACW species _____ | x 2 = _____ |
| FAC species _____ | x 3 = _____ |
| FACU species _____ | x 4 = _____ |
| UPL species _____ | x 5 = _____ |
| Column Totals: _____ (A) | _____ (B) |

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ✓ No _____

Remarks:

## SOIL

Sampling Point: DP8

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-10 | 7.5YR 2.5/1 | 100 | | | | | clay | |
| 10-16 | 7.5 YR 2.5/1 | 70 | black | 30 | | | clay | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes** ✓ **No** _____

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

**Wetland Hydrology Present? Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Test pit in low point between culvert under Road 54 and culvert under historic road. Light water staining is visible on culvert.

# APPENDIX E

## On-Site Waters by Cowardin Type

| Waters_Name | State | Cowardin_Code | Meas_Type | Amount | Units | Latitude | Longitude |
|---|---|---|---|---|---|---|---|
| 1:WM | CALIFORNIA | PEM | Area | 0.001 | ACRE | 41.46440500 | -120.56885100 |
| 2:WM | CALIFORNIA | PEM | Area | 0.001 | ACRE | 41.46444600 | -120.56870100 |
| 3:WM | CALIFORNIA | PEM | Area | 0.001 | ACRE | 41.46470600 | -120.56845600 |
| 4:WM | CALIFORNIA | PEM | Area | 0.005 | ACRE | 41.46473200 | -120.56834400 |
| 5:WM | CALIFORNIA | PEM | Area | 0.004 | ACRE | 41.46482900 | -120.56794100 |
| 6:ES | CALIFORNIA | R6 | Area | 0.004 | ACRE | 41.46467700 | -120.56815900 |
| 7:WM | CALIFORNIA | PEM | Area | 0.01 | ACRE | 41.46604900 | -120.56240300 |
| 8:WM | CALIFORNIA | PEM | Area | 0.011 | ACRE | 41.46614200 | -120.56199100 |
| 9:SW | CALIFORNIA | PEM | Area | 0.021 | ACRE | 41.46587700 | -120.56239200 |
| 10:SW | CALIFORNIA | PUB | Area | 0.018 | ACRE | 41.46598200 | -120.56178100 |
| 11:PS | CALIFORNIA | R2UB | Area | 0.174 | ACRE | 41.47350700 | -120.55615400 |
| 12:WM | CALIFORNIA | PEM | Area | 0.036 | ACRE | 41.47401200 | -120.55608800 |
| 13:WM | CALIFORNIA | PEM | Area | 0.055 | ACRE | 41.47483000 | -120.55576800 |
| 14:WM | CALIFORNIA | PEM | Area | 0.166 | ACRE | 41.47420700 | -120.55575900 |
| 15:WM | CALIFORNIA | PEM | Area | 0.03 | ACRE | 41.47490500 | -120.55548700 |
| 16:WM | CALIFORNIA | PEM | Area | 0.014 | ACRE | 41.47518300 | -120.55538900 |
| 17:PS | CALIFORNIA | R2UB | Area | 0.119 | ACRE | 41.47557500 | -120.55534900 |

# Appendix C

Biological Study Reports

ENPLAN

374-08
November 20, 2023

Anders H. Rasmussen, PE
SHN Engineers and Geologists
803 Main Street, Suite 401,
Klamath Falls, OR 97601

**SUBJECT: Addendum Report: Biological Study and Aquatic Resource Screening Evaluation for the Alturas Wastewater Treatment Improvement Project**

In October 2020, ENPLAN completed a Biological Study Report and an Aquatic Resource Delineation Report in support of the proposed Alturas Wastewater Treatment Plant (WWTP) Improvement Project. The proposed project entailed decommissioning of the existing City of Alturas WWTP, pumping raw wastewater to new, offsite aeration ponds, and disposal of the treated effluent through land discharge. The 2020 studies addressed a 1.4-mile pipeline corridor and a ~70-acre treatment/disposal site.

The ~70-acre treatment/disposal site consisted of a portion of a 270-acre parcel (Modoc County Assessor's Parcel 022-130-042) that would be acquired by the City. In response to your request, ENPLAN has extended the biological and aquatic resource evaluations to address the entirety of the ~270-acre parcel **(Figure 1, Appendix A)**. Work completed as part of this study included updating the biological records search, conducting an intensive field evaluation, and preparing this report documenting our findings.

## Biological Records Search Update

As part of the current work scope, biological records maintained by the California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS), and the U.S. Fish and Wildlife Service (USFWS) were reviewed and compared with the 2020 records search. The updated records and summary tables are provided in **Appendix B**. Review found that one special-status species has been added and one has been removed from the lists. Specifically, the monarch butterfly has been added to the USFWS list as a federal Candidate for listing, and the rayless mountain aster has been removed from the CNDDB list.

With respect to migratory birds, extensive revisions were made to the USFWS list of "Birds of Conservation Concern" that could potentially occur on the project site. Eleven species have been added to the list (American white pelican, marbled godwit, olive-sided flycatcher, evening grosbeak, western grebe, lesser yellowlegs, black tern, California gull, Franklin's gull, Lewis's woodpecker, and Cassin's finch) and four have been removed (Brewer's sparrow, long-billed curlew, tri-colored blackbird, and willow flycatcher).

## Natural Communities

The ~200-acre project site extension consists primarily of the big sagebrush community with emergent junipers. A minor amount of urban/ruderal habitat is present as well, and includes one single-family residence and associated outbuildings. Two seasonal ponds and several seasonal drainages that do not support any woody riparian species are also present; these features provide minimal ecological value and are best treated as inclusions in the big sagebrush community. As documented in our 2020 Biological Study Report, neither the big

sagebrush nor urban/ruderal communities are identified as sensitive natural communities by the California Department of Fish and Wildlife (CDFW). Regardless of their ecological value, the seasonal ponds and drainages are waters of the State (as addressed below); although they are not expected to be affected by the proposed treatment/disposal activities, any discharge of fill in these features would be subject to regulation by the State Water Board and possibly CDFW.

**Botanical Survey/Noxious Weeds**

The botanical survey was conducted on June 12, 13, and 14, and July 12 and 13, 2023, by ENPLAN biologist Donald Burk. The study focused on the ~200 acres added to the proposed treatment/disposal site, but also included review of the previously addressed ~70-acre treatment/disposal area and spot-checks of intact habitats (those mostly likely to support special-status plant species) along the proposed pipeline corridor. The updated plant list is provided in **Appendix C**.

No special-status plant species were observed. However, one species assigned to California Rare Plant Rank 4.3 (Plants of Limited Distribution; Not Very Threatened in California) was observed. This species, *Astragalus iodanthus* var. *diaphanoides* (snake milk-vetch), is scattered throughout the site. The species has been previously reported in Modoc County on only one other occasion, but is more common in Lassen County, and occurs outside California in Nevada, Oregon, and Idaho. It is generally recommended that CRPR 4 plant populations should be avoided if feasible. Given the scattered distribution of plants on the site, full avoidance is not possible, but it is highly likely that a portion of the occurrence will be avoided. No mitigation measures are warranted with respect to this species.

Over 70 additional plant species were observed during the 2023 surveys, bringing the total number of plant species observed in the study area to nearly 200. In addition to *Astragalus iodanthus* var. *diaphanoides,* interesting 2023 observations included *Mimetanthe pilosa*, an annual monkeyflower that has been previously reported in Modoc County on only one other occasion, in 1988; *Polypogon interruptus* (ditch beardgrass), an introduced weed that has been reported in Modoc County on only one other occasion, in 1949; and *Euphorbia maculata* (spotted spurge), an introduced weed that has not previously been reported in Modoc County.

The 2020 botanical survey identified the presence of several noxious weeds in the study area. The presence of these weeds was confirmed during the 2023 surveys. Implementation of Mitigation Measure BIO-3 as presented in the Alturas Wastewater Treatment Plant Improvement Project Initial Study/Mitigated Negative Declaration adopted by the City of Alturas would avoid/minimize the potential for the introduction and spread of noxious weeds.

**Wildlife Survey**

The wildlife survey was conducted concurrently with the botanical survey, on June 12, 13, and 14, and July 12 and 13, 2023. One special-status species was observed, Swainson's hawk (*Buteo swainsoni*). Swainson's hawk is listed as a Threatened species by the State of California but has no federal status. The hawk was observed on July 12 and 13. On July 12, a single Swainson's hawk was observed in flight near the southern end of the study area. On July 13, a single hawk was observed perched on top of a juniper near the western boundary of the site north of the residence. Although no nests were observed, it is possible that Swainson's hawks nest on or near the project site.

CNDDB records show that Swainson's hawks were previously observed roughly a mile southeast and about a half-mile northeast of the treatment/disposal site. A pair of hawks was observed at the southeastern location in May 1994; although several suitable nests were in the immediate vicinity, the pair exhibited no evidence of nesting behavior. At the northeastern site, hawks successfully nested in a juniper in 1972, but nesting failed in 1980; no adults or nests were observed in 1981 or 1982. Swainson's hawks are occasionally observed at the Modoc National Wildlife Refuge just north of the treatment/disposal site, but are not known to nest there.

As noted in our 2020 report, given the known presence of Swainson's hawks in the general area and the presence of potentially suitable nest trees, Swainson's hawks could potentially nest in or near the study area in future years. The hawks could be adversely affected if active nests are disrupted by project construction activities, if suitable nest trees are removed from the project site, or if there is a loss of foraging habitat as a result of project implementation. Our 2020 report included a requirement for a pre-construction nesting bird survey to ensure that nesting Swainson's hawks are not adversely affected by project implementation. CDFW subsequently requested that the measure be amended to incorporate a more intensive pre-construction survey. In response to CDFW's request, the following measure was included in the Alturas Wastewater Treatment Plant Improvement Project Initial Study/Mitigated Negative Declaration adopted by the City of Alturas as part of Mitigation Measure BIO-4. No additional mitigation is warranted.

> *Swainson's Hawk Specific Surveys.* The surveys shall also be conducted according to methods recommended in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.* If ground-disturbing activities will take place during the Swainson's hawk nesting season (March 1 through September 15), and pre-construction surveys find active nests, a minimum no-disturbance buffer of 0.5-mile be delineated around active nests. If "take" of Swainson's hawk cannot be avoided during project activities, a CEQA Incidental Take Permit must be obtained pursuant to FGC Section 2080 et seq.

As discussed above, the monarch butterfly was recently added to the USFWS list as a federal Candidate for listing. The monarch butterfly relies on milkweeds for breeding and on a wide range of floral resources as a food source. No milkweeds were observed on the project site during the 2020 or 2023 botanical surveys. Further, due to grazing, land clearing, and other activities, the site does not support an abundance of floral resources that would attract monarchs. Although monarchs may migrate through the region, they would not depend on the project site as breeding or foraging habitat. The species would not be adversely affected by project implementation and no mitigation is warranted.

With respect to nesting migratory birds, none of the species added to the "Birds of Conservation Concern" list would nest on the subject site (as further documented in **Table 4, Appendix B**). In any case, implementation of Mitigation Measure BIO-4 of the Alturas Wastewater Treatment Plant Improvement Project Initial Study/Mitigated Negative Declaration would ensure that nesting migratory birds are not adversely affected by project implementation.

**Wetland Screening**

As a result of the 2023 study, four water features were mapped on the expanded treatment/ disposal site. These features are depicted in **Figure 2 (Appendix A)** and discussed below; photographs are provided in **Appendix D**.

Feature 1: This feature consists of an isolated wetland along the western site boundary near the southern tip of the site. Plant species present include *Psilocarphus brevissimus* (FACW), *Navarretia intertexta* (FACW), *Gnaphalium palustre* (FACW), and *Plagiobothrys leptocladus* (OBL). Wetland hydrology was observed in the form of sediment deposits, drainage patterns, and surface soil cracks. Although a soil test pit was not installed, the soil is assumed to be hydric based on the indicator status of the dominant plant species.

Feature 2. This feature consists of a constructed pond and its overflow outlet, and is located near the southern tip of the proposed treatment/disposal site. The pond was created by construction of an earthen berm in a broad drainage. During years with high precipitation, water backs up behind the berm and then overflows to the north, into a small channel that flows east and terminates in the on-site agricultural field, with no connection to downstream waters.

Feature 3. This feature is an overflow channel for an off-site pond, and is located near the northwestern corner of the treatment/disposal site. During years with high precipitation, overflow from the pond flows easterly onto the subject site and then dissipates into sagebrush scrub habitat, with no connection to downstream waters.

Feature 4. This feature consists of a series of drainages and a constructed pond. The main channel begins just north (downslope) of the site access road and flows to the north. The channel is nearly indiscernible at its upper end, but becomes more evident to the north. About 900 feet downstream of the site access road, the channel enters a created pond. During years with high precipitation, water backs up in the pond and overflows on its western side, and then continues to flow in a northerly direction until it exits the site and dissipates into sagebrush scrub habitat. One indistinct side channel, possibly an erosional rill, enters from the east. The side channel begins as a very shallow feature in sagebrush on a terrace above the main channel, and ultimately drops into the main channel.

None of the above features is subject to federal jurisdiction because the features have no direct connection to downstream waters. However, all four features are or may be subject to State jurisdiction pursuant to the Porter-Cologne Act and the "*State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*."

In addition to the four mapped features, the site contains a number of shallow, erosional rills, mostly in the northern third of the site. Soils in this area are primarily mapped as Tuff outcrop – Casuse, eroded complex, 2 to 15 percent slopes; the soil unit is not hydric nor does it contain hydric inclusions. The rills form on steep slopes where vegetative cover has been reduced or eliminated due to grazing and/or other human-induced activities. The rills are very braided in their upper reaches and have no fixed channels. The rills terminate where the slope becomes gentler. The only rill that is directly tributary to a developed channel is the side channel mapped as part of Feature 4. All of the other rills terminate at slope breakpoints. With the possible exception of the mapped side channel, the erosional rills are not "surface waters" and are not subject to State or federal jurisdiction.

During our field meeting with you on June 13, 2023, you confirmed that construction of the proposed spray-field system would not result in any direct or indirect impacts to the mapped waters, nor would spray-field runoff be allowed to enter water features. Therefore, the proposed

project would not adversely affect any waters of the State at the proposed treatment/ disposal site.

Other elements of the proposed project, including the existing WWTP and the proposed pipeline corridor, were addressed in our 2020 Aquatic Resource Delineation Report. We delineated a total of ±0.670 acres of waters on the site in 2020, including two perennial streams, five wet meadows in the floodplain of the Pit River, seven isolated wet meadows, two isolated seasonal wetlands, and one ephemeral stream. The delineation map was verified by the Army Corps of Engineers (ACOE) in October 2022.

Although federal jurisdiction over waters has been substantially reduced since the 2020 aquatic resources delineation was verified by the ACOE, the boundaries of the waters have not changed. Under current regulations, the ACOE would retain jurisdiction over the two branches of the Pit River and adjacent wetlands, but would not have jurisdiction over other waters/wetlands that have no direct connection to the Pit River. Given that the State retains jurisdiction over all of the mapped waters, the change in federal jurisdiction has minimal effect on the permitting process and mitigation requirements.

**Summary/Conclusions**

- The biological records search update revealed one newly added special-status species, monarch butterfly. This species would not be adversely affected by project implementation, and no mitigation is warranted.

- The biological records search update identified numerous changes in the USFWS list of Birds of Conservation Concern. None of the newly added species are likely to nest on the site. Implementation of Mitigation Measure BIO-4 in the Initial Study/Mitigated Negative Declaration adopted by the City of Alturas will ensure that nesting birds, including birds of conservation concern, are not adversely affected by project implementation. No additional mitigation measures are warranted.

- Natural communities in the extended study area boundary are also present in the original study area. No impacts on natural communities are anticipated other than as described in our 2020 report. No additional mitigation measures are warranted.

- No special-status plant species were identified in the extended study area. No impacts to special-status plants would occur and no mitigation measures are warranted.

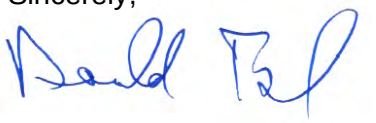
- As with the original project area, the extended project area supports a number of weed species. Implementation of Mitigation Measure BIO-3 in the Initial Study/Mitigated Negative Declaration adopted by the City of Alturas will ensure that the potential for introduction and spread of weeds is avoided and minimized. No additional mitigation measures are warranted.

- Swainson's hawks were observed in the extended study area boundary. The potential for hawks to nest in or near the project site was addressed in our 2020 report. Implementation of Mitigation Measure BIO-4 in the Initial Study/Mitigated Negative Declaration adopted by the City of Alturas will ensure that Swainson's hawks are not adversely affected by the proposed project. No additional mitigation measures are warranted.

- One wetland, two created stock ponds, and several drainages are present in the extended study area. These waters are not expected to be affected by project implementation. Nonetheless, the City of Alturas has adopted a mitigation measure requiring that permits and appropriate mitigation be implemented if work would affect waters of the State or United States.

