Draft Initial Study / Environmental Assessment

Recycled Water System Expansion Project

U.S Department of the Interior
Bureau of Reclamation

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Initial Study/Mitigated Negative Declaration and Environmental Assessment for the Delta Diablo Sanitation District Recycled Water System Expansion Project

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Acronym List

AB	Assembly Bill
ABAG	Association of Bay Area Governments
AF	Acre-feet
APE	Area of Potential Effect
BAAQMD	Bay Area Air Quality Management District
BA	Biological Assessment
BMPs	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCWD	Contra Costa Water District
CDFG	California Department of Fish and Game
Caltrans	California Department of Transportation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CNPS	California Native Plant Society
CO	Carbon monoxide
CRLF	California red-legged frog
CTS	California tiger salamander
CWA	Clean Water Act
DDSD	Delta Diablo Sanitation District
DEC	Delta Energy Center
DTSC	(California) Department of Toxic Substances Control
DVGC	Delta View Golf Course
EA	Environmental Assessment
EPA	United States Environmental Protection Agency
GGS	Giant garter snake
GHG	Greenhouse Gas
gpm	Gallons per minute
HCP	Habitat Conservation Plan
HPWTF	High Purity Water Treatment Facility

HMBP	Hazardous Materials Business Plan
IS/MND	Initial Study/Mitigated Negative Declaration
LF	Linear Feet
LMEC	Los Medanos Energy Center
LUST	leaking underground storage tank
LTGC	Lone Tree Golf Course
MBTA	Migratory Bird Treaty Act
MF/RO	microfiltration pretreatment and a reverse osmosis
MG	Million gallons
MGD	million gallons per day
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen oxides
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NIC	Northwest Information Center at Sonoma State University
NEPA	National Environmental Policy Act
O_3	Ozone
Pb	Lead
PG&E	Pacific Gas & Electric
PM	Particulate Matter
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
RWF	Recycled Water Facility
SAA	Streambed Alternation Agreement
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan (SIP),
SLIC	Spills, Leaks, Investigations, and Clean-up
SO_x	sulfur oxides
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TMDL	Total Maximum Daily Load
TSDTF	A Treatment, Storage, Disposal or Transfer Facility

UBC	Uniform Building Code
URBEMIS model	Urban Emissions (URBEMIS) model
USACE	US Army Corps of Engineers
USBR	United States Bureau of Reclamation
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
WWTP	Wastewater Treatment Plant

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Chapter 1 Introduction

1.1 Proposed Project/Action

Delta Diablo Sanitation District (DDSD) is proposing to expand and upgrade its existing recycled water system. The new recycled water infrastructure would include new and rehabilitated pipelines, a storage tank, a pump station, and wastewater treatment improvements at the Recycled Water Facility (RWF). The Proposed Project includes the following two stages:

1. Near-Term Project (estimated to be operational in 2015) and
2. Buildout Project (Long Term)

Reclamation has provided partial funding for planning the near-term component through Section 1604 of the Reclamation Wastewater and Groundwater Study and Facilities Act of 1992 (Title XVI of Public Law 102-575, as amended). Section 1604 authorizes federal cost-sharing in water reuse projects up to 50 percent of the total eligible pre-construction planning costs. If the Proposed Project is authorized for construction, Reclamation may provide a portion of the funds to design and construct the Proposed Project. Reclamation's purpose is to facilitate water recycling projects within the Mid-Pacific Region to extend the beneficial use of existing water supplies. The Near Term Project and the Buildout Project are eligible for funding under the Title XVI Program.

Because the Proposed Project and the Proposed Action are the same, they are referred throughout this document as the proposed Project/Action.

1.2 Need for Project

DDSD has implemented a recycled water system that has delivered disinfected tertiary-treated recycled water to users since 2001. The recycled water system was originally designed primarily to produce and deliver a recycled water supply for two Calpine power plants, Delta Energy Center (DEC) and Los Medanos Energy Center (LMEC), but has been incrementally expanded in the intervening years to serve several landscape irrigation customers within DDSD's service area, including golf courses and parks. In total, DDSD has produced and delivered approximately 25,000 million gallons (MG), or 76,800 acre-feet (AF), of recycled water to 20 different use sites since the system was established in 2001.

The incremental nature of past system expansion has resulted in a functional, but not optimal, recycled water system. Multiple opportunities remain both to improve its operations and to expand the system. Currently, DDSD can serve all existing users under all demand conditions, but adding new users would cause capacity deficiencies during peak periods (hour and day) in summer. Thus, it is necessary to implement improvements that would smooth the demand curve on peak days, alleviate conveyance deficiencies, avoid treatment capacity limits, and enable more users to be served.

In addition to providing better service to existing customers and connecting new customers, DDSD needs to reduce its wastewater discharges. DDSD currently discharges its wastewater effluent into the New York Slough. With the advent of Total Maximum Daily Load (TMDL) requirements for mercury and other constituents of concern, wastewater dischargers are facing increasingly stringent regulations. Increasing the production of recycled water would help DDSD to comply with these future regulations by reducing the amount of effluent discharged.

1.3 Purpose of this IS/MND and EA

The proposed Project/Action is a discretionary action under the California Environmental Quality Act (CEQA) Guidelines Section 15357 and would be partially funded by federal grants (under Title XIV). As such, it is subject to the requirements of CEQA and National Environmental Policy Act (NEPA).

Therefore, a joint environmental document has been prepared in accordance with both CEQA and NEPA requirements.

DDSD is the lead agency for CEQA compliance in the preparation of the expanded Initial Study and Mitigated Negative Declaration (IS/MND), and the United States Bureau of Reclamation (USBR or Reclamation) is the lead agency for NEPA compliance in the preparation of the current Environmental Assessment (EA). The co-lead agencies have determined that an IS/MND and EA (herein referred to as the joint environmental document or IS/EA) is the appropriate CEQA/NEPA compliance document for each agency's proposed Project/Action because all potentially significant impacts described in this joint environmental document would be reduced to a less-than-significant level with the implementation of the proposed Project/Action's mitigation measures/environmental commitments.

The joint environmental document was prepared pursuant to CEQA Public Resources Code, Division 13, Environmental Protection; the CEQA Guidelines); the Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act (Parts 1500 to 1508).. The joint environmental document serves to publicly disclose the environmental consequences and potential impacts/effects of the proposed Project/Action, the alternative to the proposed Project/Action, and ways to minimize adverse effects. The joint environmental document also provides the public, responsible, and trustee agencies[1] with information about the potential effects on the local and regional environment associated with implementation of the proposed Project/Action. The purpose of this document is to allow the DDSD Board of Directors and Reclamation to determine whether or not to approve the proposed Project/Action, respectively, based on the understanding of the associated environmental consequences and impacts/effects.

1.4 Organization of this Report

1.4.1 Project- and Program-Level Evaluations

This joint environmental document is both a project-level and program-level environmental document. Where site-specific information is available to facilitate determination of impacts (*i.e.*, Near-Term components), a project-level analysis is provided. However, where such site-specific information is not available (*i.e.*, Buildout components), impacts are evaluated at a program level of detail. The proposed facilities are described further in Chapter 2, Project Description.

1.4.2 Report Structure

This document was prepared to provide a comprehensive analysis of the proposed Project/Action. Chapter 2 describes the No Action Alternative (*i.e.*, no funding by Reclamation) and the proposed Project (made up of the proposed Project [DDSD-sponsored facilities and improvements] and the proposed Action [Reclamation-sponsored funding]). Chapter 3 describes the environmental setting/affected environment and the environmental impacts/environmental consequences (effects) associated with implementation of the proposed Project/Action. The issue areas that are examined, based on the Appendix G (Environmental Checklist Form) of the CEQA Guidelines, are as follows:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality

[1] A responsible agency is an agency other than the lead agency that has a legal responsibility for also carrying out or approving a project; a responsible agency must actively participate in the lead agency's environmental process, review the lead agency's environmental document, and use that document when making a decision on the project. Trustee agencies have jurisdiction over certain resources held in trust for the people of California but do not have a legal authority over approving or carrying out a project.

- Biological Resources
- Cultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities and Service Systems
- Environmental Justice
- Mandatory Findings of Significance

Section 3.23 includes other sections required by NEPA, including effects on wetlands and Indian trust assets, irreversible and irretrievable commitment of resources, and consultation and coordination requirements. Chapter 4 provides references and identifies the report preparers.

1.5 Subsequent Environmental Documentation

The joint environmental document evaluates environmental effects that could occur from implementing the proposed Project/Action, including construction and operation of the specific facilities identified in Chapter 2, Project Description. As described above, as the proposed Project/Action is currently proposed, certain components are evaluated at a program-level of detail. This joint environmental document may be used as a tiering[2] document on which subsequent, site-specific environmental documentation would be based.

[2] Tiering refers to using the analysis of general matters contained in a broader environmental document with later environmental documents on narrower projects; incorporating by reference the general discussion from the broader environmental document; and concentrating the latter only on the impacts of individual projects that implement the plan, program, or policy.

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Chapter 2 Project Description

2.1 Project Overview

DDSD proposes to expand and optimize its existing recycled water system to meet buildout demands. Specifically, DDSD proposes to install new pipelines, rehabilitate existing pipelines, construct a new storage tank and conduct other improvements at the RWF to meet the demands of existing and potential new customers. In addition, the project includes future construction of a high-purity water treatment facility to treat secondary effluent for use by industrial customers that require high purity water.

2.2 Purpose for Project

The purpose of the Project/Action is manifold, and includes the following:

- **Reduce Dependence on Delta Supplies.** Delta water supplies are the major supply source for Pittsburg, Antioch, and Bay Point. The demands served by the proposed Project/Action could reduce the amount of water needed to be diverted from the Delta by Contra Costa Water District (CCWD) and the City of Antioch, and could slow the rate of increase in demand for Delta water over time.
- **Improve Water Supply Reliability.** Recycled water availability is less influenced by climatic or year-to year changes to hydrologic conditions than surface water, and therefore provides additional dry-year reliability for users.
- **Preserve Potable Water Supplies.** Using recycled water to serve non-potable demands such as irrigation could preserve high-quality drinking water supplies for potable needs. This project would ensure that all local water resources are being used to their highest and best use.
- **Better Utilize Existing Recycled Water Facilities.** Currently, DDSD's existing recycled water facilities are operated at maximum capacity only a few days out of the year, and are underutilized during non-peak demand periods. Expanded recycled water use would make use of available capacity during the winter and non-peak summer months.
- **Increase Economic Activity and Jobs in the Project Area.** Planning for the High Purity Water Treatment Facility (HPWTF) would help to encourage and attract new businesses to the service area, increasing jobs and improving economic conditions following the recent recession, and potentially increasing overall utilization of industrial infrastructure along the Pittsburg-Antioch corridor, which is currently underutilized.

2.3 Existing Facilities and Existing Customers

2.3.1 DDSD Recycled Water Facility and Wastewater Treatment Plant

The RWF is located off of the Pittsburg-Antioch Highway on the north side of Highway 4 (**see Figure 2-1**). The RWF receives non-chlorinated secondary effluent from its Wastewater Treatment Plant (WWTP) (see **Figure 2-1**). The WWTP provides secondary treatment, disinfection, and dechlorination prior to discharging effluent to the New York Slough. The plant's treatment train consists of primary clarifiers followed by tower trickling filters and aeration basins for secondary treatment. From the aeration basins, the flow passes through secondary clarifiers followed by chlorine contact tanks, dechlorination, and discharge. A portion of the effluent is diverted to the RWF prior to chlorination at a varying rate depending on recycled water demands.

Influent to the RWF is fed to flocculating clarifiers, then to filters, and finally to the hypochlorite disinfection process. Coagulant and flocculant are fed to the flocculating clarifiers to reduce suspended sediments and turbidity. From the flocculating clarifiers, the flow passes upward through filters due to influent head, and empties into effluent weirs. Finally the filter effluent flows to chlorine contact basins for disinfection.

Delta Diablo Sanitation District

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Miles

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Marina Walk Park
Los Medanos Energy Center
Proposed StorageTank Location (See Figure 2-3)
United Spiral Pipe
Browns Island
New York Slough
Winter Island
Parkside Elementary
Pittsburg HS
Kirker Creek Crossing (See Figure 2-7)
Waste Recycle Center & Transfer Station (WRC&TS)
Proposed Storage Tank Location (See Figure 2-4)
Existing RWF
Existing WWTF
Pittsburg
Delta Energy Center
DOW Wetlands
Rancho Medanos Junior High
Delta View Golf Course
Pittsburg
Antioch Historical Society
Prosserville Park
Antioch Little League
Babe Ruth Fields
Contra Costa County
Antioch Fairgrounds
Caltrans at Hwy 4
Antioch
Memorial Park
Sutter Elementary
Contra Loma Reservoir
Antioch Municipal Reservoir
Delta View Golf Course

Figure 2-1: Near-Term Project Proposed Components

Recycled Water Customers
- Existing
- Proposed

Pipeline
- Existing
- Proposed
- Rehabilitated (2 Parallel Lines)

Tank
- Potential Tank Sites

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(#) - Numbers adjacent to proposed pipeline segments correspond to those shown on Table 2-3.

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Sources:

2.3.2 Existing Recycled Water Customers

Following treatment at the plant, the recycled water is conveyed to the two Calpine power generating plants (LMEC and DEC), the Delta View Golf Course (DVGC), and the Lone Tree Golf Course (LTGC), and to various landscape irrigation users; the locations of the existing customers are shown in **Figure 2-1**. DEC is located immediately adjacent to the RWF, while LMEC receives recycled water via a pipeline extending three miles from the RWF. DVGC in Pittsburg is served by approximately four miles of pipeline to the west of the RWF, and LTGC in Antioch is served by approximately four miles of pipeline to the southeast of the RWF. Twelve parks that are located adjacent to the existing recycled water pipeline currently receive recycled water for irrigation. Landscaping surrounding the RWF and City Hall is also irrigated with recycled water from the plant. Lastly, recycled water is used as irrigation and service water[3] at the RWF.

2.4 No Project/Action

Although not required, it is Reclamation's practice to include a "no action alternative" to provide an appropriate basis by which other alternatives are compared. For the purposes of this project, because Reclamation is providing funding for the project, the No Project/Action would consist of Reclamation not funding the proposed Action. Without funding by Reclamation, it is expected that DDSD would still move forward with the proposed Project as described above, through other budgetary arrangements. The effects of the proposed Project/Action would be the same as the No Project/Action, and thus no further analysis is necessary in this document.

2.5 Proposed Project/Action

The Proposed Project/Action would include construction of recycled water infrastructure and rehabilitation of existing infrastructure. The new recycled water infrastructure would include pipelines, a storage tank, and pump stations; existing pipelines would be rehabilitated. The Proposed Project/Action is divided into two stages:

- Near-Term: operational in 2015
- Buildout[4] (long Term)

Figure 2-1and **Figure 2-2** illustrate the locations of the proposed facilities for both the Near-Term and Buildout projects. **Table 2-1** provides a summary of proposed components for both the Near-Term and Buildout projects. With these improvements, DDSD would ultimately increase its RWF capacity from 12.8 million gallons per day (MGD) to 22.5 MGD, and the number of customers served by DDSD would increase from 18 to 31.

Table 2-1: Proposed Project/Action Components

Project	New Pipe Length (LF)	New Pipe Diameter (inches)	Rehabilitated Pipe Length (LF)	Storage Tank	Pump Station	RWF Improvements
Near-Term	6,600	2-18	3,090	0.9 MG	--	--
Buildout	40,400	2-20	45,000	--	1,200hp	New treatment train / HPWTF

Notes: LF = Linear Feet; hp = horsepower; HPWTF = High Purity Water Treatment Facility

[3] Service water is used for wash down, spray nozzles, and other process needs.
[4] A specific buildout date cannot be determined at this time. It is defined by the timing of buildout development in the affected jurisdictions within DDSD's service area.