Please contact us if you have any questions regarding our findings.

Sincerely,



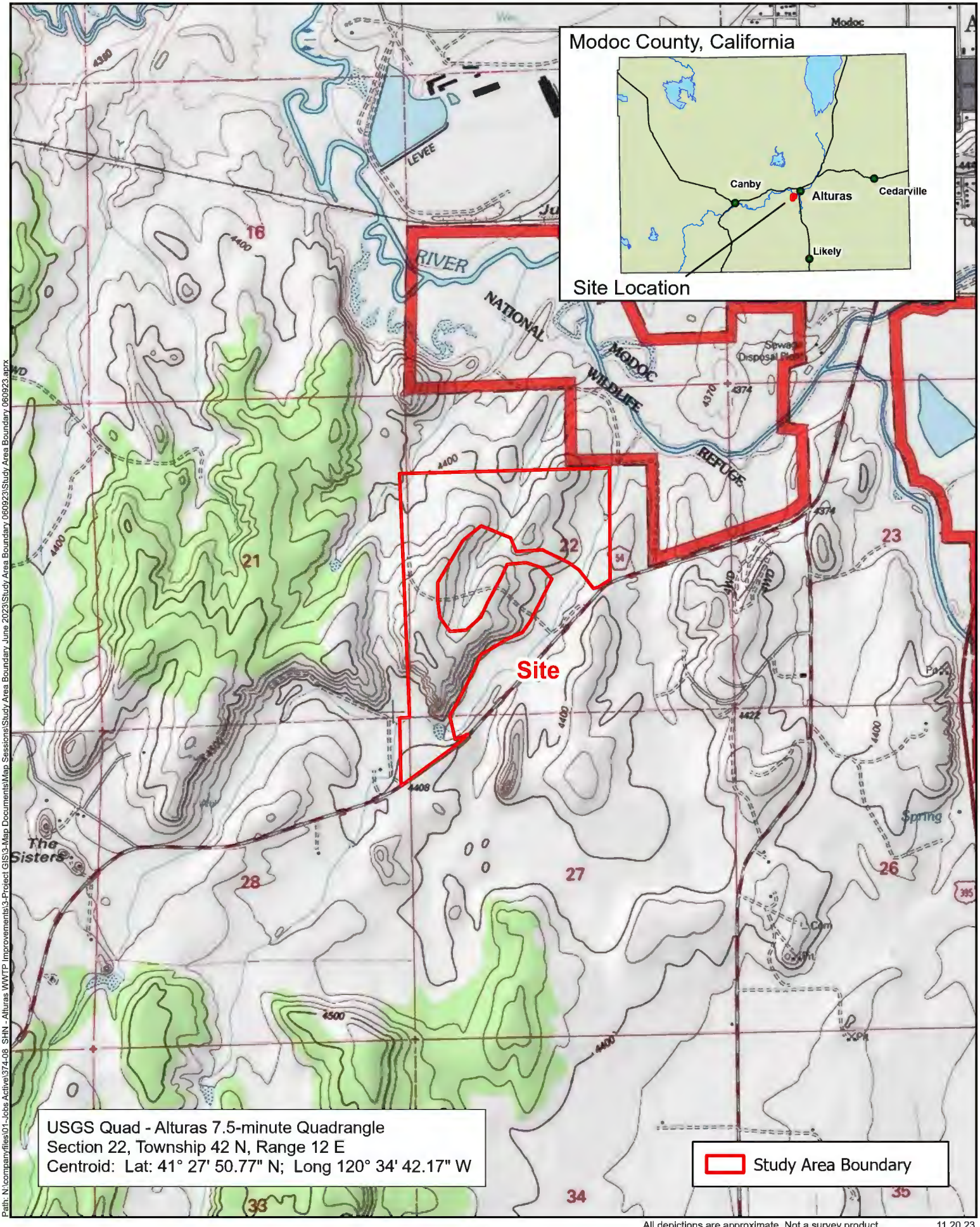
Donald Burk
Environmental Services Manager

encl:

# Appendix A

# Figures

**Figure 1.** Project Location and Vicinity
**Figure 2.** On-site Waters: Treatment/Disposal Site Addendum




All depictions are approximate. Not a survey product. 11.20.23

0 2,000 Feet

Figure 1

**Project Location and Vicinity**

ENPLAN


Figure 2

**On-site Waters:**
**Treatment/Disposal Site Addendum**

# Appendix B

# Updated Records Search and Evaluation

U.S. Fish and Wildlife Species List

**Table 1.** Rarefind (CNDDB) Report Summary

**Table 2**. California Native Plant Society Inventory of Rare and Endangered Plants

**Table 3.** Potential for Special-Status Species to Occur on the Project Site

**Table 4.** Potential for Migratory Birds to Occur on the Project Site

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Klamath Falls Fish And Wildlife Office
1936 California Avenue
Klamath Falls, OR 97601
Phone: (541) 885-8481 Fax: (541) 885-7837


In Reply Refer To: October 02, 2023
Project Code: 2024-0000484
Project Name: Alturas Wastewater Treatment Plant Improvement Project

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

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

**Migratory Birds**: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

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

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

# OFFICIAL SPECIES LIST

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

This species list is provided by:

**Klamath Falls Fish And Wildlife Office**
1936 California Avenue
Klamath Falls, OR 97601
(541) 885-8481

# PROJECT SUMMARY

Project Code: 2024-0000484
Project Name: Alturas Wastewater Treatment Plant Improvement Project
Project Type: Wastewater Facility - Maintenance / Modification
Project Description: The City would decommission the existing WWTP; pump the raw wastewater to new, offsite aeration ponds; and dispose of the treated wastewater through land discharge via evaporation/percolation ponds at the offsite location. The new offsite facilities would be located on a portion of Modoc County Assessor's Parcel 022-130-042, which is on the northwest side of County Road 54, over a mile southwest of the current WWTP. A new pipeline would be constructed from the current WWTP to the new location in the County Road 54 right-of-way. The new ±2.1- mile force main would be attached to the existing County Road 54 bridges over the North and South Forks of the Pit River; no in-water work would occur.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.46208835,-120.57790927521054,14z

Counties: Modoc County, California

# ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

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

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

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

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

## MAMMALS

| NAME | STATUS |
|---|---|
| Gray Wolf *Canis lupus*<br>Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico.<br>There is **final** critical habitat for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/4488 | Endangered |
| North American Wolverine *Gulo gulo luscus*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/5123 | Proposed Threatened |

## BIRDS

| NAME | STATUS |
|---|---|
| Yellow-billed Cuckoo *Coccyzus americanus*<br>Population: Western U.S. DPS<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/3911 | Threatened |

## INSECTS

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/9743 | Candidate |

### FLOWERING PLANTS

| NAME | STATUS |
|---|---|
| Greene's Tuctoria *Tuctoria greenei* | Endangered |
| There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573 | |
| Slender Orcutt Grass *Orcuttia tenuis* | Threatened |
| There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063 | |

### CRITICAL HABITATS

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

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

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.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

| FACILITY NAME | ACRES |
|---|---|
| MODOC NATIONAL WILDLIFE REFUGE | 7,100.235 |
| https://www.fws.gov/our-facilities?$keywords="%5C%22MODOC+NATIONAL+WILDLIFE+REFUGE%5C%22" | |

## BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

**There are bald and/or golden eagles in your project area.**

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds Dec 1 to Aug 31 |
| Golden Eagle *Aquila chrysaetos*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1680 | Breeds Jan 1 to Aug 31 |

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read the supplemental information and specifically the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

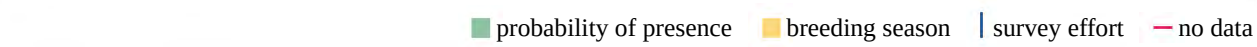
**Probability of Presence** (▪)

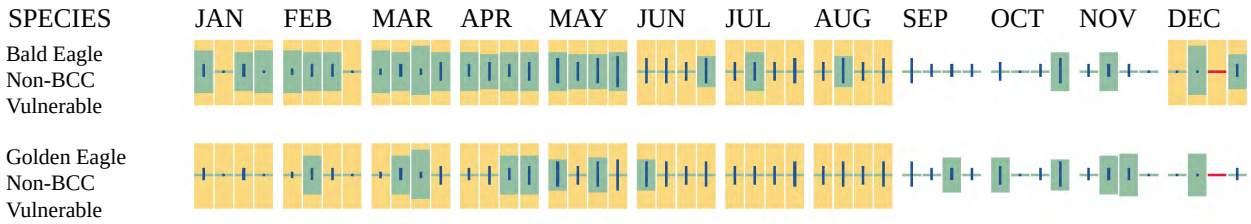
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.






Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# 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[3] 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.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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 |
|---|---|
| American White Pelican *pelecanus erythrorhynchos*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/6886 | Breeds Apr 1 to Aug 31 |

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds Dec 1 to Aug 31 |
| Black Tern *Chlidonias niger*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/3093 | Breeds May 15 to Aug 20 |
| California Gull *Larus californicus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds Mar 1 to Jul 31 |
| Cassin's Finch *Carpodacus cassinii*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9462 | Breeds May 15 to Jul 15 |
| Clark's Grebe *Aechmophorus clarkii*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds Jun 1 to Aug 31 |
| Evening Grosbeak *Coccothraustes vespertinus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 15 to Aug 10 |
| Franklin's Gull *Leucophaeus pipixcan*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 1 to Jul 31 |
| Golden Eagle *Aquila chrysaetos*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1680 | Breeds Jan 1 to Aug 31 |
| Lesser Yellowlegs *Tringa flavipes*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9679 | Breeds elsewhere |
| Lewis's Woodpecker *Melanerpes lewis*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9408 | Breeds Apr 20 to Sep 30 |
| Marbled Godwit *Limosa fedoa*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9481 | Breeds elsewhere |

| NAME | BREEDING SEASON |
|---|---|
| Olive-sided Flycatcher *Contopus cooperi*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/3914 | Breeds May 20 to Aug 31 |
| Sage Thrasher *Oreoscoptes montanus*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/9433 | Breeds Apr 15 to Aug 10 |
| Western Grebe *aechmophorus occidentalis*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/6743 | Breeds Jun 1 to Aug 31 |
| Willet *Tringa semipalmata*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds Apr 20 to Aug 5 |

## 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 the supplemental information and specifically the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

▪ probability of presence ▪ breeding season | survey effort – no data


SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
American White Pelican BCC - BCR
Bald Eagle Non-BCC Vulnerable
Black Tern BCC Rangewide (CON)
California Gull BCC Rangewide (CON)
Cassin's Finch BCC Rangewide (CON)
Clark's Grebe BCC Rangewide (CON)
Evening Grosbeak BCC Rangewide (CON)
Franklin's Gull BCC Rangewide (CON)
Golden Eagle Non-BCC Vulnerable
Lesser Yellowlegs BCC Rangewide (CON)
Lewis's Woodpecker BCC Rangewide (CON)
Marbled Godwit BCC Rangewide (CON)
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Olive-sided Flycatcher BCC Rangewide (CON)
Sage Thrasher BCC - BCR
Western Grebe BCC Rangewide (CON)

Willet
BCC Rangewide
(CON)

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# WETLANDS

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R4SBA

FRESHWATER EMERGENT WETLAND

- PEM1C

FRESHWATER POND

- PUSCh

# IPAC USER CONTACT INFORMATION

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# TABLE 1
# Rarefind (CNDDB) Report Summary

Five-Mile Radius around Project Area
October 2, 2023

| Listed Element | Quadrangle [1] | | | | | | | Status [2] |
|---|---|---|---|---|---|---|---|---|
| | A | BSR | DR | JB | MR | RB | S | |
| **ANIMALS** | | | | | | | | |
| American badger | | | | | | | • | SSSC |
| Bank swallow | • | | | | | • | | ST |
| Golden eagle | | | | | • | | | SFP, WL |
| Gray wolf | • | | | | | | | FE, SE |
| Greater sage-grouse | | | • | | | | | SSSC |
| Greater sandhill crane | • | | • | | | | | ST, SFP |
| Hardhead | | | | | | • | | SSSC |
| North American porcupine | • | | | | | • | | None |
| Northern leopard frog | • | | | | | | | SSSC |
| Prairie falcon | | • | | • | • | • | | WL |
| Swainson's hawk | • | | • | | | | | ST |
| Tricolored blackbird | • | | | | | | | ST, SSSC |
| Western pond turtle | • | | | | | | • | SSSC |
| Western white-tailed jackrabbit | | | • | | | | | SSSC |
| **PLANTS** | | | | | | | | |
| Boggs Lake hedge-hyssop | | • | | | | | | SE, 1B.2 |
| Doublet | • | | | | • | • | | 2B.3 |
| Eel-grass pondweed | • | | | | | | | 2B.2 |
| Falcate saltbush | | | | | | • | | 2B.2 |
| Grass alisma | | | | | • | | | 2B.2 |
| Great Basin downingia | • | | | | | | | 2B.2 |
| Intermontane lupine | | | • | | | | | 2B.3 |
| Janish's beardtongue | • | • | | | | | | 2B.2 |
| Liddon's sedge | | | | | • | | | 2B.3 |
| Lilliput lupine | • | | | | | • | | 2B.2 |
| Macdougal's lomatium | • | | | | | | | 2B.2 |
| Nuttall's ribbon-leaved pondweed | • | | | | | | • | 2B.2 |
| Prostrate buckwheat | • | | | | | | | 1B.2 |
| Sheldon's sedge | • | | | | | | | 2B.2 |
| Water star-grass | | | | | | • | | 2B.2 |
| Wheat sedge | • | | | | | | | 2B.2 |

*Highlighting denotes the quadrangle in which the project site is located*

## [1]QUADRANGLE CODE

A = Alturas
BSR = Big Sage Reservoir
DR = Dorris Reservoir
MR = Mahogany Ridge
RB = Rattlesnake Butte
S = Surprise

## [2]STATUS CODES

### *Federal*

| | |
|---|---|
| FE | Federally Listed – Endangered |
| FT | Federally Listed – Threatened |
| FC | Federal Candidate Species |
| FP | Federal Proposed Species |
| FD | Federally Delisted |
| FSC | Federal Species of Concern |

### *State*

| | |
|---|---|
| SFP | State Fully Protected |
| SR | State Rare |
| SE | State Listed – Endangered |
| ST | State Listed – Threatened |
| SC | State Candidate Species |
| SD | State Delisted |
| SSSC | State Species of Special Concern |
| WL | Watch List |

### *Rare Plant Rank*

| | |
|---|---|
| 1A | Plants Presumed Extinct in California |
| 1B | Plants Rare, Threatened or Endangered in California and Elsewhere |
| 2 | Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere |
| 3 | Plants About Which We Need More Information *(A Review List)*<br>(generally not considered special-status, unless unusual circumstances warrant) |
| 4 | Plants of Limited Distribution *(A Watch List)*<br>(generally not considered special-status, unless unusual circumstances warrant) |

### *Rare Plant Threat Ranks*

0.1 Seriously Threatened in California
0.2 Fairly Threatened in California
0.3 Not Very Threatened in California

# TABLE 2
## California Native Plant Society
## Inventory of Rare and Endangered Plants

U.S. Geological Survey's Alturas 7.5-minute Quadrangles

October 2, 2023

| Common Name | Scientific Name | CA Rare Plant Rank | Blooming Period | State Listing Status | Federal Listing Status |
|---|---|---|---|---|---|
| Doublet | *Dimeresia howellii* | 2B.3 | May-Sep | None | None |
| Eel-grass pondweed | *Potamogeton zosteriformis* | 2B.2 | Jun-Jul | None | None |
| Grass alisma | *Alisma gramineum* | 2B.2 | Jun-Aug | None | None |
| Great Basin downingia | *Downingia laeta* | 2B.2 | May-Jul | None | None |
| Janish's beardtongue | *Penstemon janishiae* | 2B.2 | May-Jul | None | None |
| Lilliput lupine | *Lupinus uncialis* | 2B.2 | May-Jul | None | None |
| MacDougal's lomatium | *Lomatium foeniculaceum* ssp. *macdougalii* | 2B.2 | Apr-Jul | None | None |
| Mexican mosquito fern | *Azolla microphylla* | 4.2 | Aug | None | None |
| Modoc Plateau milk-vetch | *Astragalus pulsiferae* var. *coronensis* | 4.2 | May-Jul | None | None |
| Nuttall's ribbon-leaved pondweed | *Potamogeton epihydrus* | 2B.2 | (Jun) Jul-Sep | None | None |
| Prostrate buckwheat | *Eriogonum prociduum* | 1B.2 | May-Aug | None | None |
| Sheldon's sedge | *Carex sheldonii* | 2B.2 | May-Aug | None | None |
| Water star-grass | *Heteranthera dubia* | 2B.2 | Jul-Oct | None | None |
| Wheat sedge | *Carex atherodes* | 2B.2 | Jun-Aug | None | None |

| **Rare Plant Rank** | |
|---|---|
| 1A | Plants Presumed Extinct in California |
| 1B | Plants Rare, Threatened or Endangered in California and Elsewhere |
| 2 | Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere |
| 3 | Plants About Which We Need More Information – A Review List (generally not considered special-status, unless unusual circumstances warrant) |
| 4 | Plants of Limited Distribution – A Watch List (generally not considered special-status, unless unusual circumstances warrant) |
| **Rare Plant Threat Rank** | |
| 0.1 | Seriously Threatened in California |
| 0.2 | Fairly Threatened in California |
| 0.3 | Not Very Threatened in California |

**Source**: *California Native Plant Society, Rare Plant Program. 2023. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). http://www.rareplants.cnps.org. Accessed October 2, 2023.*

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| **PLANTS** | | | | | | | |
| Boggs Lake hedge-hyssop | *Gratiola heterosepala* | SE, 1B.2 | Boggs Lake hedge-hyssop occurs in marshes, swamps, and vernal pools. The species is reported from sea level to 7,800 feet in elevation. The flowering period is April through August. | No | No | No | No marshes, swamps, vernal pools, or potentially suitable habitats for Boggs Lake hedge-hyssop are present on the project site. The species was not observed during the botanical survey and is not expected to be present. |
| Doublet | *Dimeresia howellii* | 2B.3 | Doublet occurs on slopes supporting dry gravelly volcanic soils in pinyon-juniper woodland. The species is reported between 4,350 and 7,550 feet in elevation. The flowering period is May through September. | Yes | No | No | According to CNDDB records, doublet was reported approximately 0.76 miles west of the project site in 1996. The species was not observed during the botanical survey even though it would have been flowering at the time and is not expected to be present. |
| Eel-grass pondweed | *Potamogeton zosteriformis* | 2B.2 | Eel-grass pondweed occurs in ponds, lakes, streams, marshes, and swamps. The species is reported up to 6,000 feet in elevation. The flowering period is June and July. | No | No | No | No ponds, lakes, streams, or potentially suitable habitats for eel-grass pondweed are present on the project site. The species was not observed during the botanical survey and is not expected to be present. |
| Falcate saltbush | *Atriplex gardneri* var. *falcata* | 2B.2 | Falcate saltbush usually occurs on subalkaline soils in low chenopod scrub and Great Basin scrub between 3,900 and 5,600 feet. The flowering period is May to August. | Yes | No | No | According to CNDDB records, falcate saltbush was reported approximately 4.0 miles northwest of the project site in 1957. The species was not observed during the botanical survey even though it would have been flowering at the time, and is not expected to be present. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| Grass alisma | *Alisma gramineum* | 2B.2 | Grass alisma occurs in marshes and swamps. The species is reported between 1,200 and 5,900 feet in elevation. The flowering period is June through August. | No | No | No | No marshes, swamps, or potentially suitable habitats for grass alisma are present on the project site. The species was not observed during the botanical survey and is not expected to be present. |
| Great Basin downingia | *Downingia laeta* | 2B.2 | Great Basin downingia occurs in Great Basin scrub, meadows and seeps, freshwater marshes, Pinyon-juniper woodland, and vernal pools. | Yes | No | No | Wet meadows and Great Basin scrub are present on the project site. However, the species was not observed during the botanical survey and is not expected to be present. |
| Greene's tuctoria | *Tuctoria greenei* | FE, SR, 1B.1 | Greene's tuctoria occurs in vernal pools in valley and foothill grasslands below 3,500 feet in elevation. The flowering period is May through July. | No | No | No | No vernal pools or potentially suitable habitats for Greene's tuctoria are present on the project site. The species was not observed during the botanical survey and is not expected to be present. |
| Intermontane lupine | *Lupinus pusillus* var. *intermontanus* | 2B.3 | Intermontaine lupine occurs on sandy soils in Great Basin scrub. The species is reported between 4,000 and 5,200. The flowering period is May to June. | Yes | No | No | Intermontane lupine was not observed during the botanical survey, which took place during its flowering period. Thus, intermontane lupine is not expected to be present. |
| Janish's beardtongue | *Penstemon janishiae* | 2B.2 | Janish's beardtongue occurs on volcanic and gravelly soils in Great Basin scrub, pinyon-juniper woodlands, and lower montane coniferous forests in Lassen and Modoc counties. Janish's beardtongue is found between 3,500 and 7,700 feet in elevation. The flowering period is May through July. | Yes | No | No | According to CNDDB records, Janish's beardtongue was reported approximately 1.2 miles northwest of the project site in 1996. The species was not observed during the botanical survey and is not expected to be present. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| Liddon's sedge | *Carex petasata* | 2B.3 | Liddon's sedge occurs in meadows and coniferous forest between 1,900 and 10,900 feet in elevation. The flowering period is May through July. | No | No | No | No potentially suitable habitats for Liddon's sedge are present on the project site. The species was not observed during the botanical survey even though it would have been flowering at the time, and is not expected to be present. |
| Lilliput lupine | *Lupinus uncialis* | 2B.2 | Lilliput lupine occurs on hilltops, bluffs, barrens, and talus in sagebrush scrub and on limestone, rhyolite, and volcanic ash in pinyon-juniper woodland. The species is reported between 4,300 and 5,200. The flowering period is May to July. | Yes | No | No | According to CNDDB records, Lilliput lupine was reported on the project site in 1993 and 1994. The species was not observed during the botanical survey and is not expected to be present. |
| Macdougal's lomatium | *Lomatium foeniculaceum* ssp. *macdougalii* | 2B.2 | MacDougal's lomatium occurs on volcanic soil in chenopod scrub, Great Basin scrub, lower montane coniferous forest, and pinyon-juniper woodland. The species is reported between 4,600 and 5,900 feet. The flowering period is April to July. | Yes | No | No | According to CNDDB records, Macdougal's lomatium was reported on the project site in 1994. The species was not observed during the botanical survey and is not expected to be present. |
| Nuttall's ribbon-leaved pondweed | *Potamogeton epihydrus* | 2B.2 | Nuttall's ribbon-leaved pondweed is a perennial rhizomatous herb that occurs in marshes, swamps, and in shallow lakes, ponds, streams, and irrigation ditches. The species is found between 1,200 and 7,200 feet in elevation. The flowering period is July through September. | No | No | No | No marshes, ponds, or potentially suitable habitats for Nuttall's ribbon-leaved pondweed are present on the project site. The species was not observed during the botanical survey even though it would have been flowering at the time, and is not expected to be present. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| Prostrate buckwheat | *Eriogonum prociduum* | 1B.2 | Prostrate buckwheat occurs on volcanic soil in Great Basin scrub, pinyon-juniper woodland, and upper montane coniferous forest. The species is reported between 4,300 and 8,900. The flowering period is May through August. | Yes | No | No | According to CNDDB records, prostrate buckwheat was reported approximately 1.8 miles west of the project site in 2016. The species was not observed during the botanical survey even though it would have been flowering at the time, and is not expected to be present. |
| Sheldon's sedge | *Carex sheldonii* | 2B.2 | Sheldon's sedge occurs in marshes, swamps, and riparian scrub within lower montane coniferous forests. The species is reported between 3,900 and 6,600 feet in elevation. The flowering period is May through August. | No | No | No | No marshes, swamps, or potentially suitable habitats for Sheldon's sedge are present on the project site. The species was not observed during the botanical survey even though it would have been flowering at the time, and is not expected to be present. |
| Slender Orcutt grass | *Orcuttia tenuis* | FT, SE, 1B.1 | Slender Orcutt grass is an annual herb that occurs in vernal pools and similar habitats, occasionally on reservoir edges or stream floodplains, and on clay soils with seasonal inundation. Surrounding habitat types may include valley grassland, oak woodland, coniferous forest, and sagebrush scrub. The species is found between 100 and 5,800 feet in elevation. The flowering period is May through September. | No | No | No | No vernal pools or potentially suitable habitats for slender Orcutt grass are present on the project site. The species was not observed during the botanical survey even though it would have been flowering at the time, and is not expected to be present. |
| Water star-grass | *Heteranthera dubia* | 2B.2 | Water star-grass occurs in marshes and swamps and requires a water pH of 7 or greater. The species is reported between sea level and 5,000 feet in elevation. The flowering period is July through October. | No | No | No | No potentially suitable habitat for water star-grass is present on the project site. The species was not observed during the botanical survey and is not expected to be present. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| Wheat sedge | *Carex atherodes* | 2B.2 | Wheat sedge occurs in meadows, seeps, marshes, and swamps in pinyon-juniper woodland. This species is reported between 4,300 and 5,000 feet. The flowering period is June through August. | Yes | No | No | According to CNDDB records, wheat sedge was reported on the project site in 1947. The species was not observed during the botanical survey and is not expected to be present. |
| **BIRDS** | | | | | | | |
| Bank swallow | *Riparia riparia* | ST | Bank swallows require vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, or the ocean for nesting. | No | No | No | No vertical banks or cliffs are present in the project area, and the species was not observed during the wildlife survey. Thus, bank swallows would not nest on the project site. |
| Golden eagle | *Aquila chrysaetos* | SFP, WL | Golden eagles may be found throughout all of California except the Central Valley, ranging from sea level to over 11,000 feet in elevation. They inhabit oak woodlands, coniferous forests, and deserts and require open terrain for hunting. Nesting habitat consists of large trees in open areas or cliff-walled canyons. Breeding occurs between late January and August. Eggs are usually laid between early February and mid-May, with the nestling period concluding about four months later. | No | No | No | No large trees or cliff-walled canyons are present on the project site, and the species was not observed during the wildlife survey. Thus, golden eagles would not nest on the project site. |
| Greater sage-grouse | *Centrocercus urophasianus* | SSSC | Greater sage grouse inhabit contiguous sagebrush communities in northeastern California. | No | No | No | No suitable nesting habitat for the greater sage-grouse is present on the project site and the species was not observed during the wildlife survey. Thus, greater sage-grouse would not nest on the project site. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| Greater sandhill crane | *Antigone canadensis tabida* | ST, SFP | Greater sandhill cranes nest in wetland habitats near grain fields in northeastern California. Nests generally consist of large mounds of vegetation in shallow water. Shallow islands bordered by tules and cattails are ideal nesting sites; natural hummocks or muskrat houses may also be used as nest sites. | No | No | No | The project site lacks crucial nesting components such as tules, cattails, hummocks, or muskrat houses. Thus, no suitable nesting habitat is present and greater sandhill cranes would not nest on the project site. |
| Prairie falcon | *Falco mexicanus* | WL | Prairie falcons are an uncommon winter resident and utilize a variety of habitats from annual grasslands to alpine meadows. Prairie falcons forage in open terrain near canyons, cliffs, escarpments, and rock outcrops. Nests are constructed on a sheltered ledge or a cliff overlooking a large open area. | No | No | No | No sheltered ledges or cliffs are present in the project area, and the species was not observed during the wildlife survey. Thus, prairie falcon would not nest on the project site. |
| Swainson's hawk | *Buteo swainsoni* | ST | Swainson's hawks nest in riparian areas or in oak savannah on the valley floor or in the foothills of the Central Valley, as far north as southern Tehama County. The species also nests in northeastern California in similar communities as well as juniper-sage flats. | Yes | No | Pot. | According to CNDDB records, Swainson's hawk was reported on the wastewater treatment plant site in 1980 in the "Alturas Swamp", just west of the confluence of the North and South Fork of the Pit River. The species was not observed during the wildlife survey. However, nesting habitat is present on the project site as well as nearby. |
| Tricolored blackbird | *Agelaius tricolor* | ST, SSSC | Tricolored blackbirds are colonial nesters and generally nest near open water. Nesting areas must be large enough to support a minimum colony of about 50 pairs. Tricolored blackbirds generally construct nests in dense cattails or tules, although they can also nest in thickets of willow, blackberry, wild rose and tall herbs. | No | No | No | No cattails or tules are present in or near the project area, and dense thickets of other shrubs are uncommon near the project area. Additionally, the species was not observed during the wildlife survey. Thus, tricolored blackbirds would not nest on the project site. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| Yellow-billed cuckoo | *Coccyzus americanus* | FT, SE | Yellow-billed cuckoos inhabit and nest in extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut slow-moving watercourses, backwaters, or seeps. Willows are almost always a dominant component of the vegetation. In the Sacramento Valley, the western yellow-billed cuckoo also utilizes adjacent orchards, especially of walnut, for nesting. | No | No | No | The project site lacks deciduous riparian thickets, riparian forests, and willows. Additionally, the species was not observed during the wildlife survey. Thus, yellow-billed cuckoos would likely not nest on the project site. |
| **AMPHIBIANS** | | | | | | | |
| Northern leopard frog | *Lithobates pipiens* | SSSC | The northern leopard frog is most common in water bodies with abundant aquatic vegetation. They are found in permanent ponds, swamps, marshes, and slow-moving streams throughout forest, open, and urban areas. Important habitat requirements include shoreline cover, and submerged/emergent aquatic vegetation. | Yes | No | No | CNDDB records indicate the northern leopard frog was observed near the project area in 1918. This occurrence was broadly mapped to Alturas. Additionally, the species was not observed during the wildlife survey. Thus, Northern leopard frogs are not expected to be present. |

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## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

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|---|---|---|---|---|---|---|---|
| **REPTILES** | | | | | | | |
| Western pond turtle | *Emys marmorata* | SSSC | The western pond turtle associates with permanent or nearly permanent water in a variety of habitats. This turtle is typically found in quiet water environments. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks, and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. Nesting and courtship occur during spring. Nests are generally constructed within 500 feet of a waterbody, but some nests have been found up to 1,200 feet away. Pond turtles leave aquatic sites in the fall and overwinter in uplands nearby. Pond turtles return to aquatic sites in spring. | Yes | No | Pot. | The species was observed in the Pit River during the wildlife survey and may potentially be present in the project area. |
| **FISH** | | | | | | | |
| Hardhead | *Mylopharodon conocephalus* | SSSC | Hardhead inhabit low to mid-elevation streams in the Sacramento River, San Joaquin River, and Russian River watersheds. Hardhead spawn in clear, deep pools, with rock substrate and low water flow. | No | No | No | The Pit River in the project site does not possess rock substrate and is not characterized by low water flow. Additionally, the species was not observed during the wildlife survey. Thus, the hardhead is not expected to be present. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| **MAMMALS** | | | | | | | |
| American badger | *Taxidea taxus* | SSSC | Badgers generally inhabit dry, open areas in shrub, forest, and herbaceous habitats, with friable soils. Badgers dig burrows in dry, sandy soil, usually in areas with sparse overstory. | Yes | No | No | CNDDB records indicate an American badger was observed near the project area in 1920. Although potentially suitable habitat is present for the American badger, no badgers were observed during the survey and American badgers are not expected to be present in the project area. |
| Gray wolf | *Canis lupis* | FE, SE | Gray wolves are habitat generalists and populations can be found in any type of habitat in the Northern Hemisphere from about 20° latitude to the polar ice pack. Key components of preferred wolf habitat include a year-round abundance of natural prey, secluded denning and rendezvous sites, and sufficient space with minimal human disturbance. Dens may be a hollow log or a tunnel excavated in loose soil. A den may have two or more entrances, which are usually indicated by a large pile of dirt. Den sites are often near water, and are usually elevated to detect approaching enemies. Wolf packs establish and defend territories that may range from 20 to 400 square miles. Wolves travel over large areas to hunt, and may cover as much as 30 miles in a day. Young wolves may disperse several hundred miles to seek out a mate or to establish their own pack. | Yes | No | No | According to CNDDB records, gray wolf was historically present on the project site in 1911; however, the gray wolf was extirpated in California until 2011. The species was not observed during the wildlife survey and is not expected to be present. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| North American wolverine | *Gulo gulo luscus* | FPT | Wolverines are dependent on areas in high mountains, near the tree-line, where conditions are cold year-round and snow cover persists well into the month of May. Female wolverines use birthing dens that are excavated in snow. Persistent, stable snow greater than 1.5 meters deep appears to be a requirement for birthing dens. Birthing dens consist of tunnels that contain well-used runways and bed sites and may naturally incorporate shrubs, rocks, and downed logs as part of their structure. Birthing dens may occur on rocky sites, such as north-facing boulder talus or subalpine cirques. Wolverines are very sensitive to human activities and often abandon den sites in response to human disturbance. | No | No | No | No suitable habitat for the North American wolverine is present on the project site, and no wolverines were observed during the wildlife survey. Thus, the North American wolverine would not be present on the project site. |
| Western white-tailed jackrabbit | *Lepus townsendii townsendii* | SSSC | Western white-tailed jackrabbit occur in sagebrush, subalpine conifer, juniper, alpine dwarf shrub, and perennial grassland areas. They prefer open areas with scattered shrubs and exposed flat-topped hills with open stands of trees, and a brush and herbaceous understory. | Yes | No | No | According to CNDDB records, western white-tailed jackrabbit was reported approximately 2 miles east of the project site in 1959. However, the species was not observed during the wildlife survey and is not expected to be present. |