Delta Diablo Sanitation District

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Miles
N

Genon - Willow Pass Generating Station

Los Medanos Energy Center

United Spiral Pipe

K2 Pure Solutions

Browns Island

Winter Island

New York Slough

Proposed Pump Station and RWF Improvements (See Figure 2-8)

Existing RWF

Existing WWTF

Delta Energy Center

Point Demand Loveridge Corridor

Pittsburg

Pittsburg

Delta View Golf Course

Praxair

Product Water Line

Point Demand - Los Medanos College & Other Customers

Point Demand - East of A St

PG&E Gateway Generation Station

Genon - Marsh Landing Generating Station

Contra Costa County

Oakley

Antioch

Antioch Municipal Reservoir

Contra Loma Reservoir

Lone Tree Golf Course

Figure 2-2: Buildout Project Proposed Components

Recycled Water Customers
- Existing
- Buildout

Pipeline
- Existing
- Buildout
- Rehabilitated (2 Parallel Lines)

Note: Portions of the Rehabilitated Pipeline is Completed as Part of the Near-Term Project (See Figure 2-1)

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\\rmcla\rmcla\Projects GIS\0013-025\MXDs\Fig 2- 2 Buildout Project_V2.mxd

Sources:

2.5.1 Near-Term Project

The Near-Term project includes construction of a storage tank located either adjacent to LMEC or at the RWF to smooth the demand curve on peak days, alleviate conveyance deficiencies and avoid treatment capacity limits. The Near-Term Project would enable DDSD to serve recycled water to new users. With the addition of the storage tank, all users can be served with recycled water, even on peak days. In conjunction with the storage tank, several new service laterals would be constructed to connect new users. The Near-Term Project would consist of the following components:

- 6,600 linear feet (LF) of new recycled water pipeline;
- 0.9-MG storage tank adjacent to LMEC (including land purchase) or at the RWF;
- Tank flow control valve, tank pad, and other tank-related appurtenances;
- Testing and rehabilitation of 3,090 LF of two existing and parallel 8-inch pipelines;
- 15 new customer meters; and
- Isolation valves.

Each of these components is described below. The new users that would be served in the near-term are all located in the vicinity of existing recycled water mains, and are listed in **Table 2-2** and shown on **Figure 2-1**. The table also shows the current average annual and peak demands that would need to be met with recycled water.

Table 2-2: New User Demand Summary for the Near-Term Project

User	Average Annual Demand (AFY)	Peak Day Demand (MGD)	Peak Hour Demand (gpm)
Babe Ruth Fields	14.7	0.03	72
Antioch Little League	11.4	0.03	56
Memorial Park	18.7	0.04	91
Sutter Elementary School	23.8	0.13	267
Antioch Fairgrounds	37.6	0.09	184
Prosserville Park (On 6th St between M&O)	2.3	0.01	17
Caltrans (Hwy 4 at RW pipeline crossing)	16.0	0.04	78
Antioch Historical Society	2.7	0.01	17
DOW Wetlands	0.6	0.0007	1.4
Pittsburg High School	18.5	0.02	45
Parkside Elementary School	13.9	0.02	35
Marina Walk Park	3.2	0.01	16
Rancho Medanos Junior High School	1.8	0.00	8.6
United Spiral Pipe	11.0	0.03	54
Waste Recycle Center and Transfer Station (WRC&TS)	4.2	0.03	21
Total	**180**	**0.48**	**889**

Note: gpm = Gallons per minute

Conveyance Pipelines

The Near-Term Project would install nine new pipeline segments, shown with corresponding length, diameter and locations in **Table 2-3**.

All segments would be installed or rehabilitated within roadways and areas that have been previously disturbed. The construction zone for all segments would be approximately 25-30 feet in width. Construction methods are presented in Section 2.4.5.

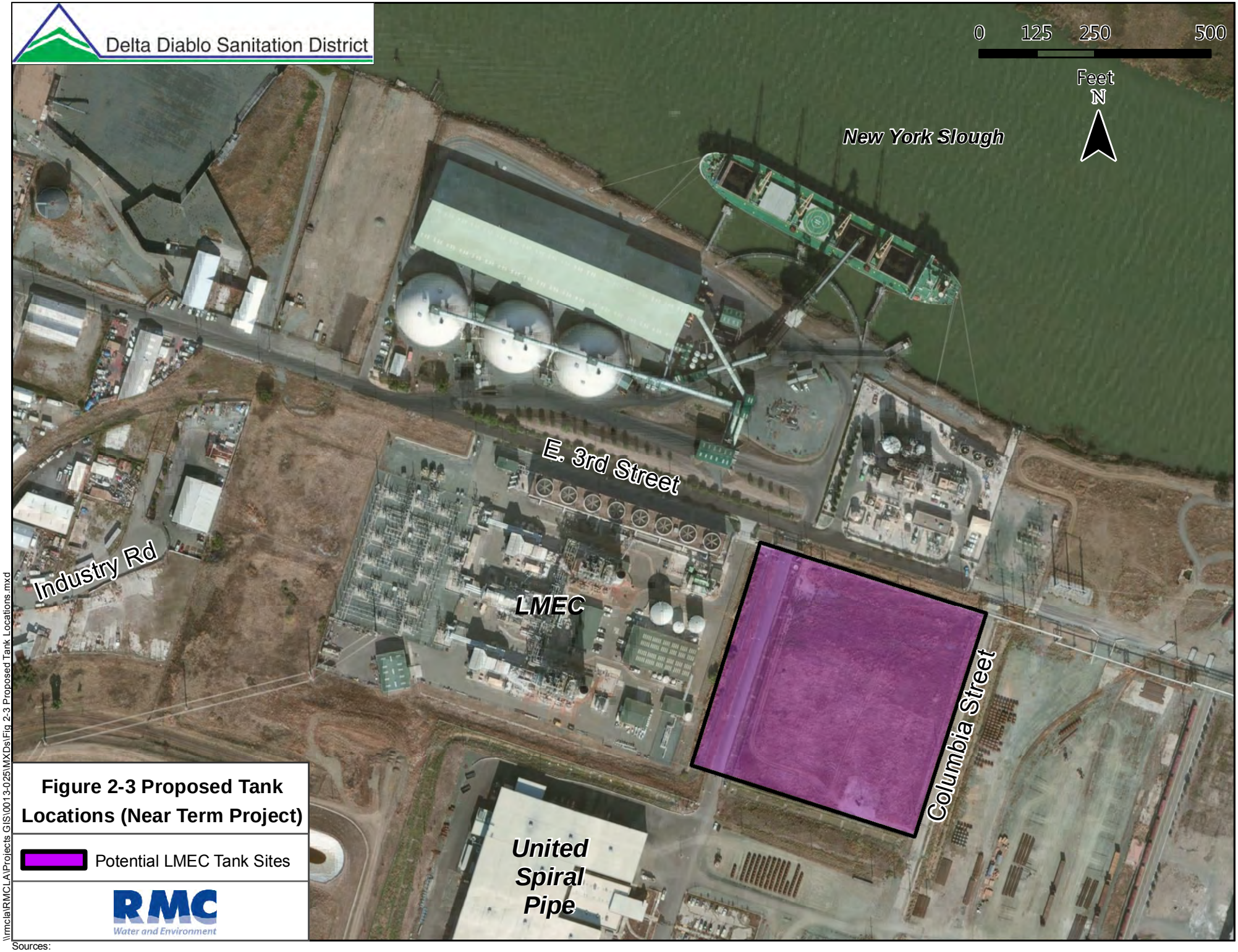
Table 2-3: Near-Term Project Pipeline Segment Locations

#	User Name	Dia-meter (in)	Type	Jurisdiction	Approx Length (ft)	Related Road Names
1	Rancho Medanos Junior High School	1.5	New	Pittsburg	200	Adjacent to West Leland Road
2	Parkside Elementary School	4	New	Pittsburg	1,050	Unpaved footpath on school grounds
3	Pittsburg High School	6	New	Pittsburg	<50	Adjacent to School Street
4	Marina Walk Park	2	New	Pittsburg	400	Cutter Street
5	United Spiral Pipe	2	New	Pittsburg	200	Unnamed access road on United Spiral Pipe property
6	LMEC Tank Pipe Connection	18	New	Pittsburg	100	Unnamed access road on LMEC property
7	WRC&TS	8	Rehab	Pittsburg	3,090	Loveridge Road to unpaved access road to Pittsburg Antioch Highway
8	Dow Wetlands	1.5	New	Antioch	<50	Adjacent to Pittsburg Antioch Highway
9	Babe Ruth Fields	4	New	Antioch	<50	Adjacent to West 4th Street
10	Antioch Historical Society	2.5	New	Antioch	1500	West 4th Street
11	Antioch Little League	8	New	Antioch	900	Paved foot path adjacent to West 10th Street, unpaved parking lot to Antioch Little League
12	Antioch Fairgrounds	4	New	Antioch	1200	Little League parking lot to unnamed street adjacent to Antioch Fairgrounds
13	Prosserville Park	2.5	New	Antioch	1000	O Street
14	Highway 4 medians	2	New	Antioch	50	Highway 4 on-ramp
15	Memorial Park	6	New	Antioch	1370	Putnam Street to Elizabeth Lane
16	Sutter Elementary	2	New	Antioch	200	School parking lot entrance road

Note: The segment numbers in the table correspond to the numbers identified in Figure 2-1.

Storage Tank

The Near-Term Project would include the construction of a new recycled water storage tank with an estimated capacity of 0.9 MG. The storage tank would be located adjacent to the LMEC facilities or at the RWF. The possible tank siting area is shown on **Figure 2-1**, **Figure 2-3**, and **Figure 2-4**. The proposed tank would be similar to the tank shown in **Figure 2-5**. Construction would include new piping,


Delta Diablo Sanitation District
0 125 250 500
Feet
N
New York Slough
E. 3rd Street
Industry Rd
LMEC
Columbia Street
United Spiral Pipe
Figure 2-3 Proposed Tank Locations (Near Term Project)
Potential LMEC Tank Sites
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\\rmcla\RMCLA\Projects GIS\0013-025\MXDs\Fig 2-3 Proposed Tank Locations.mxd
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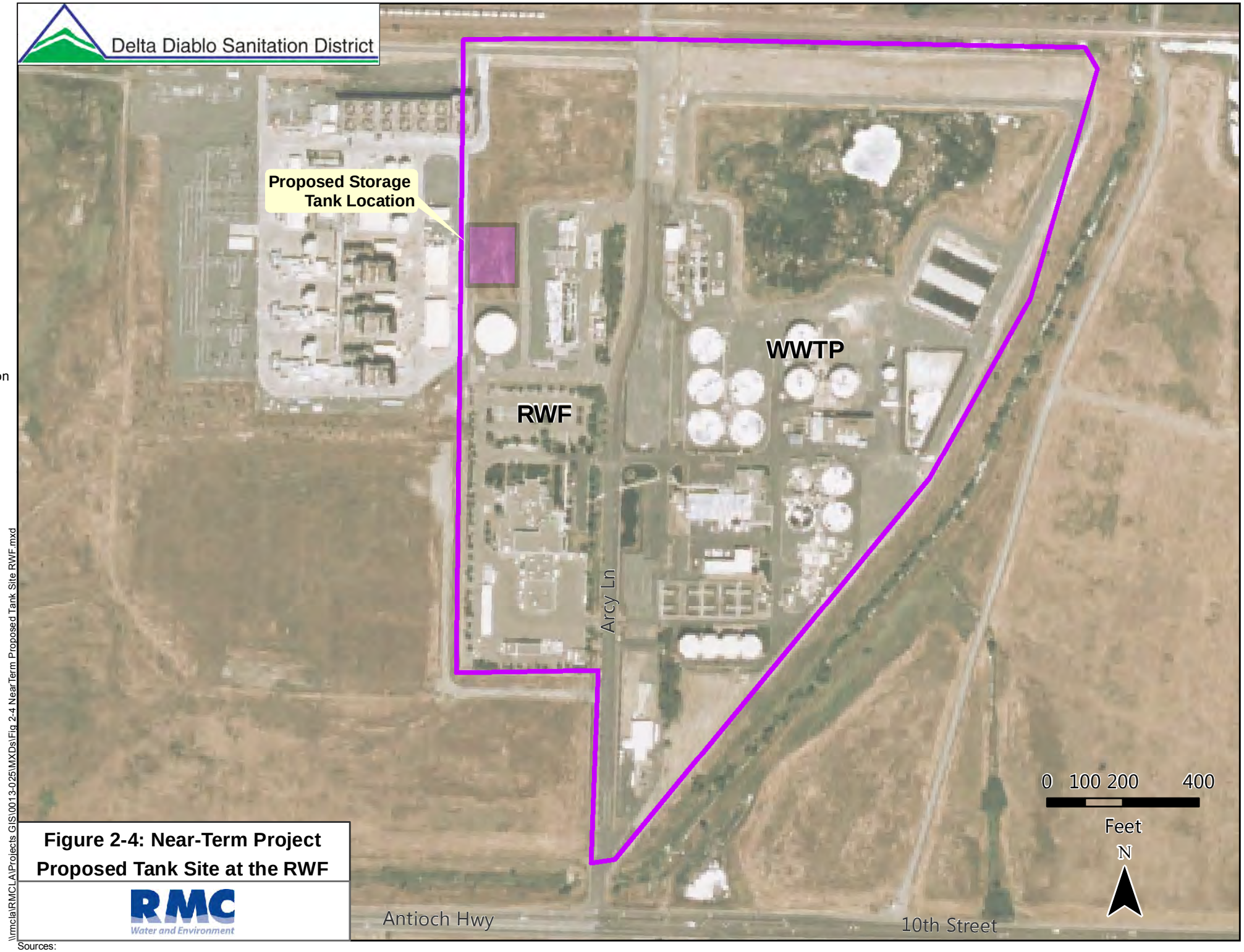

Figure 2-4: Near-Term Project Proposed Tank Site at the RWF

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Sources:

Figure 2-5: Example of a Recycled Water Storage Tank

Figure 2-6: Example of a Radio Tower

connections to the existing recycled water system, an impervious tank pad (and associated drainage modifications), and a tank flow control valve. The aboveground steel tank would be up to 90 feet in diameter and up to 30 feet tall at the center. At the potential site adjacent to LMEC, it is assumed that the entire graded area (up to one acre) would be disturbed during construction to accommodate staging and ultimately the proposed tank. At the RWF, the tank would be located north of an existing tank (see **Figure 2-4**); staging would occur on vacant locations within the plant property.

DDSD would own and maintain the new recycled water storage tank. The tank emergency overflow would discharge to the sanitary sewer at the site. Telemetry would transmit the tank levels to the pump stations and control center. Electrical service would be required and is available at both sites. The tank flow control valve would be located in a below grade vault on or adjacent to the tank pad. Electrical service and telemetry components of the new recycled water tank would also require construction of a radio tower that would be used to transmit data. The radio tower would be up to 30 feet in height (about the same height as the tank), and would be similar to that shown in **Figure 2-6**. Lighting would be installed at the site to provide security and for maintenance purposes.

Pipeline Testing and Rehabilitation

The Near-Term Project would involve testing and rehabilitation of 3,090 LF of two existing and parallel 8-inch pipelines (see **Figure 2-1**). These pipelines, owned and operated by Praxair and used in the past for the conveyance of oxygen and nitrogen, are located on an existing unnamed roadway between Pittsburg-Antioch Highway and the Waste Recycle Center Transfer Station. As the pipelines are no longer in use and are in good condition, they would be transferred to DDSD and rehabilitated for conveyance of

recycled water. Rehabilitation would consist of lining the existing uncoated steel pipe. The existing pipeline crosses Kirker Creek as shown in **Figure 2-7**. Testing and rehabilitation activities would not involve any in-channel activities, but would occur exclusively from pits at either side of the creek.

Other Facilities

Other facilities, including customer meters and isolation valves, would be installed as part of the Near-Term Project. Customer meters to monitor usage levels would be located at the new user hook-ups (*i.e.*, at the end of the new pipeline segments), which are required at new user turnouts. Both meters and valves vary in size based on the customer demand and pipe sizing, and would be located below grade in standard-sized vaults and valve boxes. Maximum footprint of the meter and valve vaults would be approximately 10 feet by 6 feet.