## TABLE 3

## Potential for Special-Status Species Identified by the National Marine Fisheries Service, USFWS, and CNDDB to Occur on the Project Site

## October 2, 2023

| COMMON NAME | SCIENTIFIC NAME | STATUS [1] | GENERAL HABITAT DESCRIPTION | HABITAT PRESENT (Y/N) | CRITICAL HABITAT PRESENT (Y/N) | SPECIES PRESENT (Y/N/POT.) | RATIONALE/COMMENTS |
|---|---|---|---|---|---|---|---|
| **INSECTS** | | | | | | | |
| Monarch butterfly | *Danaus plexippus* | FC | Monarch butterflies are reliant on milkweed species for development and survival. Adults migrate from their overwintering sites on the California Coast, Baja California, and to some extent the central Mexico mountains in February and March and reach the northern limit of their North America range in California, Oregon, Washington, Idaho, and Nevada, in early to mid-June. Eggs are laid singly on milkweed plants within their breeding range. Once hatched, larva reach the adult stage in 20 to 35 days; adults live 2 to 5 weeks. Several generations can be produced within one season, with the last generation beginning migration to their overwintering range in August and September where they live between 6 and 9 months before migrating north. | No | No | No | Monarch butterflies rely on milkweed plants for reproduction, and on various flowering species for nectar as adults. No milkweeds were observed in the project area during the botanical survey, nor does the project site possess an abundance of floral resources. Although monarch butterflies may migrate through the area, they would not be affected by project implementation. |

## [1] Status Codes

**Federal**:

| | |
|---|---|
| FE | Federally Listed – Endangered |
| FT | Federally Listed – Threatened |
| FC | Federal Candidate Species |
| FP | Federal Proposed Species |
| FD | Federal Delisted |

**State**:

| | |
|---|---|
| SFP | State Fully Protected |
| SR | State Rare |
| SE | State Listed - Endangered |
| ST | State Listed - Threatened |
| SC | State Candidate Species |
| SSSC | State Species of Special Concern |
| WL | Watch List |

**Rare Plant Rank**

| | |
|---|---|
| 1A | Plants Presumed Extinct in California |
| 1B | Plants Rare, Threatened or Endangered in California and Elsewhere |
| 2A | Presumed extirpated in California, but more common elsewhere |
| 2B | Rare or Endangered in California, but more common elsewhere |

**Rare Plant Threat Rank**

| | |
|---|---|
| 0.1 | Seriously Threatened in California |
| 0.2 | Fairly Threatened in California |
| 0.3 | Not Very Threatened in California |

# TABLE 4
## Potential for Birds of Conservation Concern to Occur

October 2023

| Common Name | Scientific Name | General Habitat Description | Habitat Present (Y/N) | Species Present (Y/N/POT.) | Rationale/Comments |
|---|---|---|---|---|---|
| American white pelican | *Pelecanus erythrorhynchos* | American white pelicans are colonial nesters on large interior lakes, which provide safe roosting and breeding places in the form of well-sequestered islets. | No | No | No suitable habitat exists within the project area for the American white pelican, as no large lakes are present near the project site. Thus, the species is not expected to nest in the project site. |
| Bald eagle | *Haliaeetus leucocephalus* | Bald eagles nest in large, old-growth trees or snags in mixed stands near open bodies of water. Adults tend to use the same breeding areas year after year and often use the same nest, though a breeding area may include one or more alternate nests. Bald eagles do not usually begin nesting if human disturbance is evident. In California, the bald eagle nesting season is from February through July. | No | No | Bald eagles are reported as common winter residents of the Modoc National Wildlife Refuge, but are not reported to nest at the refuge. No suitable nesting habitat for the bald eagle is present in the project site. No bald eagles or eagle nests were observed during the biological surveys. Thus, the bald eagle is not expected to nest in or adjacent to the project site. |
| Black tern | *Childonias niger* | Black terns nest primarily in large freshwater wetlands on the Modoc Plateau, although some nesting occurs in the Central Valley. Black terns breed from May through August. Nests are built atop loose mats of dead plant stems, anchored to standing vegetation, or floating on the water surface. Black terns may also nest in abandoned muskrat dens or waterfowl nests. | No | No | Suitable nesting habitat for black tern does not exist in the project area. Field studies confirmed that the onsite wetlands are small and ephemeral, and would be dry during the nesting season for the black tern. The species would not nest within the project area. |
| California gull | *Larus californicus* | California gulls are colonial nesters on islets in large interior lakes, either fresh or strongly alkaline, such as littoral waters, sandy beaches, waters and shorelines of bays, tidal mud-flats, marshes, and lakes. | No | No | Suitable nesting habitat for the California gull is not present within the project area. No large lakes are present in the project boundary, and thus the species is not expected to nest in the project site. |

# TABLE 4
## Potential for Birds of Conservation Concern to Occur

October 2023

| Common Name | Scientific Name | General Habitat Description | Habitat Present (Y/N) | Species Present (Y/N/POT.) | Rationale/Comments |
|---|---|---|---|---|---|
| Cassin's finch | *Carpodacus cassinii* | Habitats include conifers in high mountains as well as lower levels in winter. Cassin's finches breed mostly in montane conifer forests and sometimes in pinon-juniper woodlands. They are found at very high elevations, near the tree line in mountains. They spend winters in montane conifer forests and sometimes in open woodlands of lower valleys. The breeding season is May 15 to July 15. | No | No | Suitable nesting habitat for Cassin's finch is not present in the project area due to the paucity of conifers. The species would not nest in the project site. |
| Clark's grebe | *Aechmophorus clarkii* | Clark's grebes inhabit lakes, marshes and bays. During the winter, they also occur along seacoasts. Clark's grebes nest on large inland lakes over shallow water on floating platforms of vegetation. The breeding season is January 1 to December 31. | No | No | Clark's grebes are reported as common summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. No suitable nesting habitat for Clark's grebe is present in the project site. Thus, the Clark's grebe is not expected to nest in the project site. |
| Evening grosbeak | *Coccothraustes vespertinus* | Evening grosbeaks breed and forage mostly in mixed conifer and red fir habitats, and usually nest in fairly dense, mature conifer forests dominated by firs. The evening grosbeak breeding season lasts from early June into late August, with a peak in July; however, they are highly unpredictable in distribution and abundance, even in the breeding season. | No | No | Suitable nesting habitat for the evening grosbeak is not present in the project area. No mature conifer forests or dense arboreal habitat is found in the project boundary. Thus, the evening grosbeak would not nest in the project site. |
| Franklin's gull | *Leucophaeus pipixcan* | Franklin's gulls nest in freshwater marshes, bays, and other wetlands. During breeding season, the species forages primarily for insects and small amounts of vegetation. The breeding season extends from May 1 to July 31. | No | No | Suitable nesting habitat for Franklin's gull does not exist in the project area. Field studies confirmed that the onsite wetlands are small and ephemeral, and would be dry during the nesting season for Franklin's gull. The species is not expected to nest within the project area. |

# TABLE 4
## Potential for Birds of Conservation Concern to Occur

October 2023

| Common Name | Scientific Name | General Habitat Description | Habitat Present (Y/N) | Species Present (Y/N/POT.) | Rationale/Comments |
|---|---|---|---|---|---|
| Golden eagle | *Aquila chrysaetos* | Golden eagles inhabit open and semi-open habitats, including oak woodlands, shrublands, grasslands, and deserts. Nesting habitat consists of large trees in open areas, cliff-walled canyons, and, occasionally, structures such as transmission towers. The breeding season is December through August. | No | No | Golden eagles are reported as uncommon to occasional permanent resident of the Modoc National Wildlife Refuge. No suitable nesting habitat for golden eagle is present in the project site. Thus, the golden eagle is not expected to nest in the project site. |
| Lesser yellowlegs | *Tringa flavipes* | Lesser yellowlegs breed in Alaska and northern Canada in open woodland clearings or burned-over areas, usually close to grassy wetlands. During migration, the species travels to the outer California coast and adjacent coastal lowlands, the Central Valley, Great Basin, and Salton Sea. The species forages along shallow lacustrine, wet meadow, and estuarine mudflat habitats. | No | No | Lesser yellowlegs may migrate through the area, however, they nest primarily in Alaska and northern Canada. Thus, the species is not expected to nest in the project site. |
| Lewis's woodpecker | *Elanus leucurus* | Habitats for Lewis's woodpeckers include open ponderosa pine forest, open riparian woodland dominated by cottonwood, and logged or burned pine forest. The woodpeckers breeding distribution is widely associated with ponderosa pine distribution in western North America. The breeding season is April 20 to September 30. | No | No | Suitable nesting habitat for Lewis's woodpecker does not exist within the project area. The site lacks ponderosa pine forests and riparian woodland habitat. Thus, the species is not expected to nest in the project site. |
| Marbled godwit | *Limosa fedoa* | Habitats for the marbled godwit include prairies, pools, shores and tide flats. The species breeds mostly on the northern Great Plains and in areas of native prairie with marshes or ponds nearby. During migration and winter, the marbled godwit can be found around tidal mudflats, marshes and ponds, mainly in coastal regions. | No | No | Suitable nesting habitat for the marbled godwit does not exist within the project area. The site lacks open plains and marshes, and marbled godwits commonly nest in the northern Great Plain region. Thus, the species is not expected to nest in the project site. |

# TABLE 4
## Potential for Birds of Conservation Concern to Occur

October 2023

| Common Name | Scientific Name | General Habitat Description | Habitat Present (Y/N) | Species Present (Y/N/POT.) | Rationale/Comments |
|---|---|---|---|---|---|
| Olive-sided flycatcher | *Contopus cooperi* | Olive-sided flycatchers breed in montane and northern coniferous forests, at forest edges and openings, such as meadows and ponds. The nest is an open cup of twigs, rootlets, and lichens, placed out near the tip of a horizontal branch of a tree. The breeding season is May 20 to August 31. | No | No | Suitable nesting habitat for the olive-sided flycatcher is not present in the project area due to the lack of coniferous forests. The olive-sided flycatcher is not expected to nest within the project area. |
| Sage thrasher | *Oreoscoptes montanus* | The sage thrasher breeds exclusively in shrub steppe habitats. Expanses of dense sagebrush provide concealment, while bare ground provides foraging opportunities. During migration and winter, they transition to grasslands with scattered shrubs and open pinyon-juniper woodlands. Sage thrashers build nests on or near the ground, and pick dense, tall shrubs with overhead cover. The breeding season is April 15 August 10. | Yes | Pot. | Sage thrashers are reported as occasional to common summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. Potentially suitable nesting habitat for sage thrashers is present in the project site. Implementation of the nesting bird survey recommended in the Biological Study Report would ensure that nesting sage thrashers are not adversely affected by project implementation. |
| Western grebe | *Aechmophorus occidentalis* | Western grebes breed on freshwater lakes and marshes with extensive open water bordered by emergent vegetation. The nest is most often built on floating vegetation hidden among emergent plants; western grebes occasionally nest in the open and rarely on land. | No | No | Suitable nesting habitat for the western grebe is not present within the project area. The site lacks open water and the vegetation needed to support western grebe breeding preferences. Thus, the species would not nest in the project site. |
| Willet | *Tringa semipalmata* | Habitats for the willet include marshes, wet meadows, mudflats, and beaches. In California, willets nest inland, around freshwater marshes in open country, especially in native grasslands. Nesting occurs on islands and edges of alkali lakes in the Great Basin. In migration and winter, willets may be found on mudflats, tidal estuaries, and sandy beaches. The breeding season is April 20 to August 5. | No | No | Willets are reported as common summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. No suitable nesting habitat for willet is present in the project site. Thus, the willet is not expected to nest in the project site. |

# Appendix C

# Plant List

# CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

May 20 and July 13, 2020. June 12, 13, and 14, 2023. July 12 and 13, 2023.

| | |
|---|---|
| **Agavaceae** | **Century-plant Family** |
| *Leucocrinum montanum* | Sand-lily |
| **Alliaceae** | **Onion Family** |
| *Allium anceps* | Twin-leaved onion |
| **Amaranthaceae** | **Amaranth Family** |
| *Amaranthus albus* | Tumbleweed |
| *Amaranthus blitoides* | Mat amaranth |
| *Amaranthus powellii* | Green amaranth |
| **Apiaceae** | **Carrot Family** |
| *Conium maculatum* | Poison hemlock |
| *Lomatium nevadense* var. *nevadense* | Nevada lomatium |
| **Asteraceae** | **Sunflower Family** |
| *Achillea millefolium* | Common yarrow |
| *Agoseris grandiflora* | Large-flowered agoseris |
| *Agoseris monticola* | Mountain agoseris |
| *Ancistrocarphus filagineus* | Woolly fishhooks/false neststraw |
| *Antennaria dimorpha* | Cushion pussytoes |
| *Arctium minus* | Burdock |
| *Artemisia tridentata* | Big sagebrush |
| *Artemisia douglasiana* | Mugwort |
| *Blepharipappus scaber* | Blepharipappus |
| *Chaenactis douglasii* var. *douglasii* | Douglas' dustymaiden |
| *Chrysothamnus viscidiflorus* subsp. *puberlus* | Sticky leaved rabbitbrush |
| *Cirsium arvense* | Canadian thistle |
| *Cirsium cymosum* var. *cymosum* | Peregrine thistle |
| *Cirsium vulgare* | Bull thistle |
| *Crepis occidentalis* | Western hawks-beard |
| *Dieteria canescens var. shastensis* | Shasta aster |
| *Ericameria nauseosa* | White-stemmed rabbitbrush |
| *Erigeron divergens* | Diffuse daisy |
| *Erigeron filifolius* | Threadleaf fleabane |
| *Eriophyllum lanatum* | Woolly sunflower |
| *Gnaphalium palustre* | Western marsh cudweed |
| *Grindelia nana* | Idaho resin-weed |
| *Helianthus annuus* | Common sunflower |
| *Iva axillaris* | Poverty weed |
| *Lactuca serriola* | Prickly lettuce |
| *Lagophylla ramosissima* | Common hareleaf |
| *Matricaria discoidea* | Pineapple weed |
| *Onopordum acanthium* subsp. *acanthium* | Scotch thistle |
| *Psilocarphus oregonus* | Oregon woolly-marbles |
| *Rigiopappus leptocladus* | Rigiopappus |
| *Sonchus asper* subsp. *asper* | Prickly sow thistle |
| *Stephanomeria sp.* | Wirelettuce |
| *Tanacetum vulgare* | Tansy |
| *Taraxacum officinale* | Dandelion |

# CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

| | |
|---|---|
| *Tetradymia canescens* | Spineless horsebrush |
| *Tragopogon dubius* | Goat's beard |
| *Wyethia mollis* | Woolly mule-ears |
| **Boraginaceae** | **Borage Family** |
| *Amsinckia menziesii* | Menzie's fiddleneck |
| *Amsinckia tessellata* var. *tessellata* | Bristly fiddleneck |
| *Cryptantha hendersonii* | Henderson's cryptantha |
| *Cryptantha watsonii* | Watson's cryptantha |
| *Greeneocharis circumscissa* | Cushion greeneocharis |
| *Lappula redowskii* var. *redowskii* | Redowski's stickseed |
| *Lithospermum ruderale* | Western gromwell |
| *Myosotis laxa* | Bay forget-me-not |
| *Phacelia mutabilis* | Changeable phacelia |
| *Phacelia hastata* var. *hastata* | Mountain phacelia |
| *Phacelia linearis* | Thread-leaf phacelia |
| *Plagiobothrys cognatus* | Cognate popcorn-flower |
| *Plagiobothrys leptocladus* | Alkali popcorn-flower |
| *Plagiobothrys tenellus* | Slender popcorn-flower |
| **Brassicaceae** | **Mustard Family** |
| *Alyssum simplex* | Alyssum |
| *Camelina microcarpa* | False flax |
| *Capsella bursa-pastoris* | Shepherd's purse |
| *Chorispora tenella* | Crossflower |
| *Descurainia pinnata* subsp. *brachycarpa* | Western tansymustard |
| *Descurainia sophia* | Flixweed |
| *Draba verna* | Whitlow grass |
| *Erysimum repandum* | Spreading wallflower |
| *Lepidium campestre* | English peppergrass |
| *Lepidium chalepense* | Lens-podded hoary cress |
| *Lepidium draba* | Heart-podded hoary cress |
| *Lepidium perfoliatum* | Round-leaved peppergrass |
| *Sisymbrium altissimum* | Tumble-mustard |
| **Caryophyllaceae** | **Pink Family** |
| *Holosteum umbellatum* subsp. *umbellatum* | Jagged chickweed |
| **Chenopodiaceae** | **Goosefoot Family** |
| *Chenopodium* sp. | Goosefoot |
| *Chenopodium hians* | Gaping goosefoot |
| *Grayia spinosa* | Spiny hopsage |
| *Kochia scoparia* subsp. *scoparia* | Summer-cypress |
| *Monolepis nuttalliana* | Nuttall's poverty weed |
| *Salsola tragus* | Russian thistle |
| **Convolvulaceae** | **Morning Glory Family** |
| *Convolvulus arvensis* | Bindweed |
| **Cupressaceae** | **Cypress Family** |
| *Juniperus occidentalis* | Western juniper |

## CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

| | |
|---|---|
| **Cyperaceae** | **Sedge Family** |
| *Carex douglasii* | Douglas' sedge |
| *Carex nebrascensis* | Nebraska sedge |
| *Eleocharis macrostachya* | Creeping spikerush |
| *Scirpus microcarpus* | Small-fruited bulrush |
| **Dipsacaceae** | **Teasel Family** |
| *Dipsacus fullonum* | Wild teasel |
| **Equisetaceae** | **Horsetail Family** |
| *Equisetum laevigatum* | Smooth scouring-rush |
| **Euphorbiaceae** | **Spurge Family** |
| *Croton setigerus* | Dove weed |
| *Euphorbia maculata* | Spotted spurge |
| *Euphorbia serpillifolia* subsp. *serpillifolia* | Thymeleaf sandmat |
| **Fabaceae** | **Legume Family** |
| *Astragalus curvicarpus* var. *curvicarpus* | Coiled locoweed |
| *Astragalus iodanthus* var. *diaphanoides* | Snake milkvetch |
| *Astragalus purshii* | Milkvetch |
| *Medicago lupulina* | Black medick |
| *Medicago sativa* | Alfalfa |
| *Melilotus indicus* | Indian sweetclover |
| *Melilotus officinalis* | Yellow sweetclover |
| *Trifolium hybridum* | Alsike clover |
| *Vicia americana* subsp. *americana* | American vetch |
| **Geraniaceae** | **Geranium Family** |
| *Erodium cicutarium* | Red-stemmed filaree |
| **Grossulariaceae** | **Gooseberry Family** |
| *Ribes velutinum* | Desert gooseberry |
| **Haloragaceae** | **Water-Milfoil Family** |
| *Myriophyllum spicatum* | Eurasian water-milfoil |
| **Juncaceae** | **Rush Family** |
| *Juncus balticus* subsp. *ater* | Baltic rush |
| **Lamiaceae** | **Mint Family** |
| *Marrubium vulgare* | Horehound |
| *Salvia aethiopis* | Mediterranean sage |
| *Scutellaria nana* | Dwarf skullcap |
| **Liliaceae** | **Lily Family** |
| *Calochortus macrocarpus* | Sagebrush mariposa lily |
| **Loasaceae** | **Loasa Family** |
| *Mentzelia dispersa* | Nada stickleaf |

## CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

| | |
|---|---|
| **Lythraceae** | **Loosestrife Family** |
| *Lythrum tribracteatum* | Three-bracted loosestrife |
| **Malvaceae** | **Mallow Family** |
| *Malva neglecta* | Common mallow |
| *Sidalcea oregana* subsp. *oregana* | Oregon checkerbloom |
| **Marsileaceae** | **Marsilea Family** |
| *Marsilea* sp. | Aquatic fern |
| **Melanthiaceae** | **False-Hellebore Family** |
| *Toxicoscordion paniculatum* | Panicled zigadene |
| **Namaceae** | **Nama Family** |
| *Nama densa* var. *densa* | Leafy nama |
| **Onagraceae** | **Evening-Primrose Family** |
| *Camissonia contorta* | Contorted sun cup |
| *Clarkia lassenensis* | Mt. Lassen clarkia |
| *Epilobium brachycarpum* | Tall annual willowherb |
| *Epilobium campestre* | Smooth spike-primrose |
| *Epilobium ciliatum* subsp. *ciliatum* | Fringed willowherb |
| *Gayophytum diffusum* subsp. *parviflorum* | Small-flowered groundsmoke |
| *Gayophytum ramosissimum* | Pinyon groundsmoke |
| *Neoholmgrenia andina* | Plateau evening-primrose |
| *Taraxia tanacetifolia* | Tansy leaf evening primrose |
| **Paeoniaceae** | **Peony Family** |
| *Paeonia brownii* | Western peony |
| **Phrymaceae** | **Lopseed Family** |
| *Diplacus nanus* | Dwarf monkey-flower |
| *Mimetanthe pilosus* | Downy mimetanthe |
| **Plantaginaceae** | **Plantain Family** |
| *Collinsia parviflora* | Small-flowered collinsia |
| *Penstemon deustus* | Hot-rock beard-tongue |
| *Penstemon rydbergii* var. *oreocharis* | Meadow beardtongue |
| *Veronica catenata* | Chain speedwell |
| **Poaceae** | **Grass Family** |
| *Agropyron cristatum* subsp. *pectinatum* | Desert crested wheatgrass |
| *Alopecurus pratensis* | Meadow foxtail |
| *Apera interrupta* | Apera |
| *Bromus commutatus* | Meadow brome |
| *Bromus inermis* | Smooth brome |
| *Bromus squarrosus* | Corn brome |
| *Bromus tectorum* | Downy brome |
| *Dactylis glomerata* | Orchard grass |
| *Distichlis spicata* | Saltgrass |
| *Elymus caput-medusae* | Medusahead |
| *Elymus cinereus* | Basin wild-rye |

# CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

| | |
|---|---|
| *Elymus elymoides* | Squirreltail |
| *Elymus lanceolatus* | Thickspike wheatgrass |
| *Elymus trachycaulis* | Slender wheatgrass |
| *Elymus triticoides* | Alkali ryegrass |
| *Hordeum brachyantherum* | Meadow barley |
| *Hordeum jubatum* subsp. *jubatum* | Foxtail barley |
| *Hordeum murinum* subsp. *glaucum* | Glaucous wall barley |
| *Hordeum murinum* subsp. *leporinum* | Hare wall barley |
| *Hordeum murinum* subsp. *murinum* | Wall barley |
| *Phalaris arundinacea* | Reed canary grass |
| *Poa bulbosa* | Bulbous bluegrass |
| *Poa compressa* | Canadian bluegrass |
| *Poa secunda* subsp. *secunda* | One-sided bluegrass |
| *Polypogon interruptus* | Ditch beardgrass |
| *Polypogon monspeliensis* | Annual beardgrass |
| *Puccinellia distans* | European alkali grass |
| *Secale cereale* | Rye |
| *Setaria* sp. | Bristlegrass |
| *Stipa comata* subsp. *comata* | Needle & thread grass |
| *Stipa hymenoides* | Indian ricegrass |
| *Ventenata dubia* | North Africa grass |
| **Polemoniaceae** | **Phlox Family** |
| *Collomia linearis* | Narrow-leaved collomia |
| *Eriastrum signatum* | Maroon-spotted Woollystar |
| *Gilia modocensis* | Modoc gilia |
| *Linanthus pungens* | Granite prickly phlox |
| *Microsteris gracilis* | Slender phlox |
| *Navarretia intertexta* subsp. *intertexta* | Needle-leaf navarretia |
| *Phlox stansburyi* | Western showy phlox |
| **Polygonaceae** | **Buckwheat Family** |
| *Eriogonum nudum* | Naked buckwheat |
| *Eriogonum strictum* var. *anserinum* | Blue mountain buckwheat |
| *Eriogonum vimineum* | Wicker buckwheat |
| *Polygonum aviculare* | Common knotweed |
| *Rumex crispus* | Curly dock |
| *Rumex triangulivavlis* | Callose-valved willow dock |
| **Ranunculaceae** | **Buttercup Family** |
| *Ranunculus aquatilis* var. *diffusus* | Water buttercup |
| *Ranunculus testiculatus* | Testiculate buttercup |
| **Rosaceae** | **Rose Family** |
| *Peraphyllum ramosissimum* | Wild crab-apple |
| *Potentilla gracilis* | Slender cinquefoil |
| *Purshia tridentata* | Antelope bush |
| **Rubiaceae** | **Madder Family** |
| *Crucianella angustifolia* | Cross-wort |

## CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

| | |
|---|---|
| **Salicaceae** | **Willow Family** |
| *Salix exigua* | Sandbar willow |
| *Salix lasiolepis* | Arroyo willow |
| **Sapindaceae** | **Soapberry Family** |
| *Acer negundo* | Box elder |
| **Scrophulariaceae** | **Snapdragon Family** |
| *Verbascum blattaria* | Moth mullein |
| *Verbascum thapsus* | Woolly mullein |
| **Solanaceae** | **Nightshade Family** |
| *Nicotiana attenuata* | Coyote tobacco |
| *Solanum triflorum* | Three-flowered nightshade |
| **Typhaceae** | **Cattail Family** |
| *Typha* sp. | Cattail |
| **Ulmaceae** | **Elm Family** |
| *Ulmus parviflora* | Chinese elm |
| **Urticaceae** | **Nettle Family** |
| *Urtica dioica* subsp. *holosericea* | Hoary creek nettle |
| **Valerianaceae** | **Valerian Family** |
| *Plectritis macrocera* | White plectritis |
| **Violaceae** | **Violet Family** |
| *Viola purpurea* | Goosefoot violet |
| **Zygophyllaceae** | **Caltrop Family** |
| *Tribulus terrestris* | Puncture vine |

# Appendix D

# Representative Photographs

Water Feature 1 (in depression behind field gear) June 12, 2023.

Water Feature 2, with overflow on left side of pond discharging to agricultural field. June 12, 2023.

Stock pond in Water Feature 4.  June 13, 2023.

Eastern site boundary with relatively denuded project site (left) exacerbating erosion.  June 13, 2023.

Typical rill erosion.  June 14, 2023.

Rill erosion of steep slope above agricultural field.  June 14, 2023.

Rill erosion in sagebrush scrub habitat. June 14, 2023.

Swainson's hawk.  July 13, 2023.

# Appendix D

## Cultural Resource Inventory Reports

NOTE TO REVIEWER: *Cultural Resources Inventory for the City of Alturas Wastewater Facilities Improvement Project* (DZC, 2020) and *Cultural Resources Inventory for the City of Alturas Wastewater Facilities Improvement Project* (DZC, 2024) are not available for public distribution. These reports identify the locations of cultural resource sites. Disclosure of this information to the public may be in violation of both federal and State laws. Applicable United States laws include, but may not be limited to, Section 304 of the National Historic Preservation Act (16 U.S.C. 470w-3). In California, such laws include, but may not be limited to, Government Code Section 6254.10. Site location information should be kept confidential and is not for public disclosure.

Additionally, records maintained or in the possession of the Native American Heritage Commission or State and local agencies that are exempt from public disclosure include those that contain information on Native American graves, cemeteries, and sacred places, and include records obtained during consultation with Native Americans (California Government Code Section 6254(r) and Section 6254.10).

Information contained in the above referenced reports related on the specific location of prehistoric and historic sites is confidential and exempt from the Freedom of Information Act (FOIA) and the California Public Records Act (CPRA); therefore, site specific cultural resource investigations are not appended to this Initial Study. Professionally qualified individuals, as determined by the California Office of Historic Preservation, may contact the City of Alturas Planning and Zoning Division directly in order to inquire about its availability.

# Appendix E

Air Quality Data

# Alturas WWTP Detailed Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | Alturas WWTP |
| Construction Start Date | 7/1/2024 |
| Operational Year | 2026 |
| Lead Agency | — |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 2.50 |
| Precipitation (days) | 39.6 |
| Location | 41.462533640207994, -120.58097409801198 |
| County | Modoc |
| City | Unincorporated |
| Air District | Modoc County APCD |
| Air Basin | Northeast Plateau |
| TAZ | 129 |
| EDFZ | 0-C |
| Electric Utility | Surprise Valley Electrification Corporation |
| Gas Utility | Tuscarora |
| App Version | 2022.1.1.21 |

## 1.2. Land Use Types

| Land Use Subtype | Size | Unit | Lot Acreage | Building Area (sq ft) | Landscape Area (sq ft) | Special Landscape Area (sq ft) | Population | Description |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| General Office Building | 1.00 | 1000sqft | 0.05 | 1,000 | 200 | — | — | — |
| General Heavy Industry | 5.00 | 1000sqft | 0.11 | 5,000 | 500 | — | — | — |
| Other Asphalt Surfaces | 0.50 | 1000sqft | 0.01 | 0.00 | 0.00 | — | — | — |
| User Defined Linear | 2.50 | Mile | 2.75 | 0.00 | — | — | — | — |

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

# 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

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

| Un/Mit. | 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. | 4.95 | 24.5 | 36.5 | 38.8 | 0.07 | 1.51 | 8.34 | 9.85 | 1.39 | 3.59 | 4.98 | — | 7,984 | 7,984 | 0.32 | 0.12 | 1.56 | 8,015 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 1.61 | 1.35 | 12.7 | 12.0 | 0.03 | 0.55 | 1.65 | 2.21 | 0.51 | 0.19 | 0.69 | — | 2,789 | 2,789 | 0.12 | 0.03 | 0.01 | 2,800 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 1.03 | 1.26 | 7.51 | 8.18 | 0.01 | 0.31 | 1.74 | 2.05 | 0.29 | 0.78 | 1.06 | — | 1,565 | 1,565 | 0.06 | 0.02 | 0.10 | 1,571 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.19 | 0.23 | 1.37 | 1.49 | < 0.005 | 0.06 | 0.32 | 0.37 | 0.05 | 0.14 | 0.19 | — | 259 | 259 | 0.01 | < 0.005 | 0.02 | 260 |

## 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 | 3.64 | 3.06 | 29.4 | 29.0 | 0.05 | 1.23 | 2.37 | 3.60 | 1.14 | 0.32 | 1.45 | — | 5,858 | 5,858 | 0.22 | 0.12 | 1.56 | 5,900 |
| 2025 | 4.95 | 24.5 | 36.5 | 38.8 | 0.07 | 1.51 | 8.34 | 9.85 | 1.39 | 3.59 | 4.98 | — | 7,984 | 7,984 | 0.32 | 0.07 | 1.10 | 8,015 |
| Daily - Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 1.61 | 1.35 | 12.7 | 12.0 | 0.03 | 0.55 | 1.65 | 2.21 | 0.51 | 0.19 | 0.69 | — | 2,789 | 2,789 | 0.12 | 0.03 | 0.01 | 2,800 |
| 2025 | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.51 | 0.43 | 4.15 | 4.11 | 0.01 | 0.17 | 0.30 | 0.47 | 0.16 | 0.04 | 0.20 | — | 809 | 809 | 0.03 | 0.02 | 0.10 | 815 |
| 2025 | 1.03 | 1.26 | 7.51 | 8.18 | 0.01 | 0.31 | 1.74 | 2.05 | 0.29 | 0.78 | 1.06 | — | 1,565 | 1,565 | 0.06 | 0.01 | 0.08 | 1,571 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 2024 | 0.09 | 0.08 | 0.76 | 0.75 | < 0.005 | 0.03 | 0.05 | 0.09 | 0.03 | 0.01 | 0.04 | — | 134 | 134 | 0.01 | < 0.005 | 0.02 | 135 |
| 2025 | 0.19 | 0.23 | 1.37 | 1.49 | < 0.005 | 0.06 | 0.32 | 0.37 | 0.05 | 0.14 | 0.19 | — | 259 | 259 | 0.01 | < 0.005 | 0.01 | 260 |

## 2.4. Operations Emissions Compared Against Thresholds

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

| Un/Mit. | 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. | 7.61 | 7.09 | 30.0 | 19.8 | 0.04 | 0.98 | 0.46 | 1.45 | 0.98 | 0.12 | 1.10 | 6.40 | 4,163 | 4,170 | 0.82 | 0.06 | 3.47 | 4,211 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 7.57 | 7.04 | 30.1 | 19.6 | 0.04 | 0.98 | 0.46 | 1.45 | 0.98 | 0.12 | 1.10 | 6.40 | 4,142 | 4,148 | 0.82 | 0.06 | 1.36 | 4,189 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 7.50 | 6.98 | 29.9 | 18.9 | 0.04 | 0.98 | 0.32 | 1.30 | 0.98 | 0.08 | 1.06 | 6.40 | 3,977 | 3,983 | 0.82 | 0.05 | 1.97 | 4,021 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 1.37 | 1.27 | 5.46 | 3.44 | 0.01 | 0.18 | 0.06 | 0.24 | 0.18 | 0.01 | 0.19 | 1.06 | 658 | 659 | 0.14 | 0.01 | 0.33 | 666 |