2.5.2 Buildout Project

The Buildout Project consists of foreseeable activities that would be implemented to meet buildout development demands within DDSD's service area. These components are analyzed in this joint environmental document on a general, programmatic level because the details of the components are only conceptual and speculative in nature at this time. Any actual future project approval and implementation of programmatic components proposed by DDSD would require subsequent environmental documentation (following project-specific engineering and siting) to address site-specific environmental issues.

There are two parts to the Buildout Project. The first part consists of improvements to the RWF to meet future buildout demand. The second component would involve the construction of a separate treatment system that further improves water quality to accommodate a niche (*i.e.*, high-purity water quality) demand. Descriptions of these two aspects of the Buildout Project are provided below.

Recycled Water System Expansion

One component of the Buildout Project would create a new, separate industrial recycled water distribution system to meet the recycled water demand. These improvements would be implemented as buildout development occurs and actual demands materialize. DDSD's approach is to proactively encourage and appeal to potential customers through early planning. The purpose of implementing a separate system is to:

- Free up capacity in the existing pipeline distribution system to expand service to additional users beyond those identified for the Near-Term Project;
- Reduce delivery pressures to nearby industrial users (to reduce energy demands); and
- Allow for the future conveyance of high-quality advanced treated recycled water to industrial users, when demands for high quality water materialize.

Initial implementation of the separate distribution systems would optimize the distribution system (by reducing delivery pressures), but delivery of higher quality water with the industrial distribution system would occur only when triggered by the need for higher water quality for industrial users. When that time comes, existing industrial users, such as LMEC and DEC, could benefit from higher quality water immediately, as it would reduce their demands, the cost of purchased water, and the need to dose cooling tower make-up water with chemicals. Current economics (based on recycled water and chemical costs) do not justify the cost of implementing advanced treatment at this stage.

The Buildout Project would consist of the components identified on **Figure 2-2** and **Figure 2-8**. They are described below.

- 40,400 LF of new recycled water pipeline.

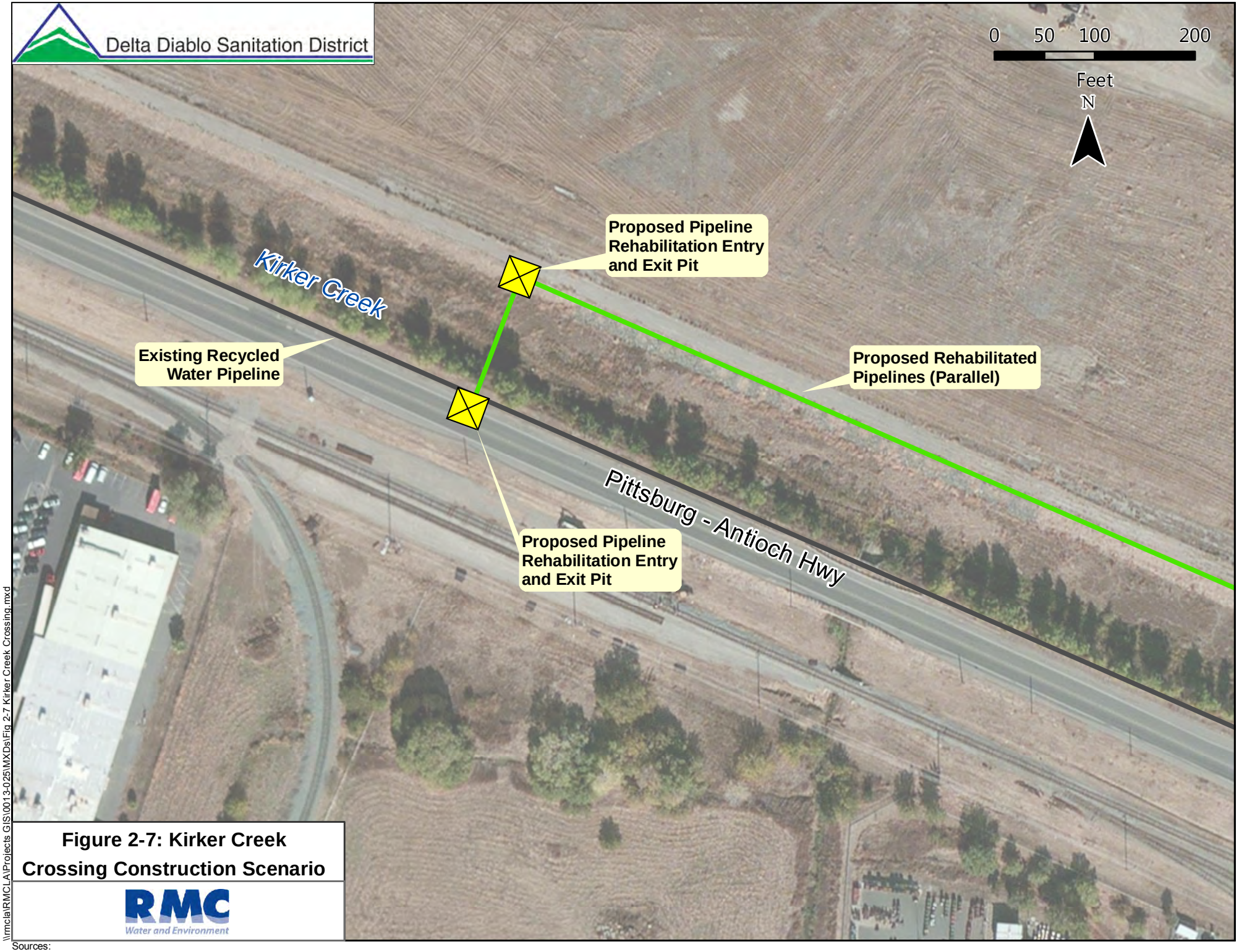

Figure 2-7: Kirker Creek Crossing Construction Scenario

RMC Water and Environment

\\rmcla\RMCLA\Projects GIS\0013-025\MXDs\Fig 2-7 Kirker Creek Crossing.mxd

Sources:

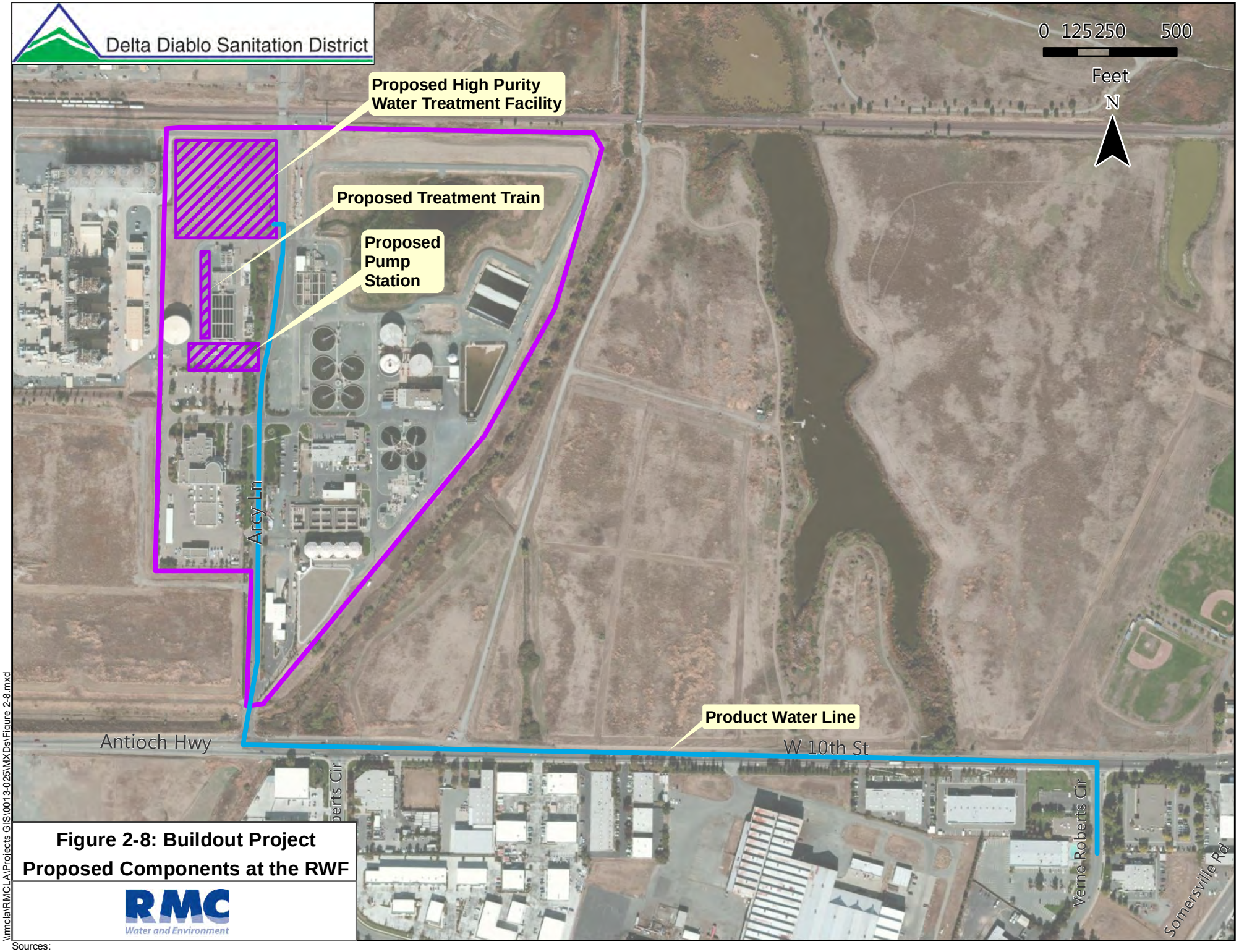

Figure 2-8: Buildout Project Proposed Components at the RWF

RMC Water and Environment

\\rmcla\RMCLA\Projects GIS\0013-025\MXDs\Figure 2-8.mxd

Sources:

- Testing and rehabilitation of two existing and parallel 8-inch pipelines, totaling 45,100 LF. Similar to the Near-Term Project, the pipelines proposed for rehabilitation are currently owned by Praxair, and were used for conveyance of nitrogen and oxygen. As they are no longer in use, they would be transferred to DDSD, rehabilitated, and used for conveyance of recycled water.
- 1,200-hp pump station located at the RWF for the separate distribution system to serve nearby industrial users. The pumps would be located both above and below ground. Above-ground components include the vertical turbine pump and motor. The maximum footprint would be approximately 50 feet by 25 feet.
- A third tertiary treatment train located at the RWF, identical to the existing two trains, with the following additions:
    - 1 new influent pump
    - 1 new train of high-rate clarifiers
    - 1 new train of continuous-backwash sand filters
    - 1 new train of chlorine contact tanks

  An additional treatment train would require the use of chemicals similar to those already used at the site.
- Eight customer meters

The timing and precise locations of the above improvements would depend on when new users are identified. New users to be added to the distribution system as part of Buildout Project would be a combination of specific users and point demands. Point demands have not been identified as specific users, but rather as a location where future users are likely to be established, according to future land use planning and zoning categories. The new users that would be served in the long-term are shown in **Table 2-4** and **Figure 2-2**. The table also shows current and estimated average annual and peak demands that might be met with recycled water. However, the timing, quantity, type of use, and likelihood of implementation of these "long-term" customers are subject to change as those projects are planned and implemented.

Table 2-4: New User Demand Summary for Buildout

User	Average Annual Demand (AFY)	Peak Day Demand (MGD)	Peak Hour Demand (gpm)
Praxair	130	0.25	173
Genon-Willow Pass Generating Station	50 - 500	0.72	500
Genon-Marsh Landing Generating Station	50 - 500	0.72	500
PG&E Gateway Generating Station	80 - 500	1.15	800
K2 Pure Solutions	30	0.43	300
Loveridge Corridor (Point Demand)	378	2.72	3,778
East of A St. (Point Demand)	20	0.29	200
Los Medanos College (Point Demand)	30	0.43	300
Total	**768 – 2,088**	**6.71**	**6,551**

High Purity Water Treatment Facility

The second component of the Buildout Project would involve construction of an up to 5.0-MGD HPWTF, which would be built initially at 1.0 MGD and subsequently expanded in phases as demand for high purity water increases. The HPWTF would provide a higher level of water treatment than used currently, and would include microfiltration pretreatment and a reverse osmosis (MF/RO) system. RO is an advanced treatment process that purifies water by forcing it through a semipermeable membrane under pressure to remove dissolved solids, viruses, and bacteria. Recycled water generated by this treatment process would result in total dissolved solids (TDS) levels less than 30 mg/L and can be used for demands that require a high level of purity, including: boiler feed, semiconductor manufacturing, cooling towers, food processing, and other industrial process water needs. The HPWTF, which would contain the treatment processes as well as associated pumps, tanks, and chemical storage units, would be housed in a structure with lighting installed for the purposes of security and maintenance; the building material as well as the actual size of the structure would be determined upon design of the project. The facility would be located on a vacant lot at the RWF. **Figure 2-8** shows the anticipated location of the HPWTF. To provide power to the HPWTF in the event of an emergency electrical power outage, backup diesel generators, located on site, would be used.

The RO process produces brine (*i.e.*, high salinity rejected water not passing through the treatment system), which would be discharged to the DDSD wastewater effluent outfall to New York Slough. DDSD would discharge brine in accordance with RWQCB permit requirements.

To maintain the purity of the product water, a separate conveyance system would need to be constructed to deliver product water from the HPWTF to potential customers. However, as existing customers have not yet been identified, the precise locations of the proposed pipeline alignments have not been determined. It is likely that such customers would be located in the light industrial area south of the DDSD WWTP across the Pittsburg-Antioch Highway.

The timing of the HPWTF implementation would depend on when new users are identified.

2.5.3 Construction Methods

New Pipeline Installation

All pipelines proposed under both the Near-Term and Buildout Projects would be constructed on public roadways owned by the cities of Pittsburg and Antioch and Contra Costa County, or private roadways associated with the water users' facilities and plants. Pipeline installation for all new pipelines would use standard open-cut trenching techniques, except where necessary to avoid surface features (as discussed below). For all work activities, prior to the start of construction, the construction boundary and the locations of all underground utilities would be identified through field survey (potholing) and the use of Underground Service Alert. For open-cut trenching, the maximum trench width (for an 18-inch pipeline) would be approximately 6 feet, and trench depth would average approximately 8 feet. The active work areas would be about 10 feet on one side of the trench and about 10 to 15 feet on the other side for access by trucks and loaders. For the purpose of this analysis, a construction easement of 30 feet is assumed. Standard installation of the pipeline would proceed at the rate of approximately 100 feet per day with an overall work zone length of about 200 feet.

Trenchless construction methods would be needed where open cuts are not acceptable or practical, such as across busy intersections, limited easement locations, congested utilities, railroad tracks or flood control facilities. Trenchless methods include jack-and-bore or directional drilling. Jack-and-bore involves use of a horizontal boring machine or auger to drill a hole, and a hydraulic jack to push a casing through the hole; the pipeline is then installed in the casing. The casing is jacked using a large hydraulic jack in a pit located at one end of the crossing. The jacking pit is excavated (and shored) with typical dimensions of 12 to 15 feet wide, 30 to 35 feet long, and 8 to 10 feet deep. An additional area of 2,000 square feet would be needed around the pit for temporary storage of pipe sections and for loading material

removed from the bore. The receiving pit at the other end of the pit is smaller, encompassing approximately 1,000 square feet.

Directional drilling involves the use of a drill rig tilted at the top at an angle of up to ten degrees from horizontal. The bore entry holes are drilled from the starting point to the destination point. In preparing the hole, a small diameter (3-inch wide) pilot hole is first drilled from the entry pit in a gentle arc from the drill rig to the completion hole on the other side of the area to be crossed. Alternatively, the pilot hole is drilled along a pre-determined horizontal and vertical alignment from the entry site to the exit site. This pilot hole can be guided using magnetic readings transmitted from the drill bit back to the drill rig.