## 2.5. Operations Emissions by Sector, Unmitigated

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

| Sector | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 0.31 | 0.27 | 0.42 | 2.64 | 0.01 | 0.01 | 0.46 | 0.47 | 0.01 | 0.12 | 0.13 | — | 600 | 600 | 0.02 | 0.03 | 2.17 | 610 |
| Area | 0.05 | 0.21 | < 0.005 | 0.26 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 1.07 | 1.07 | < 0.005 | < 0.005 | — | 1.08 |
| Energy | 0.01 | < 0.005 | 0.07 | 0.06 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 180 | 180 | 0.01 | < 0.005 | — | 181 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 2.56 | 5.20 | 7.76 | 0.26 | 0.01 | — | 16.2 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 3.84 | 0.00 | 3.84 | 0.38 | 0.00 | — | 13.4 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.30 | 1.30 |
| Stationary | 7.25 | 6.60 | 29.5 | 16.8 | 0.03 | 0.97 | 0.00 | 0.97 | 0.97 | 0.00 | 0.97 | 0.00 | 3,377 | 3,377 | 0.14 | 0.03 | 0.00 | 3,388 |
| Total | 7.61 | 7.09 | 30.0 | 19.8 | 0.04 | 0.98 | 0.46 | 1.45 | 0.98 | 0.12 | 1.10 | 6.40 | 4,163 | 4,170 | 0.82 | 0.06 | 3.47 | 4,211 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 0.31 | 0.27 | 0.51 | 2.75 | 0.01 | 0.01 | 0.46 | 0.47 | 0.01 | 0.12 | 0.13 | — | 580 | 580 | 0.03 | 0.03 | 0.06 | 589 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area | — | 0.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Energy | 0.01 | < 0.005 | 0.07 | 0.06 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 180 | 180 | 0.01 | < 0.005 | — | 181 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 2.56 | 5.20 | 7.76 | 0.26 | 0.01 | — | 16.2 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 3.84 | 0.00 | 3.84 | 0.38 | 0.00 | — | 13.4 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.30 | 1.30 |
| Stationary | 7.25 | 6.60 | 29.5 | 16.8 | 0.03 | 0.97 | 0.00 | 0.97 | 0.97 | 0.00 | 0.97 | 0.00 | 3,377 | 3,377 | 0.14 | 0.03 | 0.00 | 3,388 |
| Total | 7.57 | 7.04 | 30.1 | 19.6 | 0.04 | 0.98 | 0.46 | 1.45 | 0.98 | 0.12 | 1.10 | 6.40 | 4,142 | 4,148 | 0.82 | 0.06 | 1.36 | 4,189 |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 0.22 | 0.19 | 0.33 | 1.86 | < 0.005 | 0.01 | 0.32 | 0.32 | 0.01 | 0.08 | 0.09 | — | 414 | 414 | 0.02 | 0.02 | 0.66 | 421 |
| Area | 0.02 | 0.19 | < 0.005 | 0.13 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 0.53 | 0.53 | < 0.005 | < 0.005 | — | 0.53 |
| Energy | 0.01 | < 0.005 | 0.07 | 0.06 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 180 | 180 | 0.01 | < 0.005 | — | 181 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 2.56 | 5.20 | 7.76 | 0.26 | 0.01 | — | 16.2 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 3.84 | 0.00 | 3.84 | 0.38 | 0.00 | — | 13.4 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.30 | 1.30 |
| Stationary | 7.25 | 6.60 | 29.5 | 16.8 | 0.03 | 0.97 | 0.00 | 0.97 | 0.97 | 0.00 | 0.97 | 0.00 | 3,377 | 3,377 | 0.14 | 0.03 | 0.00 | 3,388 |
| Total | 7.50 | 6.98 | 29.9 | 18.9 | 0.04 | 0.98 | 0.32 | 1.30 | 0.98 | 0.08 | 1.06 | 6.40 | 3,977 | 3,983 | 0.82 | 0.05 | 1.97 | 4,021 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Mobile | 0.04 | 0.03 | 0.06 | 0.34 | < 0.005 | < 0.005 | 0.06 | 0.06 | < 0.005 | 0.01 | 0.02 | — | 68.5 | 68.5 | < 0.005 | < 0.005 | 0.11 | 69.7 |
| Area | < 0.005 | 0.03 | < 0.005 | 0.02 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 0.09 | 0.09 | < 0.005 | < 0.005 | — | 0.09 |
| Energy | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 29.9 | 29.9 | < 0.005 | < 0.005 | — | 30.0 |
| Water | — | — | — | — | — | — | — | — | — | — | — | 0.42 | 0.86 | 1.28 | 0.04 | < 0.005 | — | 2.68 |
| Waste | — | — | — | — | — | — | — | — | — | — | — | 0.64 | 0.00 | 0.64 | 0.06 | 0.00 | — | 2.23 |
| Refrig. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.22 | 0.22 |
| Stationary | 1.32 | 1.20 | 5.39 | 3.07 | 0.01 | 0.18 | 0.00 | 0.18 | 0.18 | 0.00 | 0.18 | 0.00 | 559 | 559 | 0.02 | < 0.005 | 0.00 | 561 |
| Total | 1.37 | 1.27 | 5.46 | 3.44 | 0.01 | 0.18 | 0.06 | 0.24 | 0.18 | 0.01 | 0.19 | 1.06 | 658 | 659 | 0.14 | 0.01 | 0.33 | 666 |

# 3. Construction Emissions Details

## 3.1. Linear, Grubbing & Land Clearing (2025) - 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 | 0.43 | 0.36 | 3.06 | 3.66 | 0.01 | 0.17 | — | 0.17 | 0.16 | — | 0.16 | — | 568 | 568 | 0.02 | < 0.005 | — | 570 |
| Dust From Material Movement | — | — | — | — | — | — | 0.53 | 0.53 | — | 0.06 | 0.06 | — | — | — | — | — | — | — |
| 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 | 0.01 | 0.01 | 0.07 | 0.08 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 12.5 | 12.5 | < 0.005 | < 0.005 | — | 12.5 |
| Dust From Material Movement | — | — | — | — | — | — | 0.01 | 0.01 | — | < 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 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 2.06 | 2.06 | < 0.005 | < 0.005 | — | 2.07 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.02 | 0.01 | 0.01 | 0.17 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 25.1 | 25.1 | < 0.005 | < 0.005 | 0.09 | 25.5 |
| 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 | < 0.005 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.53 | 0.53 | < 0.005 | < 0.005 | < 0.005 | 0.54 |
| 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 | — | 0.09 | 0.09 | < 0.005 | < 0.005 | < 0.005 | 0.09 |
| 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. Linear, Grading & Excavation (2025) - 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 | 1.07 | 0.90 | 7.96 | 6.91 | 0.02 | 0.31 | — | 0.31 | 0.29 | — | 0.29 | — | 2,076 | 2,076 | 0.08 | 0.02 | — | 2,083 |
| Dust From Material Movement | — | — | — | — | — | — | 1.06 | 1.06 | — | 0.11 | 0.11 | — | — | — | — | — | — | — |
| 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 | 0.13 | 0.11 | 1.00 | 0.87 | < 0.005 | 0.04 | — | 0.04 | 0.04 | — | 0.04 | — | 262 | 262 | 0.01 | < 0.005 | — | 262 |
| Dust From Material Movement | — | — | — | — | — | — | 0.13 | 0.13 | — | 0.01 | 0.01 | — | — | — | — | — | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.02 | 0.18 | 0.16 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 43.3 | 43.3 | < 0.005 | < 0.005 | — | 43.5 |
| Dust From Material Movement | — | — | — | — | — | — | 0.02 | 0.02 | — | < 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.03 | 0.03 | 0.02 | 0.34 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.01 | 0.01 | — | 50.3 | 50.3 | < 0.005 | < 0.005 | 0.18 | 51.0 |
| 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 | 0.04 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 6.11 | 6.11 | < 0.005 | < 0.005 | 0.01 | 6.20 |
| 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 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 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 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.01 | 1.01 | < 0.005 | < 0.005 | < 0.005 | 1.03 |
| 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 |

## 3.5. Linear, Drainage, Utilities, & Sub-Grade (2025) - 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 | 0.45 | 0.38 | 3.71 | 4.01 | 0.01 | 0.15 | — | 0.15 | 0.14 | — | 0.14 | — | 997 | 997 | 0.04 | 0.01 | — | 1,000 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 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 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.03 | 0.03 | 0.27 | 0.30 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 73.7 | 73.7 | < 0.005 | < 0.005 | — | 74.0 |
| Dust From Material Movement | — | — | — | — | — | — | 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 | 0.01 | 0.05 | 0.05 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 12.2 | 12.2 | < 0.005 | < 0.005 | — | 12.3 |
| Dust From Material Movement | — | — | — | — | — | — | 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.03 | 0.03 | 0.02 | 0.34 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.01 | 0.01 | — | 50.3 | 50.3 | < 0.005 | < 0.005 | 0.18 | 51.0 |
| 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 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.59 | 3.59 | < 0.005 | < 0.005 | 0.01 | 3.64 |
| 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 | — | 0.59 | 0.59 | < 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 |

## 3.7. Linear, Paving (2025) - 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 | 0.48 | 0.40 | 3.73 | 4.99 | 0.01 | 0.17 | — | 0.17 | 0.16 | — | 0.16 | — | 756 | 756 | 0.03 | 0.01 | — | 758 |
| 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 | 0.02 | 0.02 | 0.14 | 0.19 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 29.0 | 29.0 | < 0.005 | < 0.005 | — | 29.1 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | < 0.005 | < 0.005 | 0.03 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 4.80 | 4.80 | < 0.005 | < 0.005 | — | 4.82 |
| 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 | 0.04 | 0.04 | 0.50 | 0.00 | 0.00 | 0.06 | 0.06 | 0.00 | 0.01 | 0.01 | — | 75.4 | 75.4 | < 0.005 | < 0.005 | 0.27 | 76.5 |
| 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 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.79 | 2.79 | < 0.005 | < 0.005 | < 0.005 | 2.83 |
| 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 | — | 0.46 | 0.46 | < 0.005 | < 0.005 | < 0.005 | 0.47 |
| 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. 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 1.92 | 1.61 | 15.6 | 16.0 | 0.02 | 0.67 | — | 0.67 | 0.62 | — | 0.62 | — | 2,494 | 2,494 | 0.10 | 0.02 | — | 2,502 |
| Demolition | — | — | — | — | — | — | 0.50 | 0.50 | — | 0.08 | 0.08 | — | — | — | — | — | — | — |
| 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 | 0.32 | 0.26 | 2.56 | 2.64 | < 0.005 | 0.11 | — | 0.11 | 0.10 | — | 0.10 | — | 410 | 410 | 0.02 | < 0.005 | — | 411 |
| Demolition | — | — | — | — | — | — | 0.08 | 0.08 | — | 0.01 | 0.01 | — | — | — | — | — | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.06 | 0.05 | 0.47 | 0.48 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 67.9 | 67.9 | < 0.005 | < 0.005 | — | 68.1 |
| Demolition | — | — | — | — | — | — | 0.01 | 0.01 | — | < 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.09 | 0.08 | 0.06 | 0.91 | 0.00 | 0.00 | 0.11 | 0.11 | 0.00 | 0.02 | 0.02 | — | 128 | 128 | 0.01 | < 0.005 | 0.49 | 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 | 0.02 | 0.02 | 1.09 | 0.09 | 0.01 | 0.01 | 0.11 | 0.12 | 0.01 | 0.03 | 0.04 | — | 443 | 443 | < 0.005 | 0.07 | 0.77 | 465 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.01 | 0.01 | 0.01 | 0.15 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 20.3 | 20.3 | < 0.005 | < 0.005 | 0.04 | 20.6 |
| 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 | < 0.005 | < 0.005 | 0.18 | 0.02 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | 0.01 | — | 72.8 | 72.8 | < 0.005 | 0.01 | 0.05 | 76.3 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.37 | 3.37 | < 0.005 | < 0.005 | 0.01 | 3.41 |
| 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 | 0.03 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 12.1 | 12.1 | < 0.005 | < 0.005 | 0.01 | 12.6 |

## 3.11. Site Preparation (2024) - Unmitigated

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

| Location | 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 | 1.56 | 1.31 | 12.7 | 11.4 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,716 | 2,716 | 0.11 | 0.02 | — | 2,725 |
| Dust From Material Movement | — | — | — | — | — | — | 1.59 | 1.59 | — | 0.17 | 0.17 | — | — | — | — | — | — | — |
| 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 | 1.56 | 1.31 | 12.7 | 11.4 | 0.03 | 0.55 | — | 0.55 | 0.51 | — | 0.51 | — | 2,716 | 2,716 | 0.11 | 0.02 | — | 2,725 |
| Dust From Material Movement | — | — | — | — | — | — | 1.59 | 1.59 | — | 0.17 | 0.17 | — | — | — | — | — | — | — |
| 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 | 0.17 | 0.14 | 1.39 | 1.25 | < 0.005 | 0.06 | — | 0.06 | 0.06 | — | 0.06 | — | 298 | 298 | 0.01 | < 0.005 | — | 299 |
| Dust From Material Movement | — | — | — | — | — | — | 0.17 | 0.17 | — | 0.02 | 0.02 | — | — | — | — | — | — | — |
| 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 | 0.03 | 0.03 | 0.25 | 0.23 | < 0.005 | 0.01 | — | 0.01 | 0.01 | — | 0.01 | — | 49.3 | 49.3 | < 0.005 | < 0.005 | — | 49.4 |
| Dust From Material Movement | — | — | — | — | — | — | 0.03 | 0.03 | — | < 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.05 | 0.05 | 0.04 | 0.55 | 0.00 | 0.00 | 0.06 | 0.06 | 0.00 | 0.01 | 0.01 | — | 76.9 | 76.9 | < 0.005 | < 0.005 | 0.30 | 78.1 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.05 | 0.05 | 0.06 | 0.57 | 0.00 | 0.00 | 0.06 | 0.06 | 0.00 | 0.01 | 0.01 | — | 73.4 | 73.4 | < 0.005 | < 0.005 | 0.01 | 74.9 |
| 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 | 0.01 | < 0.005 | 0.01 | 0.06 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 8.13 | 8.13 | < 0.005 | < 0.005 | 0.01 | 8.24 |
| 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 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.35 | 1.35 | < 0.005 | < 0.005 | < 0.005 | 1.36 |
| 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 |

## 3.13. Grading (2025) - 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 | 1.80 | 1.51 | 14.1 | 14.5 | 0.02 | 0.64 | — | 0.64 | 0.59 | — | 0.59 | — | 2,455 | 2,455 | 0.10 | 0.02 | — | 2,463 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dust From Material Movement | — | — | — | — | — | — | 7.08 | 7.08 | — | 3.42 | 3.42 | — | — | — | — | — | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.39 | 0.33 | 3.08 | 3.18 | < 0.005 | 0.14 | — | 0.14 | 0.13 | — | 0.13 | — | 538 | 538 | 0.02 | < 0.005 | — | 540 |
| Dust From Material Movement | — | — | — | — | — | — | 1.55 | 1.55 | — | 0.75 | 0.75 | — | — | — | — | — | — | — |
| 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 | 0.07 | 0.06 | 0.56 | 0.58 | < 0.005 | 0.03 | — | 0.03 | 0.02 | — | 0.02 | — | 89.1 | 89.1 | < 0.005 | < 0.005 | — | 89.4 |
| Dust From Material Movement | — | — | — | — | — | — | 0.28 | 0.28 | — | 0.14 | 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 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.07 | 0.06 | 0.05 | 0.67 | 0.00 | 0.00 | 0.08 | 0.08 | 0.00 | 0.02 | 0.02 | — | 101 | 101 | 0.01 | < 0.005 | 0.37 | 102 |
| 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 | 0.01 | 0.01 | 0.01 | 0.14 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 21.3 | 21.3 | < 0.005 | < 0.005 | 0.03 | 21.6 |
| 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 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 3.52 | 3.52 | < 0.005 | < 0.005 | 0.01 | 3.57 |
| 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 |

## 3.15. Building Construction (2025) - Unmitigated

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

| Location | 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 | 1.49 | 1.24 | 10.6 | 11.9 | 0.02 | 0.40 | — | 0.40 | 0.37 | — | 0.37 | — | 2,201 | 2,201 | 0.09 | 0.02 | — | 2,209 |
| 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 | 0.39 | 0.32 | 2.76 | 3.09 | 0.01 | 0.11 | — | 0.11 | 0.10 | — | 0.10 | — | 573 | 573 | 0.02 | < 0.005 | — | 575 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.07 | 0.06 | 0.50 | 0.56 | < 0.005 | 0.02 | — | 0.02 | 0.02 | — | 0.02 | — | 94.9 | 94.9 | < 0.005 | < 0.005 | — | 95.2 |
| 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 | 0.02 | 0.01 | 0.01 | 0.16 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | < 0.005 | < 0.005 | — | 24.3 | 24.3 | < 0.005 | < 0.005 | 0.09 | 24.7 |
| Vendor | < 0.005 | < 0.005 | 0.06 | 0.02 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 29.9 | 29.9 | < 0.005 | < 0.005 | 0.08 | 31.2 |
| Hauling | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | < 0.005 | < 0.005 | < 0.005 | 0.04 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | < 0.005 | < 0.005 | — | 6.11 | 6.11 | < 0.005 | < 0.005 | 0.01 | 6.19 |
| Vendor | < 0.005 | < 0.005 | 0.02 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 7.79 | 7.79 | < 0.005 | < 0.005 | 0.01 | 8.12 |
| 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 | 0.01 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 1.01 | 1.01 | < 0.005 | < 0.005 | < 0.005 | 1.03 |
| Vendor | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | 1.29 | 1.29 | < 0.005 | < 0.005 | < 0.005 | 1.34 |
| Hauling | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 3.17. Paving (2025) - 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 | 0.83 | 0.70 | 6.13 | 8.21 | 0.01 | 0.27 | — | 0.27 | 0.25 | — | 0.25 | — | 1,244 | 1,244 | 0.05 | 0.01 | — | 1,248 |
| Paving | — | 1.03 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 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 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Average Daily | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Off-Road Equipment | 0.02 | 0.01 | 0.12 | 0.16 | < 0.005 | 0.01 | — | 0.01 | < 0.005 | — | < 0.005 | — | 23.9 | 23.9 | < 0.005 | < 0.005 | — | 23.9 |
| Paving | — | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 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 | 0.03 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 3.95 | 3.95 | < 0.005 | < 0.005 | — | 3.96 |
| Paving | — | < 0.005 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Onsite truck | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Offsite | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Worker | 0.10 | 0.09 | 0.07 | 1.01 | 0.00 | 0.00 | 0.13 | 0.13 | 0.00 | 0.03 | 0.03 | — | 151 | 151 | 0.01 | 0.01 | 0.55 | 153 |
| 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 | 0.02 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 2.79 | 2.79 | < 0.005 | < 0.005 | < 0.005 | 2.83 |
| 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 | — | 0.46 | 0.46 | < 0.005 | < 0.005 | < 0.005 | 0.47 |
| 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 |

## 3.19. Architectural Coating (2025) - 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 | 0.15 | 0.13 | 0.88 | 1.14 | < 0.005 | 0.03 | — | 0.03 | 0.03 | — | 0.03 | — | 134 | 134 | 0.01 | < 0.005 | — | 134 |
| Architectural Coatings | — | 19.9 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 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 | < 0.005 | < 0.005 | 0.02 | 0.02 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 2.56 | 2.56 | < 0.005 | < 0.005 | — | 2.57 |
| Architectural Coatings | — | 0.38 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 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 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 0.42 | 0.42 | < 0.005 | < 0.005 | — | 0.43 |
| Architectural Coatings | — | 0.07 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 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 | < 0.005 | < 0.005 | < 0.005 | 0.03 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 4.86 | 4.86 | < 0.005 | < 0.005 | 0.02 | 4.94 |
| 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 | < 0.005 | 0.00 | 0.00 | < 0.005 | < 0.005 | 0.00 | < 0.005 | < 0.005 | — | 0.09 | 0.09 | < 0.005 | < 0.005 | < 0.005 | 0.09 |
| 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 | — | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | 0.02 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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

## 4.1. Mobile Emissions by Land Use

### 4.1.1. Unmitigated

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

| Land Use | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | 0.07 | 0.06 | 0.10 | 0.61 | < 0.005 | < 0.005 | 0.11 | 0.11 | < 0.005 | 0.03 | 0.03 | — | 140 | 140 | 0.01 | 0.01 | 0.50 | 142 |
| General Heavy Industry | 0.24 | 0.21 | 0.32 | 2.03 | < 0.005 | 0.01 | 0.35 | 0.36 | 0.01 | 0.09 | 0.10 | — | 460 | 460 | 0.02 | 0.02 | 1.66 | 468 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.31 | 0.27 | 0.42 | 2.64 | 0.01 | 0.01 | 0.46 | 0.47 | 0.01 | 0.12 | 0.13 | — | 600 | 600 | 0.02 | 0.03 | 2.17 | 610 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | 0.07 | 0.06 | 0.12 | 0.64 | < 0.005 | < 0.005 | 0.11 | 0.11 | < 0.005 | 0.03 | 0.03 | — | 135 | 135 | 0.01 | 0.01 | 0.01 | 137 |
| General Heavy Industry | 0.24 | 0.21 | 0.39 | 2.11 | < 0.005 | 0.01 | 0.35 | 0.36 | 0.01 | 0.09 | 0.10 | — | 445 | 445 | 0.02 | 0.02 | 0.04 | 452 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.31 | 0.27 | 0.51 | 2.75 | 0.01 | 0.01 | 0.46 | 0.47 | 0.01 | 0.12 | 0.13 | — | 580 | 580 | 0.03 | 0.03 | 0.06 | 589 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | 0.01 | 0.01 | 0.01 | 0.08 | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | < 0.005 | — | 17.1 | 17.1 | < 0.005 | < 0.005 | 0.03 | 17.3 |
| General Heavy Industry | 0.03 | 0.03 | 0.04 | 0.25 | < 0.005 | < 0.005 | 0.04 | 0.04 | < 0.005 | 0.01 | 0.01 | — | 51.5 | 51.5 | < 0.005 | < 0.005 | 0.08 | 52.3 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.04 | 0.03 | 0.06 | 0.34 | < 0.005 | < 0.005 | 0.06 | 0.06 | < 0.005 | 0.01 | 0.02 | — | 68.5 | 68.5 | < 0.005 | < 0.005 | 0.11 | 69.7 |

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

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

| Land Use | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | 28.8 | 28.8 | < 0.005 | < 0.005 | — | 28.9 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | — | 73.4 | 73.4 | 0.01 | < 0.005 | — | 73.7 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 102 | 102 | 0.01 | < 0.005 | — | 103 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | 28.8 | 28.8 | < 0.005 | < 0.005 | — | 28.9 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | — | 73.4 | 73.4 | 0.01 | < 0.005 | — | 73.7 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 102 | 102 | 0.01 | < 0.005 | — | 103 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | 4.76 | 4.76 | < 0.005 | < 0.005 | — | 4.78 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | — | 12.2 | 12.2 | < 0.005 | < 0.005 | — | 12.2 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | 16.9 | 16.9 | < 0.005 | < 0.005 | — | 17.0 |

### 4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

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

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| General Office Building | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 12.5 | 12.5 | < 0.005 | < 0.005 | — | 12.5 |
| General Heavy Industry | 0.01 | < 0.005 | 0.06 | 0.05 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 65.7 | 65.7 | 0.01 | < 0.005 | — | 65.9 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.01 | < 0.005 | 0.07 | 0.06 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 78.2 | 78.2 | 0.01 | < 0.005 | — | 78.5 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 12.5 | 12.5 | < 0.005 | < 0.005 | — | 12.5 |
| General Heavy Industry | 0.01 | < 0.005 | 0.06 | 0.05 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 65.7 | 65.7 | 0.01 | < 0.005 | — | 65.9 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | 0.01 | < 0.005 | 0.07 | 0.06 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 78.2 | 78.2 | 0.01 | < 0.005 | — | 78.5 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 2.07 | 2.07 | < 0.005 | < 0.005 | — | 2.08 |
| General Heavy Industry | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 10.9 | 10.9 | < 0.005 | < 0.005 | — | 10.9 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 | 0.00 | — | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | < 0.005 | < 0.005 | 0.01 | 0.01 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 13.0 | 13.0 | < 0.005 | < 0.005 | — | 13.0 |

## 4.3. Area Emissions by Source

### 4.3.1. Unmitigated

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

| Source | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Consumer Products | — | 0.13 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Landscape Equipment | 0.05 | 0.04 | < 0.005 | 0.26 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 1.07 | 1.07 | < 0.005 | < 0.005 | — | 1.08 |
| Total | 0.05 | 0.21 | < 0.005 | 0.26 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 1.07 | 1.07 | < 0.005 | < 0.005 | — | 1.08 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Consumer Products | — | 0.13 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Architectural Coatings | — | 0.04 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | — | 0.17 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Consumer Products | — | 0.02 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Architectural | — | 0.01 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Landscape Equipment | < 0.005 | < 0.005 | < 0.005 | 0.02 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 0.09 | 0.09 | < 0.005 | < 0.005 | — | 0.09 |
| Total | < 0.005 | 0.03 | < 0.005 | 0.02 | < 0.005 | < 0.005 | — | < 0.005 | < 0.005 | — | < 0.005 | — | 0.09 | 0.09 | < 0.005 | < 0.005 | — | 0.09 |

## 4.4. Water Emissions by Land Use

### 4.4.1. Unmitigated

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

| Land Use | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | 0.34 | 0.70 | 1.04 | 0.03 | < 0.005 | — | 2.16 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | 2.22 | 4.51 | 6.72 | 0.23 | 0.01 | — | 14.0 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 2.56 | 5.20 | 7.76 | 0.26 | 0.01 | — | 16.2 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | 0.34 | 0.70 | 1.04 | 0.03 | < 0.005 | — | 2.16 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | 2.22 | 4.51 | 6.72 | 0.23 | 0.01 | — | 14.0 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 2.56 | 5.20 | 7.76 | 0.26 | 0.01 | — | 16.2 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | 0.06 | 0.12 | 0.17 | 0.01 | < 0.005 | — | 0.36 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | 0.37 | 0.75 | 1.11 | 0.04 | < 0.005 | — | 2.32 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 0.42 | 0.86 | 1.28 | 0.04 | < 0.005 | — | 2.68 |

## 4.5. Waste Emissions by Land Use

### 4.5.1. Unmitigated

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

| Land Use | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | 0.50 | 0.00 | 0.50 | 0.05 | 0.00 | — | 1.75 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | 3.34 | 0.00 | 3.34 | 0.33 | 0.00 | — | 11.7 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 3.84 | 0.00 | 3.84 | 0.38 | 0.00 | — | 13.4 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | 0.50 | 0.00 | 0.50 | 0.05 | 0.00 | — | 1.75 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | 3.34 | 0.00 | 3.34 | 0.33 | 0.00 | — | 11.7 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 3.84 | 0.00 | 3.84 | 0.38 | 0.00 | — | 13.4 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | 0.08 | 0.00 | 0.08 | 0.01 | 0.00 | — | 0.29 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | 0.55 | 0.00 | 0.55 | 0.06 | 0.00 | — | 1.94 |
| Other Asphalt Surfaces | — | — | — | — | — | — | — | — | — | — | — | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |
| Total | — | — | — | — | — | — | — | — | — | — | — | 0.64 | 0.00 | 0.64 | 0.06 | 0.00 | — | 2.23 |

## 4.6. Refrigerant Emissions by Land Use

### 4.6.1. Unmitigated

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

| Land Use | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | < 0.005 | < 0.005 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.30 | 1.30 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.30 | 1.30 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | < 0.005 | < 0.005 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.30 | 1.30 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 1.30 | 1.30 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| General Office Building | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | < 0.005 | < 0.005 |
| General Heavy Industry | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.22 | 0.22 |
| Total | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | 0.22 | 0.22 |

## 4.7. Offroad Emissions By Equipment Type

### 4.7.1. Unmitigated

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

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

## 4.8. Stationary Emissions By Equipment Type

### 4.8.1. Unmitigated

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

| Equipment Type | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Emergency Generator | 7.25 | 6.60 | 29.5 | 16.8 | 0.03 | 0.97 | 0.00 | 0.97 | 0.97 | 0.00 | 0.97 | 0.00 | 3,377 | 3,377 | 0.14 | 0.03 | 0.00 | 3,388 |
| Total | 7.25 | 6.60 | 29.5 | 16.8 | 0.03 | 0.97 | 0.00 | 0.97 | 0.97 | 0.00 | 0.97 | 0.00 | 3,377 | 3,377 | 0.14 | 0.03 | 0.00 | 3,388 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Generator | 7.25 | 6.60 | 29.5 | 16.8 | 0.03 | 0.97 | 0.00 | 0.97 | 0.97 | 0.00 | 0.97 | 0.00 | 3,377 | 3,377 | 0.14 | 0.03 | 0.00 | 3,388 |
| Total | 7.25 | 6.60 | 29.5 | 16.8 | 0.03 | 0.97 | 0.00 | 0.97 | 0.97 | 0.00 | 0.97 | 0.00 | 3,377 | 3,377 | 0.14 | 0.03 | 0.00 | 3,388 |
| Annual | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Emergency Generator | 1.32 | 1.20 | 5.39 | 3.07 | 0.01 | 0.18 | 0.00 | 0.18 | 0.18 | 0.00 | 0.18 | 0.00 | 559 | 559 | 0.02 | < 0.005 | 0.00 | 561 |
| Total | 1.32 | 1.20 | 5.39 | 3.07 | 0.01 | 0.18 | 0.00 | 0.18 | 0.18 | 0.00 | 0.18 | 0.00 | 559 | 559 | 0.02 | < 0.005 | 0.00 | 561 |

## 4.9. User Defined Emissions By Equipment Type

### 4.9.1. Unmitigated

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

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

## 4.10. Soil Carbon Accumulation By Vegetation Type

### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

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

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

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

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Remove | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| 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 |
|---|---|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | Linear, Grubbing & Land Clearing | 6/3/2025 | 6/12/2025 | 5.00 | 8.00 | — |
| Linear, Grading & Excavation | Linear, Grading & Excavation | 6/13/2025 | 8/16/2025 | 5.00 | 46.0 | — |
| Linear, Drainage, Utilities, & Sub-Grade | Linear, Drainage, Utilities, & Sub-Grade | 7/22/2025 | 8/27/2025 | 5.00 | 27.0 | — |
| Linear, Paving | Linear, Paving | 8/19/2025 | 9/7/2025 | 5.00 | 14.0 | — |
| Demolition | Demolition | 7/1/2024 | 9/20/2024 | 5.00 | 60.0 | — |
| Site Preparation | Site Preparation | 8/13/2024 | 10/7/2024 | 5.00 | 40.0 | — |
| Grading | Grading | 4/15/2025 | 8/4/2025 | 5.00 | 80.0 | — |
| Building Construction | Building Construction | 5/13/2025 | 9/22/2025 | 5.00 | 95.0 | — |
| Paving | Paving | 8/5/2025 | 8/13/2025 | 5.00 | 7.00 | — |
| Architectural Coating | Architectural Coating | 8/12/2025 | 8/20/2025 | 5.00 | 7.00 | — |

## 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 |
|---|---|---|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | Graders | Diesel | Average | 1.00 | 8.00 | 148 | 0.41 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Linear, Grading & Excavation | Scrapers | Diesel | Average | 1.00 | 8.00 | 423 | 0.48 |
| Linear, Grading & Excavation | Trenchers | Diesel | Average | 1.00 | 7.00 | 40.0 | 0.50 |
| Linear, Drainage, Utilities, & Sub-Grade | Cranes | Diesel | Average | 1.00 | 6.00 | 367 | 0.29 |
| Linear, Drainage, Utilities, & Sub-Grade | Tractors/Loaders/Backhoes | Diesel | Average | 1.00 | 7.00 | 84.0 | 0.37 |
| Linear, Paving | Pavers | Diesel | Average | 1.00 | 8.00 | 81.0 | 0.42 |
| Linear, Paving | Paving Equipment | Diesel | Average | 1.00 | 8.00 | 89.0 | 0.36 |
| Linear, Paving | Rollers | Diesel | Average | 1.00 | 8.00 | 36.0 | 0.38 |
| Demolition | Tractors/Loaders/Backhoes | Diesel | Average | 3.00 | 8.00 | 84.0 | 0.37 |
| Demolition | Rubber Tired Dozers | Diesel | Average | 1.00 | 8.00 | 367 | 0.40 |
| Demolition | Concrete/Industrial Saws | Diesel | Average | 1.00 | 8.00 | 33.0 | 0.73 |
| Site Preparation | Graders | Diesel | Average | 1.00 | 8.00 | 148 | 0.41 |
| Site Preparation | Scrapers | Diesel | Average | 1.00 | 8.00 | 423 | 0.48 |
| Site Preparation | Tractors/Loaders/Backhoes | Diesel | Average | 1.00 | 7.00 | 84.0 | 0.37 |
| Grading | Graders | Diesel | Average | 1.00 | 8.00 | 148 | 0.41 |
| Grading | Rubber Tired Dozers | Diesel | Average | 1.00 | 8.00 | 367 | 0.40 |
| Grading | Tractors/Loaders/Backhoes | Diesel | Average | 2.00 | 7.00 | 84.0 | 0.37 |
| Building Construction | Cranes | Diesel | Average | 1.00 | 8.00 | 367 | 0.29 |
| Building Construction | Forklifts | Diesel | Average | 2.00 | 7.00 | 82.0 | 0.20 |
| Building Construction | Generator Sets | Diesel | Average | 1.00 | 8.00 | 14.0 | 0.74 |
| Building Construction | Tractors/Loaders/Backhoes | Diesel | Average | 1.00 | 6.00 | 84.0 | 0.37 |
| Building Construction | Welders | Diesel | Average | 3.00 | 8.00 | 46.0 | 0.45 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Paving | Tractors/Loaders/Backhoes | Diesel | Average | 1.00 | 8.00 | 84.0 | 0.37 |
| Paving | Pavers | Diesel | Average | 1.00 | 8.00 | 81.0 | 0.42 |
| Paving | Paving Equipment | Diesel | Average | 1.00 | 8.00 | 89.0 | 0.36 |
| Paving | Rollers | Diesel | Average | 2.00 | 8.00 | 36.0 | 0.38 |
| Paving | Cement and Mortar Mixers | Diesel | Average | 1.00 | 8.00 | 10.0 | 0.56 |
| Architectural Coating | Air Compressors | Diesel | Average | 1.00 | 6.00 | 37.0 | 0.48 |