After the initial hole is drilled, the final bore entry pit, approximately 10 feet square by approximately 8 feet deep, is constructed, and is used as the collection point for Bentonite drilling mud and drill spoil. The pilot hole is then enlarged by pulling larger reamers, or reaming heads, from the pilot exit pit back towards the drilling rig. The pipeline is then pulled into place behind the last reamer head.

During the directional drill procedure, drilling mud is injected into the drill and recovered from the entry hole until the drill bit surfaces at the exit pit. Once the drill bit surfaces, the drilling mud is recovered at both the entry and exit hole, pumped into tanks and transported back to the rig location for cleaning and eventual reuse. The drilling equipment and materials require a work area of approximately 2,500 square feet. An additional area of approximately 2,000 square feet is needed for loading materials removed from the bore. Pits and work areas would be located within existing ROW and along streets, where appropriate.

For directional drilling, pits would be needed approximately every 500 to 1,000 feet for large pipes and less frequently for small pipes. Pipes would be installed at a depth of approximately 8 to 10 feet, dependent on existing underlying utilities, soil types, environmental constraints, entry and exit constraints, and bend radius of the installed product and drill pipe. Other pit depths vary depending on the feature being avoided as well as the presence of any existing utilities underground.

For open-cut construction, soil and pavement would be removed to the required depth and the bottom of the trench would be compacted. A crushed rock layer would be placed at the base of the trench after the compaction process has been completed. After placement of the crushed rock layer, the new pipeline would be installed and the pipe segments connected, and the trench would be backfilled with imported sand or native soil. The backfill would be compacted, and the disturbed surface over the trench would be restored to pre-construction conditions.

Where needed, the walls of trenches and pits would be shored to prevent cave-ins, as required by federal Occupational Safety and Health Administration Title 8 regulations pertaining to excavations. The sides would be shored using soldier piles or sheet piles, depending on soil conditions. Vibratory drivers would be used to install sheet piles and soldier piles.

Pipeline installation and connection to the potential customer “Dow Wetlands” would occur at the Pittsburg-Antioch Highway, and would not require activities near or within the wetlands.

Pipeline Rehabilitation

Rehabilitation of existing pipelines would involve cleaning, inspecting, and testing the pipeline. Several methods can be employed to line the pipeline, but regardless of the method, access pits would be needed every 1,000 to 2,000 feet along straight lengths of pipe, and at every pipe bend greater than or equal to 22.5 degrees. The pits would be up to approximately 30 by 30 by 20 feet (width, length, and depth, respectively), with the pipeline centered in the pit except where the pits are located at the bends of the pipeline alignment. It is expected that 5 pits would be needed during rehabilitation of the existing pipeline under the Near-Term Project and 25 pits would be needed during rehabilitation of the existing pipeline under the Buildout Project.

Construction of Structures

Construction of the storage tank, pump station, and HPWTF would involve site grading and excavation, shoring of excavations, placement of compacted base rock, forming and pouring of concrete structures, installation of mechanical equipment, trenching for installation of connecting pipelines, connection of electrical supplies and controls, and backfill and restoration. Shallow excavations would be shored using driven or vibrated steel sheet piles. Deep excavations may require use of soldier piles and lagging[5].

General Construction Activities

If groundwater or runoff were to enter the trench during excavation, the water would be pumped from the excavated area and contained and treated in accordance with all applicable State and Federal regulations, before being discharged to the existing sewer system. The contractor would provide all temporary holding tanks required for sedimentation of soil particles and treatment of other contaminants, and would conduct chemical testing of groundwater pumped into the temporary holding tanks. Where groundwater is encountered, the excavation would be dewatered as needed to place pipes and compact the soil. Other measures would be implemented, such as the installation of water impermeable shoring walls, localized sump pumps, and working pads made of crushed rock, to prevent water infiltration into the excavated areas.

Spoil (soil and rock) that is excavated during construction activities would be reused on site for backfilling or disposed of properly per requirements of the Cities of Pittsburg and Antioch, and the County of Contra Costa. Spoil would be analyzed to confirm that hazardous materials are not present before the spoil could be used as backfill. Any material that would not be reused as backfill would be stored temporarily at the construction staging area until characterized and then hauled away to a permitted disposal site. All backfill that is imported will be delivered to stockpiles near the open trench.

The amount of spoil generated would depend on the construction methods selected and the amount of material reused on site. For the Near-Term Project, a maximum of approximately 66 cubic yards[6] of spoil would be generated from excavation activities per day. Assuming a dump truck capacity of 10 cubic yards per truckload, and that all material would be hauled off-site for disposal, approximately 7 round trips (14 one-way truck trips) would be generated per day over the course of the 3.5-month period. It is assumed that an additional 10 one-way truck trips would occur to deliver equipment and other materials. In addition to the truck haul trips, up to 15 workers would be accessing each site daily. Assuming three crews of 15 members each would be working on the project per day and each individual drives separately, 45 worker round trips would be generated per day.

For all trenches and pits, once filled and compacted, the area would be resurfaced to match the surrounding material. In addition, damage to all roads and unpaved areas would be repaired. Unpaved areas would be revegetated with native grasses indigenous to the disturbed area. Revegetation would occur after construction and prior to winter rains to stabilize disturbed areas against erosion.

[5] Soldier piles and lagging is an earth retention technique that retains soil, using vertical steel piles with horizontal lagging. Typically, H-piles are drilled or driven at regular intervals along the planned excavation perimeter. Lagging consisting of wood, steel or precast concrete panels, is inserted behind the front pile flanges as the excavation proceeds. The lagging effectively resists the load of the retained soil and transfers it to the piles. The walls can be designed as cantilever walls, or receive additional lateral support from anchors or bracing. The technique has been used to provide support for many excavations in environments similar to that present in the Project area.

[6] 66 CY is a realistic assumption based on daily activities involving construction of a 200-foot segment of pipeline and the tank. Pipeline trench width would be 2 feet for pipelines that are less than 8 inches in diameter or smaller and the trench depth would be up to 5 feet (only 2 feet is filled with imported material; the rest would be backfilled with native soil). Although the tank would excavate more than 2,000 feet, only the ring around the tank would require importation of approximately 400 CY total; the rest of the foundation would be backfilled using native materials.

2.5.4 Equipment / Staging / Workers

Installation of all project components would use equipment including, but not limited to: crane, excavators, backhoes, front-end loaders, dump trucks, diesel generator, water tank, flat-bed trucks, compactors, double transfer trucks for soil hauling, concrete trucks, paving equipment, dewatering pumps (as needed), and baker tanks (as needed). Equipment and vehicle staging would be accommodated either at each construction site (pipeline, storage tank and pump station), or at a centralized staging area (such as the RWF or WWTP)[7]. Staging would be avoided at sensitive areas such as riparian or other habitat.

The typical crew size for construction of the proposed facilities is 10 to 15 people, plus inspectors. It is expected that two crews would be working at any point in time at different locations along the pipeline. An additional crew may be working at the tank, pump station, and HPWTF sites during pipeline installation and rehabilitation. All construction activities within residential areas, including work hours, would be governed by permits issued by the jurisdictional agencies, but generally would be limited to weekdays from 7 a.m. to 7 p.m. However, nighttime construction and weekend construction may be necessary for certain pipeline connections; nighttime construction would be restricted to non-residential areas only.

2.5.5 Schedule

Construction and rehabilitation of the pipeline is planned to start in winter/spring 2015. At a pace of 100 feet per day, the approximately 10,000 feet of pipeline installation and rehabilitation would take approximately 3.5 months. The construction of the storage tank would occur concurrently with pipeline construction.

The Buildout Project would consist of construction of approximately 40,400 feet of new pipeline, a pump station, and improvements at the RWF and WWTP, as well as rehabilitation of 45,100 feet of existing pipeline. The initiation of the Buildout Project has not yet been determined but it is estimated that construction of the Buildout Project would take 18 months.

2.5.6 Proposed Project/Action Operation and Maintenance

DDSD is currently operating and maintaining recycled water conveyance and storage facilities similar to those proposed. Maintenance of proposed facilities (for both the Near-Term Project and Buildout Project) would consist of existing DDSD staff making inspections approximately four times a year.

2.6 Right-of-Way Issues / Permits Required

The proposed facilities would be sited within city and county lands (primarily streets and a vacant lot). It is anticipated that permits would potentially be required from the following agencies:

- Cities of Pittsburg and Antioch: Encroachment and Excavation Permit, Street Work Permit
- California Department of Transportation (Caltrans): Encroachment Permit
- San Francisco Bay Area Air Quality Management District (BAAQMD): General Permit to Construct
- RWQCB Amended National Pollutant Discharge Elimination System (NPDES) Permit
- California Department of Fish and Wildlife (CDFW[8]) 1601 Streambed Alteration Agreement

[7] Appropriate environmental review would be conducted if the contractor proposes additional staging areas not foreseen and evaluated by this IS/EA. Staging would be avoided at sensitive areas such as riparian or other habitat.
[8] Formerly the California Department of Fish and Game (CDFG)

The Project has been sited to avoid direct impact on wetlands and sensitive habitats, including those that could support special status species. In addition, mitigation would be incorporated into the Project to avoid or minimize the potential indirect effects on habitat or sensitive species, such as erosion or noise. Therefore, no impact or significant impact is expected to these resources and no permits from the US Army Corps of Engineers (USACE), US Fish and Wildlife Service (USFWS), or National Marine Fisheries Service (NMFS), or CDFW are expected to be required for wetlands or endangered species at this time. These agencies would receive the Draft IS/MND and EA for review. DDSD would continue to coordinate with these agencies to confirm that no permits are required.

Chapter 3 Environmental Checklist

1. **Project Title:** DDSD Recycled Water System Expansion Project

2. **Lead Agency Name:** Delta Diablo Sanitation District (DDSD)

3. **Contact Person and Phone Number:** Thanh Vo
Delta Diablo Sanitation District
2500 Pittsburg-Antioch Highway
Antioch, CA 94509
(925) 756-1949

4. **Project Location:** The project encompasses portions of the cities of Antioch and Pittsburg, and unincorporated Contra Costa County

5. **Project Sponsor's Name:** Delta Diablo Sanitation District

6. **General Plan Designation:** Storage Tank sites are designated Industrial; pipelines are located in streets.

7. **Zoning:** Storage Tank sites are zoned General Industrial (IG); pipelines are located in streets.

8. **Description of Project**: The proposed project would expand and optimize DDSD's existing recycled water system, and would include installation of new pipelines, rehabilitation of existing pipelines, construction of a new storage tank, and other improvements at the existing Recycled Water Facility.

9. **Surrounding Land Uses and Setting.** The storage tanks would be located in an industrial area. Pipelines in City streets traverse residential, commercial, public/institutional (including parks and schools) and industrial uses.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)**
    - California Department of Fish and Wildlife: Section 1602 Streambed Alteration Agreement
    - California Department of Transportation: Encroachment Permit
    - Regional Water Quality Control Board: NOI for coverage under National Pollutant Discharge Elimination System (NPDES) General Permit; Amended NPDES Permit
    - San Francisco Bay Area Air Quality Management District (BAAQMD): General Permit to Construct
    - Cities of Pittsburg and Antioch: Encroachment and Excavation Permit, Street Work Permit

Environmental Factors Potentially Affected

The proposed project could potentially affect ("Potentially Significant Impact" or "Less than Significant Impact with Mitigation Incorporated") the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor and present mitigation measures that would reduce all impacts to less than significant.

☐ Land Use	☒ Air Quality	☒ Geology and Soils
☐ Aesthetics	☐ Wind and Shadow	☒ Hydrology and Water Quality
☐ Population and Housing	☒ Recreation	☒ Hazards/Hazardous Materials
☒ Cultural and Paleo. Resources	☐ Utilities and Service Systems	☐ Mineral/Energy Resources
☐ Transportation and Circulation	☐ Public Services	☐ Agricultural and Forestry Resources
☒ Noise	☒ Biological Resources	☐ Greenhouse Gas Emissions
☐ Environmental Justice	☐ Indian Trust Assets	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

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

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

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

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

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

_____ _____

Signature Date

_____ _____

Printed Name For

3.1 Introduction

Using a modified CEQA Environmental Checklist Form as presented in Appendix G of the CEQA Guidelines (14 CCR §15000 et seq.) as a framework, with the addition of "Environmental Justice," which is required in the NEPA analysis pursuant to Presidential Executive Order (EO) 12898, this section identifies the potential environmental impacts of the Proposed Project/Action. Furthermore, the analysis includes federal "cross-cutting regulations" in compliance with State Water Resources Control Board (SWRCB) and U.S. Environmental Protection Agency (USEPA) guidance for federal environmental review ("CEQA-Plus"). Each environmental issue analyzed in this document provides brief background information and discussion of the environmental setting or "affected environment" to help the reader understand the conditions present prior to the implementation of the Proposed Project/Action. The effects of the proposed Project/Action are defined as changes to the environmental setting or "affected environment" attributable to individual project components or operations. The terms "effect" and "impact" are synonymous as used herein (40 CFR 1508.8).

This document evaluates both the project-level (Near-Term Project) and program-level (Buildout Project) components. Where there are differences in impacts, they are separately discussed under different headings. However, where the environmental impacts are similar, the discussions of effects have been combined. For most of the environmental resource topics, particularly as they relate to construction effects, the discussions of impacts under the Near-Term Project and Buildout Project have been combined.

3.2 Environmental Impact Designations

The draft joint environmental document is intended to inform the public of the potential impacts or benefits that would result from implementation of the proposed Project/Action. Therefore, this document applies a set of significance criteria for each issue area to determine potential effects and appropriate mitigation measures/environmental commitments. For this checklist, the following designations are used to distinguish between levels of significance of potential impacts to each resource area in accordance with CEQA Guidelines:

- **Potentially Significant.** Adverse environmental consequences with the potential to be significant according to the threshold criteria identified for the resource, even after mitigation strategies are applied and/or an adverse effect that could be significant and for which no mitigation has been identified. If potentially significant impacts are identified, an EIR or EIS must be prepared to meet the requirements of CEQA and NEPA.
- **Potentially Significant Unless Mitigation is Incorporated.** Adverse environmental consequences with the potential to be significant, but can be reduced to less than significant levels through the application of identified mitigation strategies that have not already been incorporated into the proposed Project/Action.
- **Less than Significant.** Potential adverse environmental consequences have been identified. However, they are not so adverse as to meet the significance threshold criteria for a resource. Therefore, no mitigation measures are required.
- **No Impact.** No adverse environmental consequences have been identified for the resource or the consequences are negligible or undetectable. Therefore, no mitigation measures are required.

3.3 Mitigation Measures / Environmental Commitments

CEQA and NEPA require that a distinction be made between mitigation measures that are included in the proposed Project/Action and other measures proposed by the lead, responsible, or trustee agencies, or other persons that are not included but that the lead agency determines could reasonably be expected to

reduce adverse impacts if required as conditions of project approval. Mitigation measures presented in this joint environmental document, proposed by the lead agencies, would be implemented to reduce potential impacts to less-than-significant levels. Compliance would occur through implementation of a Mitigation Monitoring and Reporting Program. These mitigation measures are also considered environmental commitments, as discussed further in Section 3.23.5.

The following sections provide analyses of potential impacts for each resource area, determine the levels of potential environmental impact for each area, and present mitigation measures/environmental commitments, where needed, to reduce potential environmental impacts to less than significant.

3.4 Aesthetics

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the Project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Discussion

Setting/Affected Environment

The proposed Project/Action is located in Contra Costa County, within the cities of Pittsburg and Antioch and a portion of unincorporated County. The visual quality of the proposed Project/Action area is defined by an urban setting consisting of residential, commercial, and industrial uses bounded by the Delta to the north and hills to the south. There are no designated scenic vistas or scenic highways located within the Project/Action area. Highway 160, east of the Project/Action area, is considered an Eligible State Scenic Highway (not officially designated). The nearest proposed above-ground facilities from this highway are located more 4.5 miles to the west (*i.e.*, proposed improvements at the RWF).

Figure 3-1 and **Figure 3-2** show the existing visual character of the RWF site, and the site adjacent to LMEC where the proposed storage tank would be located, respectively. The visual quality is defined by industrial uses in the vicinity of the site, including facilities related to a power plant and an existing storage tank.

Figure 3-1: Proposed Storage Tank Site Option 1 – RWF

View looking south at an existing storage tank. The DEC is to the right (west)

Figure 3-2: Proposed Storage Tank Site Option 2 – Adjacent to LMEC

View looking south from E. 3rd Street.
Structures associated with industrial facilities are located to the left and right (east and west)

Impacts/Environmental Consequences

a, b) *Near-Term Project*

The proposed components under the Near-Term Project consist of underground pipelines and vaults located beneath roadways/disturbed areas and above-ground structures located within

industrial areas. Once constructed, buried pipelines would not be visible. Above-ground facilities would be visible once constructed, but they would integrate visually with the surrounding industrial uses. Specifically, the proposed 90-foot diameter, 30-foot, steel storage tank would be located either on vacant parcels immediately adjacent to the LMEC (see **Figure 2-3**) or within the RWF (see **Figure 2-4**). The tank would integrate visually with other surrounding facilities (*i.e.,* buildings and tank) that already exist at the LMEC and RWF (see **Figure 3-1** and **Figure 3-2**). Similarly, the up to 30-foot radio tower would blend in with the tank and surrounding uses. As there are no scenic vistas or scenic highways in the vicinity of the proposed Project/Action area, and the Near-Term Project would either be buried underground or integrated with surrounding industrial uses, the proposed Project/Action would not have any adverse effect on a scenic vista or substantially damage scenic resources within a state scenic highway. Thus, no impact would occur.

Buildout Project

The underground pipelines under the Buildout Project would be similar to the Near-Term Project. Above-ground structures for the Buildout Project would consist of a pump station, facilities associated with the additional treatment train, and a HPWTF located on currently vacant land within the RWF. Similar to the above-ground facilities under the Near-Term Project, these above-ground structures would integrate with the existing industrial uses at the site. As there are no scenic vistas or scenic highways in the vicinity of the proposed Project/Action area, and the Buildout Project would either be buried underground or integrated with surrounding industrial uses, no impact would occur.

c) *Near-Term Project and Buildout Project*

Construction of the proposed Project/Action would be visible from surrounding land uses and would temporarily alter the existing visual character and quality of the proposed Project/Action area and vicinity, particularly where the proposed facilities are located within residential and commercial land uses. Specifically, the visual character in and around the proposed and rehabilitated pipelines would be temporarily modified due to the presence of construction equipment and material, stockpiles of soil, and construction-related vehicles. The underground components would not be visible to the public once they have been installed. As such, the alteration of visual quality would be short term and intermittent, lasting the duration of construction activities (up to 3.5 months for the Near-Term Project and 18 months for the Buildout Project). The actual pipeline installation at any one segment would be even shorter, depending on the length of the pipeline (pipeline installation would occur at a rate of approximately 100 feet per day). Due to the temporary nature of construction, pipeline installation would not substantially degrade the existing visual character or quality of the sites and their surroundings.

Where above-ground facilities are proposed, the visual character would be permanently altered. Temporary modifications of the visual quality during construction are similar to those described above for pipeline component. Permanent alteration is associated with the inclusion of structures that were not present before the proposed Project/Action. However, as these facilities (*i.e.,* storage tank, pump station, additional treatment train, and HPWTF) would be located in an area with similar structures, they would integrate visually with surrounding land uses. Thus, the placement of above-ground facilities would not substantially degrade the existing visual character or quality of the sites and their surroundings.

The use of recycled water by potential customers for non-potable uses, specifically landscape irrigation, would not degrade the visual character of the site or surrounding environment. Because recycled water would replace existing potable water to meet customers' irrigation needs, the visual quality of the irrigated lands would remain the same.

d) *Near-Term Project*

Construction of the proposed Project/Action would occur primarily during the daytime hours, although nighttime construction may be necessary for pipeline connections or other work activities. The presence of exterior lights would create a new temporary light source that would otherwise not be present. This light may be visible from surrounding roadways and residential land uses. The creation of a new, temporary light source would be considered significant, but impacts would be reduced to a less-than-significant level with the implementation of **Mitigation Measure AES-1**, which would require all exterior, construction-related lights to be directed downward and oriented away from sensitive uses and from drivers on adjacent roadways.

The proposed Project/Action would involve the construction of a new above-ground storage tank that would be located adjacent to the LMEC or within the RWF. The tank would require permanent exterior lighting for security and facility maintenance purposes. Depending on the building materials and the orientation of the exterior lighting, a new source of light and glare may be created. However, neither of the proposed tank locations is located in areas where the new source of light and glare would have an adverse affect. The site adjacent to LMEC is located in an industrial area surrounded by heavy industrial facilities, include the LMEC power plant; it is located more than 2,000 feet from residences to the south. The RWF is also located in an industrial area adjacent to the DEC power plant; the nearest residences are located more than 4,000 feet to the south. Although the Pittsburg-Antioch Highway, a major thoroughfare, is located south of the RWF, views of the proposed storage tank would be blocked by the existing tank. As such, the potential for light and glare created by the above-ground structures would be less than significant. However, **Recommended Measure AES-2** is recommended to ensure that all light is directed downward and building materials and/or finishes would minimize light and glare effects.

Buildout Project

Impacts associated with nighttime construction would be similar to that described under the Near-Term Project. **Mitigation Measure AES-1** would be required to reduce impacts to a less-than-significant level. Impacts associated with implementation of above-ground structures at the RWF would be similar to that described above for the storage tank. While lighting would be needed for security and maintenance purposes, due to its location within an industrial area far away from residences and blocked from nearby roadways by existing facilities, impacts would be considered less than significant. However, **Recommended Measure AES-2** is recommended.

Mitigation Measures

Mitigation Measure AES-1: Construction Lighting. The bid specifications for this Project shall include provisions regarding the installation of exterior lights for construction activities within residential areas or near major roadways. All exterior light used during construction shall be directed downward and oriented to ensure that no light source is directly visible from surrounding uses.

Recommended Measure AES-2: Facility Lighting. To the extent possible, DDSD shall ensure that all permanent exterior lighting is directed downward and oriented away from roadways. In addition, highly reflective building materials and/or finishes shall not be used in the designs for proposed above-ground structures.

Implementation of the above mitigation measure would reduce potential impacts to a less-than-significant level.

3.5 Agriculture and Forestry Resources

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the Project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for or cause rezoning of, forest land (as defined in Public Resource Code section 12220 (g)), timberland (as defined by Public Resource Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

Setting/Affected Environment

The proposed Project/Action is located within built-up lands that are not designated Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Agricultural resources are located south and east of the proposed Project/Action area. There are no forestry resources in the vicinity of the proposed Project/Action area.

Impacts/Environmental Consequences

a-e) *Near-Term Project and Buildout Project*

As the proposed Project/Action does not occur within agricultural or forest lands, it would not convert farmland, conflict with existing zoning for agricultural use/forest land, result in the loss/conversion of forest land, or involve other changes in the existing environment which could result in the conversion of Farmland or forest land. No impacts would occur.

Mitigation Measures

None required or recommended.

3.6 Air Quality

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

Setting/Affected Environment

The proposed Project/Action area lies within the San Francisco Bay Area Air Basin (SFBAAB). The Bay Area Air Quality Management District (BAAQMD) is the local agency responsible for developing and implementing the clean air plan (CAP) for attainment and maintenance of the ambient air quality standards for SFBAAB. The BAAQMD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircraft, and construction equipment, which are regulated by the California Air Resources Board (CARB) or the U.S. Environmental Protection Agency (EPA). State and local government projects are subject to BAAQMD requirements if the sources are regulated by the BAAQMD.

The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required USEPA to establish National Ambient Air Quality Standards (NAAQS), and CARB has established the more stringent California Ambient Air Quality Standards (CAAQS) through the California CAA of 1988. Areas that do not meet the CAAQS for a particular pollutant are considered to be “non-attainment areas” for that pollutant. The SFBAAB is currently designated as an attainment area for carbon monoxide (CO), nitrogen oxides (NO2), lead (Pb), and sulfur oxides (SOx), but is a non-attainment area for O3 and particulate matter (PM_{10} and $PM_{2.5}$). The Bay Area Air Quality Management District (BAAQMD) has adopted State and Federal attainment plans for the proposed Project/Action area in the 2010 Clean Air Plan (BAAQMD, 2010). The BAAQMD has also developed the air basin’s input to the State Implementation Plan (SIP), which is required under the CAA for areas that are out of attainment of air quality standards.

CARB implements SIPs for criteria air quality pollutants within the SFBAAB and other air basins throughout California. These implementation plans are based on local General Plan buildout projections. The most current SIP, the 2005 Ozone Strategy, is a comprehensive document that describes how the SFBAAB will achieve compliance with the state one-hour air quality standards for ozone and how the region will reduce transport of ozone and ozone precursors to neighboring air basins.

The Bay Area CAP is prepared pursuant to the California CAA. The 2010 Clean Air Plan defines a control strategy that BAAQMD and its partners will implement to reduce emissions and decrease ambient concentrations of harmful pollutants and reduce greenhouse gas (GHG) emissions to protect the climate.

BAAQMD developed the 1999 CEQA Guidelines to assist local jurisdictions and lead agencies in complying with the requirements of CEQA. The CEQA Guidelines were updated in June 2010 to include reference to thresholds of significance adopted by the BAAQMD Board on June 2, 2010, and further updated in May 2011 (BAAQMD 2012). On March 5, 2012, the Alameda County Superior Court issued a writ of mandate ordering the BAAQMD to set aside the criteria pollutant thresholds in its most recent CEQA Guidelines. In view of the court's order, BAAQMD is no longer recommending that the thresholds be used as a generally applicable measure of a project's significant air quality impacts and is relying on individual lead agencies to determine the appropriate air quality thresholds of significance to use in its CEQA analysis.

An air quality model was run for the facilities proposed under the Near-Term Project[9]. For the purposes of quantifying emissions, the methodology identified in the 2011 CEQA Guidelines was used. However, the determination of impacts is based on the 1999 CEQA Guidelines. The Roadway Construction Emissions Model (Version 7.1.2, 2012) and CARB Urban Emissions (URBEMIS) model (Version 9.2.4, 2007) were used to quantify construction and operational emissions associated with proposed facilities. The assumptions used for the model run are as follows:

- The estimated acreage for the proposed facilities is 6 acres.
- Consistent with the URBEMIS User's Guide, 25 percent of the total acres disturbed for each construction phase would represent the maximum daily acres disturbed.
- For operations, it was assumed that power for storage tank operation would come from the electrical grid. Only O&M truck trips (less than four times a year) are included in the model run.
- Although the proposed Project/Action includes the use of diesel equipment during the construction phase, it does not include substantial queuing or congregation of diesel-powered vehicles.

Emissions calculated for the Proposed Project/Action were compared to BAAQMD's mass daily thresholds for construction and operational activities for reactive organic gases (ROG), NO_x, SO_2, CO, PM_{10}, and $PM_{2.5}$. **Table 3-1** provides a summary of the maximum daily air emissions that would be generated from construction and operation of the Proposed Project/Action, assuming the incorporation of basin control measures. The model results are included in **Appendix A**.

[9] An air quality model was not run for the Buildout Project as the proposed components are being evaluated at a programmatic level because the details of the components are only conceptual and speculative in nature at this time.

Table 3-1: Maximum Daily Air Emissions Generated for NEAR-Term Project

Project Component	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Maximum Daily Construction Emission (pounds/day)						
Storage Tank[1]	2.62	21.25	12.22	0.00	5.01	1.98
Pipeline[2]	4.0	46.8	19.1	0.00	3.1	2.1
Total	6.62	68.5	31.32	0.00	8.11	4.08
BAAQMD Thresholds	None					
Significant Construction Emissions[3]	No	No	No	No	No	No
Annual Operation Emission (tons/year)						
Storage Tank[1]	0.01	0.02	0.13	0.00	0.03	0.00
Pipeline	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.02	0.13	0.00	0.03	0.00
BAAQMD Thresholds	15	15	N/A	N/A	15	N/A
Significant Construction Emissions[3]	No	No	No	No	No	No

Notes: [1] Assumes incorporation of basic control measures per URBEMIS model.
[2] RoadMod was used for estimating construction emissions from the proposed pipeline
[3] Please see discussion item b) below.

Impacts/Environmental Consequences

This analysis was based upon modeling that was completed for the Proposed Project/Action to assess conformity with the Clean Air Act, the BAAQMD's air quality significance thresholds, and other air quality regulations as required under CEQA. The model results are included as **Appendix A** of this document.

a) *Near-Term and Buildout Projects*

General estimated basin-wide construction-related emissions are included in the BAAQMD emission inventory and are not expected to prevent attainment or maintenance of the ozone, particulate matter, and carbon monoxide standards within the Bay Area. Therefore, construction of the project would not be inconsistent with air quality plans, impacts from the proposed Project/Action would be less than significant, and no mitigation would be required.

With respect to conformity with the Federal CAA, the proposed Project/Action's potential emissions are below minimum thresholds and are well below 10 percent of the area's inventory specified for each criteria pollutant designated non-attainment or maintenance for the Bay Area. As such, further general conformity analysis is not required.

b) *Near-Term Project*

Project construction would generate fugitive dust and other criteria pollutant, primarily through excavation activities, construction equipment exhaust and haul truck trips, and related construction worker commute trips. This impact would be temporary on a local level, proceeding at a rate of approximately 200 feet per day. Regionally, construction would occur over an approximately 3.5-month period. **Table 3-1** shows anticipated criteria pollutant emissions that would be generated from implementation of the Near-Term Project, with basic control measures implemented. Because residential uses occur along the proposed pipeline alignments, unmitigated

construction dust emissions could result in significant local effects. According to the 1999 CEQA Guidelines, BAAQMD recommends that determination of significance with respect to construction impacts be based not on quantification of emissions and comparison to thresholds, but upon inclusion of feasible control measures for PM_{10}. Thus, to reduce potentially significant local effects to less-than-significant levels, **Mitigation Measure AIR-1**, which includes the BAAQMD basic control measures, would be required. Implementation of these measures would ensure that violations of air quality standards or substantial contribution to an existing or projected air quality violation would be reduced to a less-than-significant level.

Operation of the proposed pipelines and storage tank would not generate any criteria pollutant emissions. Operation of the storage tank would require minimal energy (for instrumentation) supplied by the electric grid. Truck travel associated with O&M of the facilities would generate minimal criteria pollutant emissions, as shown in **Table 3-1** above. As such, operations of the Buildout Project would not result in the violation of any air quality standard or contribute substantially to an existing or projected air quality violation. Impacts would be less than significant.

Buildout Project

Modeling of the construction- and operation- related criteria pollutant emissions was not performed for the Buildout Project. Similar to the discussion above for the Near-Term Project, construction would generate fugitive dust in the vicinity of residential uses. Although construction activities would extend for longer periods of time (18 months), construction near residential uses would be spread out over the proposed Project/Action area, and generally occur at the same rate (approximately 200 feet per day). Impacts would be considered potentially significant, and **Mitigation Measure AIR-1** would be required to reduce these impacts to a less-than-significant level.

With respect to operation, the proposed pump station, tertiary treatment train, and the HPWTF would operate by electricity. Because they are powered electrically, they would not emit localized emissions. However, in the event of a power outage, proposed backup generators would be used. Given the short-term nature of such operation, the Buildout Project is not expected to result in violation of any air quality standard or to contribute substantially to an existing or projected air quality violation. Thus, impacts would be less than significant.

c) *Near-Term and Buildout Projects*

The SFBAAB, within which the Proposed Project/Action would be located, is currently designated as a non-attainment area for O3 and particulate matter. As described above, basic control measures recommended by BAAQMD (see **Mitigation Measure AIR-1**) would be implemented to reduce fugitive dust generation and associated impacts to sensitive receptors. Therefore, PM10 and NOx emissions associated with operation and construction of the proposed Project/Action would not be considered significant. In this context, the proposed Project/Action would not result in a cumulatively considerable net increase of any criteria air pollutants for which the SFBAAB is in non-attainment. Impacts are considered less than significant and no mitigation is required.

d) *Near-Term Project*

Sensitive receptors are people that have an increased sensitivity to air pollution or environmental contaminants. Some population groups, such as children, the elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, are considered more sensitive to air pollution than others. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling units.