## 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 | 12.5 | 11.9 | LDA,LDT1,LDT2 |
| Demolition | Vendor | — | 9.03 | HHDT,MHDT |
| Demolition | Hauling | 5.75 | 20.0 | HHDT |
| Demolition | Onsite truck | — | — | HHDT |
| Site Preparation | — | — | — | — |
| Site Preparation | Worker | 7.50 | 11.9 | LDA,LDT1,LDT2 |
| Site Preparation | Vendor | — | 9.03 | HHDT,MHDT |
| Site Preparation | Hauling | 0.00 | 20.0 | HHDT |
| Site Preparation | Onsite truck | — | — | HHDT |
| Grading | — | — | — | — |
| Grading | Worker | 10.0 | 11.9 | LDA,LDT1,LDT2 |
| Grading | Vendor | — | 9.03 | HHDT,MHDT |
| Grading | Hauling | 0.00 | 20.0 | HHDT |
| Grading | Onsite truck | — | — | HHDT |

| | | | | |
|---|---|---|---|---|
| Building Construction | — | — | — | — |
| Building Construction | Worker | 2.42 | 11.9 | LDA,LDT1,LDT2 |
| Building Construction | Vendor | 0.98 | 9.03 | HHDT,MHDT |
| Building Construction | Hauling | 0.00 | 20.0 | HHDT |
| Building Construction | Onsite truck | — | — | HHDT |
| Paving | — | — | — | — |
| Paving | Worker | 15.0 | 11.9 | LDA,LDT1,LDT2 |
| Paving | Vendor | — | 9.03 | HHDT,MHDT |
| Paving | Hauling | 0.00 | 20.0 | HHDT |
| Paving | Onsite truck | — | — | HHDT |
| Architectural Coating | — | — | — | — |
| Architectural Coating | Worker | 0.48 | 11.9 | LDA,LDT1,LDT2 |
| Architectural Coating | Vendor | — | 9.03 | HHDT,MHDT |
| Architectural Coating | Hauling | 0.00 | 20.0 | HHDT |
| Architectural Coating | Onsite truck | — | — | HHDT |
| Linear, Grubbing & Land Clearing | — | — | — | — |
| Linear, Grubbing & Land Clearing | Worker | 2.50 | 11.9 | LDA,LDT1,LDT2 |
| Linear, Grubbing & Land Clearing | Vendor | 0.00 | 9.03 | HHDT,MHDT |
| Linear, Grubbing & Land Clearing | Hauling | 0.00 | 20.0 | HHDT |
| Linear, Grubbing & Land Clearing | Onsite truck | — | — | HHDT |
| Linear, Grading & Excavation | — | — | — | — |
| Linear, Grading & Excavation | Worker | 5.00 | 11.9 | LDA,LDT1,LDT2 |
| Linear, Grading & Excavation | Vendor | 0.00 | 9.03 | HHDT,MHDT |
| Linear, Grading & Excavation | Hauling | 0.00 | 20.0 | HHDT |
| Linear, Grading & Excavation | Onsite truck | — | — | HHDT |
| Linear, Drainage, Utilities, & Sub-Grade | — | — | — | — |
| Linear, Drainage, Utilities, & Sub-Grade | Worker | 5.00 | 11.9 | LDA,LDT1,LDT2 |

| | | | | |
|---|---|---|---|---|
| Linear, Drainage, Utilities, & Sub-Grade | Vendor | 0.00 | 9.03 | HHDT,MHDT |
| Linear, Drainage, Utilities, & Sub-Grade | Hauling | 0.00 | 20.0 | HHDT |
| Linear, Drainage, Utilities, & Sub-Grade | Onsite truck | — | — | HHDT |
| Linear, Paving | — | — | — | — |
| Linear, Paving | Worker | 7.50 | 11.9 | LDA,LDT1,LDT2 |
| Linear, Paving | Vendor | 0.00 | 9.03 | HHDT,MHDT |
| Linear, Paving | Hauling | 0.00 | 20.0 | HHDT |
| Linear, Paving | 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) |
|---|---|---|---|---|---|
| Architectural Coating | 0.00 | 0.00 | 9,000 | 3,000 | 30.0 |

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

| Phase Name | Material Imported (cy) | Material Exported (cy) | Acres Graded (acres) | Material Demolished (Building Square Footage) | Acres Paved (acres) |
|---|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | — | — | 2.75 | 0.00 | — |
| Linear, Grading & Excavation | — | — | 2.75 | 0.00 | — |
| Linear, Drainage, Utilities, & Sub-Grade | — | — | 2.75 | 0.00 | — |

| | | | | | |
|---|---|---|---|---|---|
| Demolition | 0.00 | 0.00 | 0.00 | 30,000 | — |
| Site Preparation | — | — | 60.0 | 0.00 | — |
| Grading | — | — | 80.0 | 0.00 | — |
| Paving | 0.00 | 0.00 | 0.00 | 0.00 | 2.76 |

### 5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

## 5.7. Construction Paving

| Land Use | Area Paved (acres) | % Asphalt |
|---|---|---|
| General Office Building | 0.00 | 0% |
| General Heavy Industry | 0.00 | 0% |
| Other Asphalt Surfaces | 0.01 | 100% |
| User Defined Linear | 2.75 | 100% |

## 5.8. Construction Electricity Consumption and Emissions Factors

### kWh per Year and Emission Factor (lb/MWh)

| Year | kWh per Year | CO2 | CH4 | N2O |
|---|---|---|---|---|
| 2024 | 0.00 | 453 | 0.03 | < 0.005 |
| 2025 | 0.00 | 453 | 0.03 | < 0.005 |

## 5.9. Operational Mobile Sources

### 5.9.1. Unmitigated

| Land Use Type | Trips/Weekday | Trips/Saturday | Trips/Sunday | Trips/Year | VMT/Weekday | VMT/Saturday | VMT/Sunday | VMT/Year |
|---|---|---|---|---|---|---|---|---|
| General Office Building | 9.74 | 2.21 | 0.70 | 2,691 | 150 | 33.9 | 10.8 | 41,336 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| General Heavy Industry | 19.7 | 32.1 | 25.5 | 8,124 | 302 | 493 | 391 | 124,786 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

## 5.10. Operational Area Sources

### 5.10.1. Hearths

#### 5.10.1.1. Unmitigated

### 5.10.2. Architectural Coatings

| Residential Interior Area Coated (sq ft) | Residential Exterior Area Coated (sq ft) | Non-Residential Interior Area Coated (sq ft) | Non-Residential Exterior Area Coated (sq ft) | Parking Area Coated (sq ft) |
|---|---|---|---|---|
| 0 | 0.00 | 9,000 | 3,000 | 30.0 |

### 5.10.3. Landscape Equipment

| Season | Unit | Value |
|---|---|---|
| Snow Days | day/yr | 0.00 |
| Summer Days | day/yr | 180 |

## 5.11. Operational Energy Consumption

### 5.11.1. Unmitigated

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

| Land Use | Electricity (kWh/yr) | CO2 | CH4 | N2O | Natural Gas (kBTU/yr) |
|---|---|---|---|---|---|
| General Office Building | 23,170 | 453 | 0.0330 | 0.0040 | 39,048 |
| General Heavy Industry | 59,123 | 453 | 0.0330 | 0.0040 | 205,070 |
| Other Asphalt Surfaces | 0.00 | 453 | 0.0330 | 0.0040 | 0.00 |

## 5.12. Operational Water and Wastewater Consumption

### 5.12.1. Unmitigated

| Land Use | Indoor Water (gal/year) | Outdoor Water (gal/year) |
|---|---|---|
| General Office Building | 177,734 | 2,121 |
| General Heavy Industry | 1,156,250 | 5,303 |
| Other Asphalt Surfaces | 0.00 | 0.00 |

## 5.13. Operational Waste Generation

### 5.13.1. Unmitigated

| Land Use | Waste (ton/year) | Cogeneration (kWh/year) |
|---|---|---|
| General Office Building | 0.93 | — |
| General Heavy Industry | 6.20 | — |
| Other Asphalt Surfaces | 0.00 | — |

## 5.14. Operational Refrigeration and Air Conditioning Equipment

### 5.14.1. Unmitigated

| Land Use Type | Equipment Type | Refrigerant | GWP | Quantity (kg) | Operations Leak Rate | Service Leak Rate | Times Serviced |
|---|---|---|---|---|---|---|---|
| General Office Building | Household refrigerators and/or freezers | R-134a | 1,430 | 0.02 | 0.60 | 0.00 | 1.00 |
| General Office Building | Other commercial A/C and heat pumps | R-410A | 2,088 | < 0.005 | 4.00 | 4.00 | 18.0 |
| General Heavy Industry | Other commercial A/C and heat pumps | R-410A | 2,088 | 0.30 | 4.00 | 4.00 | 18.0 |

## 5.15. Operational Off-Road Equipment

### 5.15.1. Unmitigated

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

## 5.16. Stationary Sources

### 5.16.1. Emergency Generators and Fire Pumps

| Equipment Type | Fuel Type | Number per Day | Hours per Day | Hours per Year | Horsepower | Load Factor |
|---|---|---|---|---|---|---|
| Emergency Generator | Diesel | 2.00 | 1.00 | 365 | 2,011 | 0.73 |

### 5.16.2. Process Boilers

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

## 5.17. User Defined

| Equipment Type | Fuel Type |
|---|---|

## 5.18. Vegetation

### 5.18.1. Land Use Change

#### 5.18.1.1. Unmitigated

| Vegetation Land Use Type | Vegetation Soil Type | Initial Acres | Final Acres |
|---|---|---|---|

### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

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

### 5.18.2. Sequestration

#### 5.18.2.1. Unmitigated

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

# 6. Climate Risk Detailed Report

## 6.1. Climate Risk Summary

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

| Climate Hazard | Result for Project Location | Unit |
|---|---|---|
| Temperature and Extreme Heat | 23.7 | annual days of extreme heat |
| Extreme Precipitation | 0.25 | annual days with precipitation above 20 mm |
| Sea Level Rise | — | meters of inundation depth |
| Wildfire | 13.7 | 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 (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

## 6.2. Initial Climate Risk Scores

| Climate Hazard | Exposure Score | Sensitivity Score | Adaptive Capacity Score | Vulnerability Score |
|---|---|---|---|---|
| Temperature and Extreme Heat | N/A | N/A | N/A | N/A |
| Extreme Precipitation | 1 | 0 | 0 | N/A |
| Sea Level Rise | N/A | N/A | N/A | N/A |
| Wildfire | 1 | 0 | 0 | N/A |
| Flooding | N/A | N/A | N/A | N/A |
| Drought | N/A | N/A | N/A | N/A |
| Snowpack Reduction | 0 | 0 | 0 | N/A |
| Air Quality Degradation | N/A | N/A | N/A | N/A |

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

## 6.3. Adjusted Climate Risk Scores

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

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

### 6.4. Climate Risk Reduction Measures

# 7. Health and Equity Details

## 7.1. CalEnviroScreen 4.0 Scores

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

| Indicator | Result for Project Census Tract |
|---|---|
| Exposure Indicators | — |
| AQ-Ozone | 45.0 |
| AQ-PM | 0.50 |
| AQ-DPM | 0.14 |
| Drinking Water | 23.5 |
| Lead Risk Housing | 48.4 |
| Pesticides | 43.6 |
| Toxic Releases | 0.75 |
| Traffic | 0.46 |
| Effect Indicators | — |
| CleanUp Sites | 17.1 |
| Groundwater | 35.7 |
| Haz Waste Facilities/Generators | 1.80 |
| Impaired Water Bodies | 72.2 |
| Solid Waste | 99.7 |
| Sensitive Population | — |
| Asthma | 89.5 |
| Cardio-vascular | 37.5 |
| Low Birth Weights | — |
| Socioeconomic Factor Indicators | — |

| | |
|---|---|
| Education | 47.5 |
| Housing | 1.14 |
| Linguistic | 21.4 |
| Poverty | 56.6 |
| Unemployment | 7.14 |

## 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 | 37.85448479 |
| Employed | 3.323495445 |
| Median HI | 25.51007314 |
| Education | — |
| Bachelor's or higher | 37.80315668 |
| High school enrollment | 1.411523162 |
| Preschool enrollment | 21.429488 |
| Transportation | — |
| Auto Access | 78.96830489 |
| Active commuting | 85.64095984 |
| Social | — |
| 2-parent households | 88.22019761 |
| Voting | 72.73193892 |
| Neighborhood | — |
| Alcohol availability | 97.0101373 |
| Park access | 22.64853073 |
| Retail density | 0.064160144 |

| | |
|---|---|
| Supermarket access | 10.13730271 |
| Tree canopy | 66.30309252 |
| Housing | — |
| Homeownership | 87.52726806 |
| Housing habitability | 92.86539202 |
| Low-inc homeowner severe housing cost burden | 72.44963429 |
| Low-inc renter severe housing cost burden | 96.00923906 |
| Uncrowded housing | 59.34813294 |
| Health Outcomes | — |
| Insured adults | 37.58501219 |
| Arthritis | 0.0 |
| Asthma ER Admissions | 34.2 |
| High Blood Pressure | 0.0 |
| Cancer (excluding skin) | 0.0 |
| Asthma | 0.0 |
| Coronary Heart Disease | 0.0 |
| Chronic Obstructive Pulmonary Disease | 0.0 |
| Diagnosed Diabetes | 0.0 |
| Life Expectancy at Birth | 69.6 |
| Cognitively Disabled | 10.7 |
| Physically  Disabled | 5.2 |
| Heart Attack ER Admissions | 6.8 |
| Mental Health Not Good | 0.0 |
| Chronic Kidney Disease | 0.0 |
| Obesity | 0.0 |
| Pedestrian Injuries | 19.6 |
| Physical Health Not Good | 0.0 |

| | |
|---|---|
| Stroke | 0.0 |
| Health Risk Behaviors | — |
| Binge Drinking | 0.0 |
| Current Smoker | 0.0 |
| No Leisure Time for Physical Activity | 0.0 |
| Climate Change Exposures | — |
| Wildfire Risk | 3.0 |
| SLR Inundation Area | 0.0 |
| Children | 88.7 |
| Elderly | 5.7 |
| English Speaking | 92.4 |
| Foreign-born | 11.1 |
| Outdoor Workers | 5.4 |
| Climate Change Adaptive Capacity | — |
| Impervious Surface Cover | 98.4 |
| Traffic Density | 0.5 |
| Traffic Access | 0.0 |
| Other Indices | — |
| Hardship | 59.0 |
| Other Decision Support | — |
| 2016 Voting | 43.6 |

## 7.3. Overall Health & Equity Scores

| Metric | Result for Project Census Tract |
|---|---|
| CalEnviroScreen 4.0 Score for Project Location (a) | 29.0 |
| Healthy Places Index Score for Project Location (b) | 26.0 |
| Project Located in a Designated Disadvantaged Community (Senate Bill 535) | No |

| | |
|---|---|
| Project Located in a Low-Income Community (Assembly Bill 1550) | Yes |
| Project Located in a Community Air Protection Program Community (Assembly Bill 617) | No |

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

## 7.4. Health & Equity Measures

No Health & Equity Measures selected.

## 7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

## 7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

# 8. User Changes to Default Data

| Screen | Justification |
|---|---|
| Land Use | Based on project description and plans. |
| Construction: Construction Phases | Based on construction schedule. |
| Construction: Off-Road Equipment | Based on equipment needed for linear trenching and pipeline installation. |
| Operations: Off-Road Equipment | Based on conservative assumption of one hour per day of generator operation (260 hours per year). Generators would only be used for emergency purposes and would run for one hour each month for maintenance purposes. |