The proposed Project/Action is located within 0.25 miles of residences, schools, and potentially other sensitive receptors, as described in Section 3.13, Land Use. The exhaust of large, heavy-duty diesel-powered equipment, which would be used during construction, is known to contain PM10. PM10 is a reference pollutant used to correlate with carcinogenic risk. Because the proposed Project/Action includes installation of proposed pipelines near residential neighborhoods and other sensitive receptors, the proposed Project/Action could potentially expose sensitive receptors to PM10 and NOx emissions. However, as construction would be limited in duration and scale, the proposed work would be distributed in a manner that reduces substantial queuing or congregation of diesel-powered vehicles, and implementation of standard dust control measures would be required (see **Mitigation Measure AIR-1**), criteria pollutant emissions and associated impacts to sensitive receptors would be reduced. Thus, the proposed Project/Action is not anticipated to emit carcinogenic or toxic air contaminants (TAC) that individually or cumulatively exceed the maximum individual cancer risk of 10 in 1 million. Therefore, impacts would be less than significant.

Buildout Project

Proposed pipelines are located in the vicinity of sensitive receptors. Potential impacts would be considered less than significant for similar reasons described for the Near-Term Project. In addition, the use of a backup generator would occur only during an emergency. Given its distance from sensitive receptors and the infrequency of use, its use would result in a less-than-significant air quality impact on sensitive receptors.

e) *Near-Term and Buildout Projects*

Sources that may emit construction-related odors generally include architectural coatings, solvents, and diesel powered on- and off-road equipment. Odors may be emitted during operational activities if diesel-powered equipment is used. Further, ROG, while diverse in nature, are known to be odorous compounds.

Due to the nature of the construction activities and the relatively small footprint of the various construction sites for the proposed Project/Action, there would be few pieces of diesel-powered equipment operating simultaneously during construction. Further, operations would not be anticipated to require the use of diesel-powered equipment, except for the use of gas-powered generators during short-term emergency situations under the Buildout Project. The RWF is located more than 4,000 feet from the nearest sensitive receptors.

Thus, construction of the proposed Project/Action would create a less than significant impact with respect to objectionable odors, and no mitigation is required.

Mitigation Measure

Mitigation Measure AIR-1: Dust Abatement Program (Near-Term and Buildout Projects)

The bid specifications for this Project shall include provisions regarding dust control. Specifically, a dust abatement program shall be implemented to reduce fugitive dust generation. The program shall include the following basic control measures:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.

- Sweep daily (with water sweepers) all paved access road, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

Implementation of the above mitigation measure would reduce potential impacts to a less-than-significant level.

3.7 Biological Resources

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

Setting/Affected Environment

The proposed Project/Action area is mainly located in developed areas of Antioch and Pittsburg, and is surrounded by residential, commercial, industrial, and recreational (parks, golf course) uses. A majority of the proposed new pipelines would be constructed within existing paved roadways. Other facilities would be constructed in already disturbed areas at the RWF. The proposed storage tank would either be constructed in a previously disturbed area at the RWF or in annual grassland adjacent to the LMEC site. Land cover types in the vicinity of the proposed Project/Action area consist of annual grassland, freshwater marsh, willow riparian woodland, canal, perennial drainage, intermittent drainage, landscaped areas, and urban.

Because of its developed condition, the proposed Project/Action area contains limited amounts of native habitat. Much of the proposed Project/Action area is devoid of natural vegetation communities and does not support high integrity wildlife habitat. In addition, the majority of the proposed Project/Action area supports landscaping plants and other urbanized species of plants (including many non-native plants) and animals. However, three of the proposed components are located along the western portion of West 10th Street (Pittsburg/Antioch Highway) adjacent to large areas of undeveloped grassland, freshwater marsh, willow riparian woodland, and several waterways (Kirker Creek/Dowest Slough, Contra Costa Canal, and an unnamed tributary of the Contra Costa Canal). Additionally, an unnamed canal is located at the Antioch Little League and Antioch Fairgrounds sites, and a manmade intermittent drainage is located at the Rancho Medanos Junior High site. The waterways, and possibly the unnamed canal, would be considered waters of the U.S., under the jurisdiction of the USACE.

A Biological Assessment (BA) prepared for the proposed Project/Action (ICFI 2013a) determined that while there are a number of federal and state-listed species in the general vicinity, only three species have the potential to occur in the proposed Project/Action area and could be affected by the proposed Project/Action:

- California tiger salamander (CTS) – a federally listed threatened species
- California red-legged frog (CRLF) – a federally listed threatened species and a California species of special concern
- Giant garter snake (GGS) – a federally and state listed threatened species

The proposed Project/Action area does not fall within USFWS-designated critical habitat for California tiger salamander or CRLF. USFWS has not designated critical habitat for GGS.

California Tiger Salamander

Inside the proposed Project/Action area, suitable upland dispersal habitat is present within the RWF tank site. Suitable aquatic habitat for California tiger salamander is located outside of the proposed Project/Action area, within the RWF pond.

California Red-Legged Frog

Inside the proposed Project/Action area suitable aquatic habitat for California red-legged frog is present within Kirker Creek and the unnamed tributary of the Contra Costa Canal. Suitable habitat also occurs within the pond at the RWF site, which is outside but near the proposed Project/Action area. Suitable upland habitat is present in grassland areas surrounding and between these sites.

Giant Garter Snake

Suitable aquatic habitat for giant garter snake inside the proposed Project/Action area includes Kirker Creek at the pipeline rehabilitation site, the unnamed tributary of the Contra Costa Canal near the DOW wetlands site, and the canal at the Antioch Little League and Antioch Fairgrounds sites. Grassland areas surrounding these sites provide suitable upland habitat for GGS.

Other Sensitive Species

The annual grasslands within and adjacent to the proposed Project/Action area also provide potential nesting habitat for special status bird species such as burrowing owl (*Athene cunicularia*, a state species of special concern). Small and large trees, mostly horticultural varieties, provide nesting habitat for common bird species along most of the pipeline route. Other special status birds, including ferruginous hawk (*Buteo regalis*, Federal species of concern) and white-tailed kite (*Elanus leucurus*, Federal protected species) may forage in or near the project site.

Antioch Dunes National Wildlife Refuge

The Antioch Dunes National Wildlife Refuge is located along the southern shore of the San Joaquin River north of Wilbur Road in Antioch. The Refuge provides protection for three endangered species: Lange's Metalmark butterfly, Antioch Dunes evening primrose and Contra Costa wallflower (USFWS, No date). The refuge and a few acres of surrounding lands contain most of the remaining habitat for these three species and are all that remain of a nine kilometer stretch of sand dunes formed during the glaciation periods.

East Contra Costa Habitat Conservation Plan

The City of Pittsburg is one of several agencies involved in the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP or Plan). The Plan is intended to provide an effective framework to protect natural resources in eastern Contra Costa County, and streamline the environmental permitting process for impacts on endangered species. The city of Antioch is not a participant to the HCP/NCCP. All ground-disturbing activities within the urban development area, which includes Pittsburg, are intended to be covered by this Plan.

Impacts/Environmental Consequences

a) *Near-Term Project*

The proposed Project/Action includes facilities that would be constructed within the vicinity of habitat that could support listed species: CTS, CRLF, and GGS. **Table 3-2** summarizes potential impacts to areas that could provide habitat for listed species. In addition to the listed species shown in **Table 3-2**, annual grassland can support burrowing owl. Large trees that may provide nesting habitat for other sensitive bird species, (e.g. raptors such as the white-tailed kite or ferruginous hawk) are located along busy urban and suburban streets and, therefore, current noise and disturbance by human activities are likely frequent enough that any birds nesting in such trees would be acclimated to such disturbances and are not likely to be affected by the proposed work activities. No tree removal is proposed as part of the propose Project/Action so there would be no direct disturbance to nesting birds,

In most cases, habitat is adjacent to the proposed Project/Action construction area and would not be directly affected by proposed facilities, so there is no acreage affected. However, there is a potential for presence of sensitive species in close proximity to the construction area.

Table 3-2: Effects of the Proposed Action on Habitat for Federally Listed Species

Species[1]	Suitable Habitats	Site	Temporary Effects (acres)	Permanent Effects (acres)
Aquatic				
CRLF	Kirker Creek Unnamed Tributary of Contra Costa Canal	Pipeline Rehab[2] DOW wetlands	0 0	0 0
GGS	Kirker Creek Unnamed Tributary of Contra Costa Canal Unnamed canal	Pipeline Rehab DOW wetlands Antioch Little League and Fairgrounds	0 0 0	0 0 0
Upland				
CTS (dispersal)	Annual grassland	Storage tank[3]	0.45	0.55
CRLF	Annual grassland	Pipeline Rehabilitation Storage tank	1.0 0.45	0 0.55
GGS	Annual grassland	Pipeline Rehab DOW wetlands Antioch Little League and Fairgrounds	0.45 0 0	0.55 0 0

Notes: [1]CTS = California tiger salamander; CRLF = California red-legged frog; GGS = Giant garter snake

[2] Pipeline Rehab = Pipeline Rehabilitation

[3] The storage tank would be constructed either at the site adjacent to LMEC or at the RWF site. The largest site is at the one adjacent to LMEC, where the possible area of disturbance would total up to 1 acre, of which 0.45 acre would be temporary construction area, and 0.55 acre would be permanently covered by the storage tank and surrounding pad.

Source: ICFI 2012a

CTS

Construction of the new storage tank at the RWF has the potential to affect dispersing CTS. Although construction may occur beyond the dry season at the RWF, the installation of sediment and construction barrier fencing (**Mitigation Measure BIO-3**), locating staging areas away from aquatic habitat (**Mitigation Measure BIO-4**), implementing sediment and contaminant best management practices (BMPs) as required by NPDES permit, preparing a Construction Risk Management Plan (**Mitigation Measure BIO-5**), and monitoring construction at the RWF during the rainy season (**Mitigation Measure BIO-7**) would reduce the potential for impacts to occur at this location.

Effects on dispersing CTS would be avoided at Kirker Creek by conducting pipeline rehabilitation activities during the dry season (May 1–October 1) (**Mitigation Measure BIO-2**). Approximately 0.45 acre and 0.55 acre of upland dispersal habitat would be temporarily and permanently affected, respectively, at the RWF tank site. Because there is a low potential for CTS to occur in the proposed Project/Action area, and the effects on upland dispersal habitat are small, no compensation is proposed. No other direct effects on CTS salamander are expected.

CRLF

Based on the quality of habitat present, there is a low potential for injury or mortality of CRLF at the Kirker Creek pipeline rehabilitation site. All work at the DOW wetlands site would be within the paved roadway; consequently there would be no direct effects on the unnamed tributary of the Contra Costa Canal or CRLF at this site. Rehabilitation of the pipeline along Kirker Creek and construction of the new storage tank at the RWF have the potential to affect dispersing CRLF. Although construction may occur beyond the dry season at the RWF, the installation of sediment and construction barrier fencing (**Mitigation Measure BIO-3**), locating staging areas away from aquatic habitat (**Mitigation Measure BIO-4**), implementing sediment and contaminant best management practices (BMPs) as required by NPDES permit, preparing a Construction Risk Management Plan (**Mitigation Measure BIO-5**), and monitoring construction at the RWF during the rainy season (**Mitigation Measure BIO-7**) would reduce the potential for impacts to occur at this location.

Potential injury or mortality of CRLF would be avoided by conducting all construction activities at the Kirker Creek pipeline rehabilitation site during the dry season (May 1–October 1) (**Mitigation Measure BIO-2**).

Because no work would occur within the creek, there would be no loss of aquatic habitat from rehabilitation of the pipeline along Kirker Creek.

Rehabilitation of the pipeline along Kirker Creek has the potential to result in disturbance or degradation of the creek if soil or other materials are sidecast or fall into the creek. Fuel or oil leaks or spills adjacent to aquatic habitat could also cause degradation of habitat. These potential effects would be avoided by installing sediment and construction barrier fencing (**Mitigation Measure BIO-3**), locating staging areas away from aquatic habitat (**Mitigation Measure BIO-4**), implementing sediment and contaminant best management practices (BMPs) as required by NPDES permit, and preparing a Construction Risk Management Plan (**Mitigation Measure BIO-5**).

Approximately 0.45 acre and 0.55 acre of upland dispersal habitat would be temporarily and permanently affected at the RWF tank site. Approximately 1.0 acre of upland habitat along Kirker Creek would be temporarily disturbed during pipeline installation. Disturbed areas would be returned to pre-project or better conditions (**Mitigation Measure BIO-9**). Because there is a low potential for CRLF to occur in the proposed Project/Action area, and permanent effects on upland dispersal habitat are small, no compensation is proposed.

Implementation of **Mitigation Measure BIO-1** (Conduct Mandatory Biological Resources Awareness Training for All Project Personnel and Implement General Requirements), **Mitigation Measure BIO-6** (Conduct Preconstruction Surveys for CRLF and GGS), and **Mitigation Measure BIO-8** (Provide Escape Ramps or Cover Open Trenches at the End of Each Day to Avoid Entrapment of Listed Species) would further reduce and avoid potential effects on California red-legged frog.

GGS

Based on the quality of habitat present, there is a low potential for injury or mortality of GGS at the Kirker Creek pipeline rehabilitation site or at the unnamed canal at the Antioch Little League and Antioch Fairgrounds sites. All work at the DOW wetlands site would be within the paved roadway; consequently there would be no direct effects on GGS or the unnamed tributary of the Contra Costa Canal. Potential injury or mortality of GGS would be avoided by conducting all construction activities at the Kirker Creek pipeline rehabilitation site and the Antioch Little League and Antioch Fairgrounds sites during the dry season (May 1–October 1) (**Mitigation Measure BIO-2**).

Because no work would occur within the creek or canal channels, there would be no loss of aquatic habitat from rehabilitation of the pipeline along Kirker Creek or from new pipeline construction at the Antioch Little League and Antioch Fairgrounds sites.

Rehabilitation of the pipeline along Kirker Creek and new pipeline construction at the Antioch Little League and Antioch Fairgrounds sites has the potential to result in disturbance or degradation of the creek or canal if soil or other materials are sidecast or fall into the creek. Fuel or oil leaks or spills adjacent to aquatic habitat could also cause degradation of habitat. These potential effects would be avoided by installing sediment and construction barrier fencing (**Mitigation Measure BIO-3**), locating staging areas away from aquatic habitat (**Mitigation Measure BIO-4**), implementing sediment and contaminant BMPs as required by NPDES permit, and preparing a Construction Risk Management Plan (**Mitigation Measure BIO-5**).

Approximately 1.0 acre of upland habitat along Kirker Creek would be temporarily disturbed during pipeline installation. There would be no permanent or temporary effects on upland habitat for GGS at either the DOW wetlands site or the Antioch Little League and Antioch Fairgrounds sites because all work would occur within paved, graveled, or landscaped areas. Disturbed areas at the Kirker creek pipeline rehabilitation site would be returned to pre-project or better conditions (**Mitigation Measure BIO-8**).

Implementation of **Mitigation Measure BIO-1** (Conduct Mandatory Biological Resources Awareness Training for All Project Personnel and Implement General Requirements), **Mitigation Measure BIO-6** (Conduct Preconstruction Surveys for CRLF and GGS), and **Mitigation Measure BIO-8** (Provide Escape Ramps or Cover Open Trenches at the End of Each Day to Avoid Entrapment of Listed Species) would further reduce and avoid potential effects on giant garter snake.

Burrowing Owl

Although the annual grassland in the proposed Project/Action area appears to be of limited value as a potential nesting site for burrowing owl, there is a potential that construction of proposed elements within annual grassland, such as the storage tank, could adversely affect burrowing owls, if they establish nests within the construction zone. Project activities, such as earthmoving, grading, and trenching, during the bird nesting season (February 1 and August 31) affect burrowing owls if any are present within the construction zone. If Project/Action implementation occurs between February 1 and August 31, then the measures listed under **Mitigation Measure BIO-10** should be executed to reduce potential impacts to burrowing owls to a less-than-significant level. If possible, ground-disturbance activities (such as trenching) should begin before February 1 in areas near undeveloped grassland and should occur continuously throughout the construction period or at least through the nesting season (August 31) to prevent bird species from establishing nests within the work area.

With implementation of mitigation measures identified above, impacts to CTS, CRLF, GGS, and burrowing owl would be less than significant.

Buildout Project

Buildout facilities would also be located at the existing WWTP, and thus would be constructed in proximity to the pond at the RWF site. Buildout pipelines would be located within city streets, but would also include one crossing of Kirker Creek, where the creek crosses the Pittsburg-Antioch Highway. Buildout components would thus have impacts similar to the Near-Term Project, and could potentially affect CTS, CRLF, and GGS. Buildout components would be subject to the same mitigation as the Near-Term Project, and impacts are thus expected to be less than significant. In addition, the rehabilitated pipeline under the Buildout Project would be located along the railroad ROW in the vicinity of the Antioch Dunes National Wildlife Refuge.

The Refuge protects three endangered species (Lange's Metalmark butterfly, Antioch Dunes evening primrose and Contra Costa wallflower) that inhabit the dunes. Rehabilitation activities would require construction pits every 1,000 to 2,000 feet along the alignment. While it is highly unlikely the plants would occur along the alignment due to the absence of dunes, to ensure impacts to these species are less than significant, a preconstruction survey for these species would be required (see **Mitigation Measure BIO-11**). In addition, the mitigation measure would also require avoidance of any areas that could potentially support these species.

b, c) *Near-Term Project*

No work would occur within creek or canal channels; thus, there would be no loss of riparian habitat or waters of the U.S. from rehabilitation of the pipeline along Kirker Creek or from new pipeline construction at the Antioch Little League and Antioch Fairgrounds sites. No facilities would be constructed in critical habitat for any species of concern.

Rehabilitation of the pipeline along Kirker Creek and new pipeline construction at the Antioch Little League and Antioch Fairgrounds sites has the potential to result in disturbance or degradation of the creek or canal if soil or other materials are sidecast or fall into the creek. Fuel or oil leaks or spills adjacent to aquatic habitat could also cause degradation of habitat. These potential effects would be avoided by installing sediment and construction barrier fencing (**Mitigation Measure BIO-3**), locating staging areas away from aquatic habitat (**Mitigation Measure BIO-4**), implementing sediment and contaminant BMPs as required by NPDES permit, and preparing a Construction Risk Management Plan (**Mitigation Measure BIO-5**). With implementation of mitigation, impacts would be less than significant.

Buildout Project

Although no facilities would be constructed in critical habitat for any species of concern, construction of the pipeline crossing Kirker Creek has the potential to affect riparian habitat and jurisdictional waters of the U.S. To ensure that impacts to riparian habitat are less than significant, the crossing would be constructed in such a way as to avoid work within the riparian zone of the creek (**Mitigation Measure BIO-12**). With avoidance of jurisdictional areas and associated riparian habitat through implementation of mitigation, impacts would be reduced to a less-than-significant level.

d) *Near-Term and Buildout Projects*

The majority of the proposed facilities consist of pipelines which would be buried within existing roadways; the remainder of the facilities would be constructed in developed areas either at the RWF or near LMEC. Neither type of facility would be expected to affect migratory fish or wildlife species. No migratory corridors for terrestrial species have been identified in the proposed Project/Action area, and the Project/Action would not impede migration of fish within Kirker Creek. There would be no impact.

e) *Near-Term and Buildout Projects*

The City of Antioch has a tree protection ordinance, but no trees are expected to be removed, so there would be no impact. The City of Pittsburg does not have a tree protection ordinance. No other local or policies or ordinances would be applicable to the proposed Project/Action.

f) *Near-Term and Buildout Projects*

The proposed Project/Action area is within the area covered by the East Contra Costa County HCP/NCCP, but is not within an area identified for habitat preservation. There would be no conflict with the provisions of the HCP/NCCP.

Mitigation Measures

Mitigation Measure BIO-1: Conduct Mandatory Biological Resources Awareness Training for All Project Personnel and Implement General Requirements (Near-Term and Buildout Projects). Before any ground disturbing work (including vegetation clearing and grading) occurs in the construction area, a USFWS approved biologist shall conduct a mandatory biological resources awareness training for all construction personnel about federally listed species that could potentially occur on site (California tiger salamander, California red-legged frog, and giant garter snake). The training shall include the natural history, representative photographs, and legal status of each federally listed species and avoidance and minimization measures to be implemented. Proof of personnel attendance shall be provided to USFWS upon request. If new construction personnel are added to the proposed Project/Action, the contractor shall ensure that the new personnel receive the mandatory training before starting work. The subsequent training of personnel can include videotape of the initial training and/or the use of written materials rather than in-person training by a biologist. Requirements that shall be followed by construction personnel are listed below.

- Where suitable habitat is present for listed species, DDSD shall clearly delineate the construction limits through the use of survey tape, pin flags, orange barrier fencing, or other means, and prohibit any construction-related traffic outside these boundaries.
- Project-related vehicles shall observe a 15-mile-per-hour speed limit on unpaved roads within the limits of construction.
- Project-related vehicles and construction equipment shall restrict off-road travel to the designated construction areas.
- The contractor shall provide closed garbage containers for the disposal of all food-related trash items (*e.g.*, wrappers, cans, bottles, food scraps). All garbage shall be collected daily from the proposed Project/Action area and placed in a closed container that will be emptied weekly at an approved offsite location. Construction personnel shall not feed or otherwise attract fish or wildlife.
- No pets will be allowed in the proposed Project/Action area.
- No firearms will be allowed in the proposed Project/Action area.
- If vehicle or equipment maintenance is necessary, it will be performed in the designated staging areas.
- Any worker who inadvertently injures or kills a federally listed species or finds one dead, injured, or entrapped shall immediately report the incident to the construction manager. The construction manager shall immediately notify the DDSD Project Manager, Dean Eckerson, who will provide verbal notification to the USFWS Endangered Species Office in Sacramento, California within 1 working day of the incident. DDSD shall follow up with written notification to USFWS within 5 working days of the incident. All observations of federally listed species shall be recorded on CNDDB field sheets and sent to CDFG by DDSD.

Mitigation Measure BIO-2: Conduct Construction Activities during the Dry Season (Near-Term and Buildout Projects). To avoid potential construction impacts to dispersing California tiger salamanders and California red-legged frogs, work at the Kirker Creek pipeline rehabilitation site shall be conducted during the dry season, between May 1 and October 1. To avoid potential impacts to giant garter snake, work at the Kirker Creek pipeline rehabilitation site, Antioch Little League and Antioch Fairground sites shall also be conducted during the May 1–October 1 timeframe. This is the active period for giant garter snakes, when mortality is less likely to occur. This measure does not apply to the RWF

tank site as work may go beyond October 1 at this site (see **Mitigation Measure BIO-7** below, which applies to this site).

Mitigation Measure BIO-3: Install Sediment Fencing and Construction Barrier Fencing around Aquatic Habitats for Federally Listed Species (Near-Term and Buildout Projects)

DDSD shall install sediment fencing and construction barrier fencing between the work areas and Kirker Creek and the canal at the Antioch Little League and Antioch Fairground sites to protect aquatic habitat for California red-legged frog and giant garter snake, respectively. Sediment and barrier fencing will also be placed along the perimeter of the RWF tank site to prevent California tiger salamanders or California red-legged frogs from entering the work area, particularly for work occurring after October 1. The construction specifications shall require that DDSD retain a qualified biologist to identify the areas that are to be avoided during construction. Before work begins at these four sites, DDSD shall work with a qualified biologist to identify the locations for the sediment and barrier fencing and will place flags or flagging around the areas to be protected to indicate the locations of the barrier fences. The protected area shall be clearly identified on the construction specifications and shall be in place before construction activities are initiated. The construction barrier fencing shall be commercial-quality, woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing shall be tightly strung on posts with a maximum of 10-foot spacing. The fencing shall be maintained throughout the duration of the construction period.

Mitigation Measure BIO-4: Locate Staging Areas Away from Aquatic Habitats for Federally Listed Species (Near-Term and Buildout Projects). To minimize effects on suitable aquatic habitats for California red-legged frog and giant garter snake, staging areas shall be located a minimum of 100 feet from Kirker Creek, the unnamed tributary of the Contra Costa Canal at the DOW wetlands site, and the canal at the Antioch Little League and Antioch Fairgrounds sites.

Mitigation Measure BIO-5: Prepare and Implement a Construction Risk Management Plan (Near-Term and Buildout Projects). Because the proposed Project/Action would result in the disturbance of at least 1 acre, it would require coverage under the SWRCB's National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges Associated with Construction Activity (General Construction Permit). Pursuant to the requisite NPDES General Construction Permit, a project Construction Risk Management Plan, which will include the typical information in a Hazardous Material Spill Prevention Control and Countermeasure Plan, shall be prepared and implemented to establish procedures for transporting, handling, and storing hazardous materials used or encountered and for responding to inadvertent spills to minimize the potential for, and the effects of, spills of hazardous, toxic, or petroleum substances during construction that could affect habitat used by federally listed species. The plan shall describe handling, transporting, and storage procedures for hazardous materials, including any existing contamination encountered in spoil or groundwater; construction site housekeeping practices; and shall identify the parties responsible for inspecting, spill response, and regulatory notifications, as applicable.

Mitigation Measure BIO-6: Conduct Preconstruction Surveys for California Tiger Salamander, California Red-Legged Frog, and Giant Garter Snake (Near-Term and Buildout Projects). To avoid and minimize injury and mortality of California tiger salamander, California red-legged frogs and giant garter snake, DDSD shall retain a qualified wildlife biologist to conduct preconstruction clearance surveys no more than 24 hours before ground disturbance at the RWF tank site (California tiger salamander and California red-legged frog), near Kirker Creek (California red-legged frog) and the Antioch Little League and Fairgrounds sites (giant garter snake). At the RWF tank site, the biologist will survey the grassland area where construction activity will occur for any individuals and new burrows that may contain these species. For the Kirker Creek and the Antioch Little League and Fairgrounds sites, the biologist shall survey the creek/canal and the adjacent upland area where construction activities will occur. Results of the surveys shall be provided to USFWS within 1 day of completing the surveys. If a

California tiger salamander, California red-legged frog or giant garter snake is found, DDSD shall contact USFWS to determine appropriate actions.

Mitigation Measure BIO-7: Monitor Construction Activities at the RWF Tank Site during the Rainy Season

Because construction at the RWF tank site may extend beyond October 1, DDSD will retain a qualified wildlife biologist to monitor construction activities at the work site during the first rain event of the season and thereafter until construction is complete. If a California tiger salamander or California red-legged frog is found, work will immediately stop and DDSD will contact USFWS to determine appropriate actions.

Mitigation Measure BIO-8: Provide Escape Ramps or Cover Open Trenches at the End of Each Day to Avoid Entrapment of Listed Species (Near-Term and Buildout Projects). To avoid entrapment of listed species and thereby preventing injury or mortality of species resulting from falling into trenches, all excavated areas more than 1 foot deep shall be provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each workday at the Kirker Creek pipeline rehabilitation site, RWF tank site, DOW wetlands site, and Antioch Little League and Antioch Fairground sites.

If escape ramps cannot be provided, then holes or trenches will be covered with plywood or other hard material. DDSD will ensure that holes and trenches are thoroughly inspected for the presence of federally listed species at the beginning of each workday. If any federally listed species become trapped, work shall be stopped and DDSD shall contact the USFWS by phone immediately.

Mitigation Measure BIO-9: Restore Temporarily Affected Habitat for Federally Listed Species (Near-Term and Buildout Projects). DDSD shall restore temporarily disturbed natural areas upon completion of construction activities. Disturbed areas shall be revegetated with native grasses indigenous to the disturbed area. Revegetation shall occur after construction and prior to winter rains to stabilize disturbed areas against erosion.

Mitigation Measure BIO-10: Burrowing Owl Avoidance (Near-Term and Buildout Projects). Within 30 days prior to the start of project construction, preconstruction surveys for burrowing owls shall be conducted in areas where construction would occur in annual grassland. If ground-disturbing activities are delayed or suspended for more than 30 days after the survey, the site shall be resurveyed.

Occupied burrows shall not be disturbed during the breeding season (February 1 through August 31) or a method developed in coordination with CDFW to minimize disturbance would be implemented. A 160-foot buffer shall be incorporated around occupied burrows during the non-breeding season (September 1 through January 31), and a 250-foot buffer would be incorporated around occupied burrows during the breeding season. Ground-disturbing activities shall not occur within the buffers.

If occupied burrows are documented and the recommended buffer distances cannot be adequately incorporated, passive owl relocation techniques shall be implemented in coordination with CDFW.

Implementation of the above mitigation measures would reduce potential impacts to less-than-significant levels.

Mitigation Measure BIO-11: Antioch Dunes National Wildlife Refuge (Buildout Project Only). DDSD shall conduct a pre-construction survey for the Lange's Metalmark butterfly, Antioch Dunes evening primrose and Contra Costa wallflower along the rehabilitated pipeline in the vicinity of the Antioch Dunes National Wildlife Refuge before selecting construction pits locations. DDSD shall avoid locating pits in any areas that have the potential to support these species.

Mitigation Measure BIO-12: Trenchless Construction across Kirker Creek (Buildout Project Only). DDSD shall construct the Buildout Project pipeline across Kirker Creek using trenchless construction methods to avoid effects on riparian habitat.

3.8 Cultural Resources

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Discussion

Setting/Affected Environment

A cultural resource inventory of the proposed Project/Action area was conducted in March 2013 (ICFI 2013b). The cultural resources inventory was conducted as a component of compliance with both Section 106 and the California Environmental Quality Act (CEQA). The tasks to accomplish the inventory consisted of pre-field research and archival research. The inventory does not identify the Area of Potential Effect (APE), archaeological or built-environment field surveys of the area of direct effect for the Project, nor contacts with Native American Tribes, references to Section 106 compliance, or any recommendation as to a finding of effect pursuant to 36 CFR Part 800 that are all required as part of a full Section 106 evaluation.

Archaeological or built-environment field surveys of the area of direct effect still have to be done. Reclamation must identify the APE, determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties. Reclamation will complete the Section 106 process as outlined in the regulations at 36 CFR Part 800 prior to implementation of the action.

The inventory concluded that the majority of the proposed facilities would be constructed in soils that are not likely to contain buried prehistoric resources. However, a small portion of the proposed Project/Action would be built in areas that may be moderately sensitive for buried prehistoric resources. Although a variety of historic resources were identified within the proposed Project/Action area, the majority of these resources are built (architectural) resources that would not be affected by Project/Action-related activities. Only three prehistoric archaeological sites

were identified, and all three sites are located at least a half-mile from the nearest proposed facility.

Of the four historic-era archaeological resources identified, only two are within ¼-mile of project facilities. One is P-07-000761, foundations and other minor structural remains associated with the Columbia Steel Company Rolling Mills structural complex and the abandoned 1923 PG&E substation built for the CSCRM. Available information indicates that there is no data potential left at this site. The likelihood of buried subsurface historic features with any integrity is very low due to previous demolition activities. Furthermore, no new pipeline is proposed in this area, only the rehabilitation of the existing pipeline (ICFI 2012b).

The second historic-era archaeological resource, P-07-000864, contains the remains of concrete foundations and footings and construction material associated with the former Redwood Manufactures Co. facility. This site also appears to have been extensively disturbed by prior grading activities.

Impacts/Environmental Consequences

As described above, a full Section 106 evaluation has not been completed, but is anticipated to be completed during design of the Project. Pursuant to the Section 106 regulations at 36 CFR Part 800, adverse effects to historic properties can only resolved through consultation with the State Historic Preservation Officer (SHPO) and through implementation of either a Memorandum of Agreement (MOA) or a Programmatic Agreement (PA) with the SHPO that stipulates a program to resolve adverse effects. Because full Section 106 evaluation has not been completed, a finding of effect pursuant to 36 CFR Part 800 has not been made for NEPA purposes.

a, b) *Near-Term Project*

The proposed Project/Action would involve minimal ground disturbance, in the form of pipeline trenching and drilling and pipeline rehabilitation, and construction of new a storage tank, all located in heavily urbanized or industrialized areas. Previously disturbed soils can be found throughout the proposed Project/Action area because of construction of the structures present in these areas; the grading and paving of roads, sidewalks, and parking lots; and the installation of previously existing utilities and pipelines.

The proposed activities, therefore, are relatively minor. Construction activities may disturb, albeit minimally, native ground surfaces. The proposed Project/Action area was determined to have low sensitivity due to both the lack of previously recorded archaeological sites in the area, and because of the nature of the proposed activities. Nevertheless, it is possible that the proposed Project/Action could encounter previously undiscovered buried cultural resources (either historic or archaeological). Implementation of **Mitigation Measure CR-1** would ensure that any resources discovered during construction are dealt with appropriately. With implementation of mitigation, impacts on historic or archaeological resources would be less than significant.

Buildout Project

Potential impacts would be the same as for construction of the Near-Term facilities, and the Buildout Project, which includes additional above-ground facilities at the RWF, would be subject to the same mitigation. With implementation of mitigation, impacts on historic or archaeological resources would be less than significant.

c) *Near-Term and Buildout Projects*

It is possible that paleontological resources could be present in alluvial deposits. Implementation of **Mitigation Measure CR-1** would ensure that any resources discovered during construction are

dealt with appropriately. With implementation of mitigation, impacts on paleontological resources would be less than significant.

d) *Near-Term and Buildout Projects*

There is a potential that human remains could be encountered during construction. Implementation of **Mitigation Measure CR-2** would ensure that any human remains discovered during construction are dealt with appropriately. With implementation of mitigation, impacts on human remains would be less than significant.

Mitigation Measures

Mitigation Measure CR-1: Halt construction if archaeological or paleontological resources uncovered (Near-Term and Buildout Projects). Although no cultural resources were observed on the surface during the archaeological survey, culturally-related sites and objects may yet exist in the proposed Project/Action area, but may be buried by fill or natural sediments. In accordance with CEQA Section 15064.5, if cultural or paleontological resources are encountered during project-related excavations, construction shall be halted or diverted to allow an archaeologist or paleontologist an opportunity to assess the resource and determine measures needed to preserve or record any site determined to be potentially significant. Prehistoric archaeological site indicators include chipped chert and obsidian tools and tool manufacturing waste flakes, grinding implements such as mortars and pestles, and darkened soil that contains dietary debris such as bone fragments and shellfish remains. Historic site indicators include, but are not limited to, ceramics, glass, wood, bone, and metal remains. Paleontological resources include fossil remains.

Mitigation Measure CR-2: Halt construction if human remains uncovered (Near-Term and Buildout Projects). Section 7050.5(b) of the California Health and Safety code shall be implemented in the event that human remains, or possible human remains, are located project-related construction excavation. It states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within 24 hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "…protection of inadvertent destruction." To achieve this goal, it is recommended that the construction personnel on the proposed Project/Action be instructed as to the potential for discovery of cultural or human remains, and both the need for proper and timely reporting of such finds, and the consequences of failure thereof. Implementation of the above mitigation measure would reduce potential impacts to cultural resources to a less-than-significant level.

Implementation of the above mitigation measures would reduce potential impacts to less-than-significant levels.

3.9 Geology and Soils

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the Project:				
a) 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, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion

Setting/Affected Environment

Eastern Contra Costa County is located in a seismically active zone. There are no known active faults with the Project/Action area; however, there are several major faults located within a few miles (Antioch 2003). Historically active faults in Contra Costa County include the Hayward, Calaveras, Concord-Green Valley, and Marsh Creek-Greenville faults. The San Andreas Fault, a

large active fault, is located approximately 45 miles west of the City.). The Antioch Fault, which is classified as a potentially active fault (with evidence of displacement during Quaternary time - last 2 million years, is located within the Project/Action area, crossing the proposed rehabilitated pipeline under the Buildout Project (see **Figure 3-3**). The intensity of ground shaking the proposed Project/Action area could experience is affected by a number of factors including vicinity to the fault rupture and depth of earthquake, along with the response of the geologic materials. The topography of Antioch slopes upward in a southwesterly direction from an approximate elevation of 5 feet above sea level along the San Joaquin River to an approximate elevation of 1500 feet in the Mt. Diablo foothills to the southwest (Contra Costa Watershed Forum, ND). The low-lying areas along the San Joaquin River are underlain mostly by clay loam soils. The southeastern portion of the City is underlain with mostly clay soil, as well as some alkali clays and loams. The higher elevation areas in the southwestern portion of the City are underlain by Altamont-Fontana Complex soils (East Contra Costa County Habitat Conservation Plan Association, 2006).

Impacts/Environmental Consequences

a) *Near-Term and Buildout Projects*

The proposed Project/Action would not expose people or structures to adverse effects, including the risk of loss, injury, or death because the proposed Project/Action does not include construction of habitable structures. Although the proposed Project/Action area is within a region of high seismic activity, and the proposed rehabilitated pipeline under the Buildout Project crosses a potentially active fault, it is not designated as an Alquist-Priolo "Earthquake Fault Zone" (CGS, 2010).

The proposed Project/Action area could experience very strong to violent shaking in the event of a major earthquake along historically active faults in the County including the Hayward, Calaveras, Concord-Green Valley and Marsh Creek-Greenville faults (ABAG, 2003). The City is expected to experience ground shaking of an intensity associated with nonstructural damage in most locations, but could experience strong shaking in bay mud deposits along Suisun Bay, north of Highway 4 (City of Antioch, 2003).

The soils in the proposed Project/Action area for Near-Term Project facilities have a very low to moderate potential for liquefaction. Soils directly adjacent to the San Joaquin River have a high to very high potential for liquefaction and small sections of the Buildout project cross these areas (ABAG, USGS 2006).

According to the California Geological Survey (CGS), none of the proposed Project/Action area is located within earthquake-induced landslide zones (CGS, 2012). Additionally, most of the Project is within flatland and no rainfall-induced landslides or existing landslides are mapped with the exception of the Memorial Park area for the Near-Term Project, which is mapped as an area of "few landslides" (ABAG, USGS, 1997).

Given that new structures, including an above ground storage tank, pipelines, a pump station, and the HPWTF could be affected by groundshaking and liquefaction, a geotechnical review (**Mitigation Measure GEO-1**) would be required for these facilities to confirm that no geologic or geotechnical "fatal flaws" exist. Implementation of **Mitigation Measure GEO-1** would reduce potentially significant impacts associated with groundshaking and liquefaction to less than significant. Impacts associated with fault ruptures and landslides are considered less than significant.

Delta Diablo Sanitation District

0 0.25 0.5 1
Miles
N

Genon - Willow Pass Generating Station
Marina Walk Park
United Spiral Pipe
K2 Pure Solutions
Waste Recycled Center & Transfer Station (WRC&TS)
Browns Island
Winter Island
New York Slough
DOW Wetlands
Antioch Historical Society
Prosserville Park
Proposed Pump Station and RWF Improvements (See Figure 2-8)
Existing RWF
Existing WWTF
Parkside Elementary
Pittsburg
Pittsburg HS
Rancho Medanos Junior High
Point Demand Loveridge Corridor
Praxair
Delta View Golf Course
Point Demand - Los Medanos College & Other Customers
Babe Ruth Fields
Antioch Little League
Antioch Fairgrounds
Point Demand - East of A St
Contra Costa County
PG&E Gateway Generation Station
Genon - Marsh Landing Generating Station
Caltrans at Hwy 4
Memorial Park
Sutter Elementary
Antioch
Oakley
Contra Loma Reservoir
Antioch Municipal Reservoir
Lone Tree Golf Course

Figure 3-3: Hazards Map

Recycled Water Customers
- Existing
- Near-Term
- Buildout

Pipeline
- Existing
- Buildout
- Near-Terrm
- Rehabilitated (2 Parallel Lines)

Other
- Fault Line
- 100 Year Flood Zones

RMC Water and Environment

\\rmcla\RMCLAIProjects GIS\0013-025\MXDs\Fig 2- X Hazards Map.mxd

Sources:Federal Emergency Management Agency (FEMA), USGS

b) *Near-Term and Buildout Project*

Construction activities involving soil disturbance, such as excavation, stockpiling, and grading could result in increased erosion and sedimentation to surface waters. However, substantial erosion is not expected because of the relatively small scale of earthmoving activities necessary for Project implementation and because of implementation of **Mitigation Measure HYD-1**. Thus, impacts would be reduced to a less-than-significant level.

c, d) *Near-Term and Buildout Projects*

New structures proposed as part of the Near-Term Project (pipelines and a storage tank), and Buildout Project (pipelines, pump station, tertiary treatment train, and the HPWTF), would not affect the stability of the geologic unit or soil or result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. There are no habitable structures proposed for the Project/Action; therefore, there is no risk to human life or property. With proper engineering, the construction and operation of the proposed Project/Action is not expected to result in any significant adverse short- or long-term impacts related to geology, soils or seismicity. Portions of the pipeline alignment and structures are located within clayey soils (NRCS, 2008; NRCS, 2012) with the potential for expansion as defined by the UBC Table 18-I-B – Classification of Expansive Soil (UBC, 1997). A geotechnical review required as part of **Mitigation Measure GEO-1** would determine whether expansive soils would impact the proposed storage tank. However, no habitable structures would be built as a part of this Project/Action, and impacts to the storage tank resulting from expansive soils (which could potentially result in leaks or release of water) would only affect the areas immediately surrounding the tank pad. Therefore there is no substantial risk to life or property as a result of expansive soils. Implementation of **Mitigation Measure GEO-1** would reduce potential impacts to less than significant.

e) *Near-Term and Buildout Projects*

No septic tanks are proposed for the proposed Project/Action; therefore, no impacts would occur.

Mitigation Measures

Measure GEO-1: Conduct Geotechnical Review of the selected locations of the proposed facilities (Near-Term and Buildout Projects). The City shall conduct geotechnical review for the proposed facilities under both the Near-Term Project and Buildout Project prior to construction activities to determine the geotechnical feasibility of the selected sites.

Implementation of the above mitigation measure would reduce potential impacts to a less-than-significant level.

3.10 Greenhouse Gas Emissions

	Potentially Significant Impact	*Less Than Significant With Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
Would the Project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

Setting/Affected Environment

As described in Section 3.6, Air Quality, BAAQMD is the agency principally responsible for comprehensive air pollution control in the SFBAAB. Climate change and GHG emissions have been addressed through a series of state legislation and executive orders, including the following:

- California Global Warming Solution Act (AB 32) – Requires that the state reduce emissions of GHG to 1990 levels by 2020.
- Executive Order S-3-05 – Sets emission reduction targets: 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.
- Executive Order S-01-07 – Mandates a statewide goal be established to reduce carbon intensity of California's transportation fuels by at least 10 percent by 2020.
- Title 24 – Established standards to allow consideration and possible incorporation of new energy efficiency technologies and methods.
- AB 1493 – Requires CARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks.
- The Western Regional Climate Action Initiative – Signed by five states, including California, to collaborate to identify, evaluate, and implement ways to reduced GHG emissions in the states collectively and to achieve related co-benefits.

The City of Antioch completed the Municipal Climate Change Action Plan in 2011 (City of Antioch 2011). This document includes a GHG inventory for the City's municipal operations. The City of Pittsburg adopted its Climate Action Plan in 2012. Both Cities' GHG emissions reduction goal is equivalent to that established in AB 32, to reduce GHG emissions to 1990 levels by the year 2020, and outlines strategies that can be taken to reduce GHG emissions.

To provide GHG emission guidance to local jurisdictions within the SFBAAB, BAAQMD developed CEQA GHG significance thresholds in 2009. BAAQMD identified screening levels of 1,100 metric tons of CO2e[10] emissions per year (BAAQMD, 2009) for operational emissions for projects other than stationary sources, and a significance threshold of 10,000 metric tons of CO2e per year (MTCO2e/yr) from stationary GHG sources. BAAQMD has not established GHG significance thresholds for construction, but construction-related GHG emissions can be compared to BAAQMD's operational threshold for non-stationary sources.

Quantification of GHG for the Near-Term Project was based on the carbon dioxide (CO_2) outputs generated during operations using the Road Construction Model and URBEMIS 2007 model. GHG emission estimates for the Buildout Project were based on presumed correlation between the GHG annual emissions and the size of the Project.

[10] CO2e is the concentration of carbon dioxide that would cause the same amount of radiative forcing as a given mixture of carbon dioxide and other greenhouse gases.

Impacts/Environmental Consequences

a, b) *Near-Term Project*

Applicable plans, policies, and regulations associated with reducing the emissions of GHGs include BAAQMD's proposed thresholds of significance for GHG as described above[11]. The total GHG emissions for construction of the proposed Near-Term Project (pipeline and tank) are estimated to be 217.2 MTCO2e/yr, which is below the interim threshold of 1,100 MTCO2e/yr set by BAAQMD (BAAQMD 2009) for non-stationary sources. The annual GHG emissions for operating the Near-Term Project (*i.e.*, associated with maintenance vehicles) are estimated to be 2.48 MTCO2e/yr, far below the threshold of 10,000 MTCO2e/yr established by BAAQMD[12]. Given that the BAAQMD threshold is established based upon implementation of AB 32, the Proposed Project/Action would meet GHG reductions goals established in AB 32. As such, the Near-Term Project would not generate GHG emissions that would have a significant impact on the environment or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would be less than significant and no mitigation is required.

Buildout Project

Air quality modeling was not completed for the Buildout Project as the details of the components have not yet been defined. The level of GHG emissions was estimated conservatively based on presumed correlation between the GHG annual emissions and the size of the Buildout Project (see Appendix B). Based on this analysis, the total GHG emissions for construction of the proposed Buildout components (pipelines, pump station, tertiary treatment train, and HPWTF) are estimated to be 1,080 MTCO2e/yr, which is below the BAAQMD threshold. Operation of the Buildout Project is also expected to be below the BAAQMD threshold because it would not result in any additional truck trips associated with O&M, since all facilities would be located at the RWF where existing workers are located. Similar to the Near-Term Project, because proposed structures (with the exception of the backup diesel generator) would be operated by electricity, operational GHG emissions do not need to be calculated. The diesel generator would be operated only in the rare event when there is an emergency associated with an electric power outage. Because of the unpredictable and infrequent nature of such operations, they are not included in the emissions calculations. Thus, the Buildout Project is not expected to generate GHG emissions that would have a significant impact on the environment or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Thus, impacts would be less than significant and no mitigation is required.

Mitigation Measures

None required or recommended.

[11] As described in Section 3.6, Air Quality, the Alameda County Superior Court issued a writ of mandate ordering the BAAQMD to set aside the criteria pollutant thresholds in its most recent CEQA Guidelines. Thus, BAAQMD is no longer recommending that the thresholds be used as a generally applicable measure of a project's significant air quality impacts and is relying on individual lead agencies to determine the appropriate air quality thresholds of significance to use in its CEQA analysis. For the purposes of this analysis, because the BAAQMD 1999 CEQA Guidelines do not contain thresholds for GHGs, the current thresholds have been used here.

[12] Because GHG thresholds for operation are applicable to direct impacts only, the GHG emissions associated with operation of the tank (which would use power from the electric grid) are not included in the calculations.