Integrated Final Environmental Impact Report

Silicon Valley Clean Water Wastewater Conveyance System and Treatment Plant Reliability Improvement Project

CIP No. 6006

State Clearinghouse Number # SCH 2016022055

Silicon Valley Clean Water
1400 Radio Road
Redwood City, CA 94065

In Consultation with:

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INTRODUCTION TO THE INTEGRATED FINAL EIR

This Integrated Final EIR document is a compilation of documents prepared individually and previously made available to the public. A Final EIR, including text revisions and responses to comments, was prepared by SVCW prior to certification of the EIR. The Final EIR, together with the Draft PEIR, constitutes the Integrated Final EIR for this SVCW Wastewater Conveyance System and Treatment Plant Reliability Improvement Project. This Integrated Final EIR document integrates these two documents, but changes none of them (apart from minor formatting and page numbering).

In conformance with Section 15132 of the CEQA Guidelines, this Integrated Final EIR contains the following, at the locations indicated:

(a) The Draft EIR in its entirety is found in the document which follows this page and the technical appendices (including Appendices A through I).

(b) The Final EIR, which includes the responses to the comments received by SVCW, and FEIR Appendix I, is reproduced in its entirety as Appendix J of this Integrated Final EIR.

(c) Resolution of the SVCW Commission certifying the Final EIR for the Project as complete and in conformance with CEQA and adopting findings and a mitigation monitoring and reporting program (MMRP) for the *Wastewater Conveyance and Treatment Plant Reliability Improvement Project* (Appendix K).

(d) Notice of Determination for the *SVCW Wastewater Conveyance and Treatment Plant Reliability Improvement Project Final EIR* (Appendix L).

The Draft EIR was circulated to affected public agencies and interested parties for a 45-day review period. The Final EIR consists of comments received by the Lead Agency on the Draft EIR, responses to those comments, and revisions to the text of the Draft EIR. The Final EIR was circulated to the public and commenting public agencies 13 days prior to the Final EIR certification hearing. The text revisions identified in the Final EIR have been incorporated into the text of this Integrated Final EIR. All deletions are shown with a ~~line though the text~~ and all new text is shown with <u>underlining</u>.

TABLE OF CONTENTS

Figures

Photos

Tables

Appendices

ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments
AB	Assembly Bill
AC	Aspahlt Concrete
ADWF	Average Dry Weather Flow
ALUC	Airport Land Use Committee
ALUP	Airport Land Use Plan
APE	Area of Potential Effect
AST	Aboveground Storage Tank
BAAQMD	Bay Area Air Quality Management District
BCDC	San Francisco Bay Conservation and Development Commission
BPS	Belmont Pump Station
Btu	British Thermal Unit
C/CAG	San Mateo City/County Association of Governments
CAA	Clean Air Act
Cal/EPA	California Environmental Protection Agency
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFM	Cubic Feet per Minute
CH_4	Methane
CIP	Capital Improvement Program
CIPP	Cured In-Place Pipe
CLUP	Comprehensive Airport Land Use Plan
CMP	Congestion Management Program
CMU	Concrete Masonry Unit
CNEL	Community Noise Equivalent Level
Cy	Cubic Yards
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CRHR	California Register of Historical Resources
CRR	California Ridgeway Rail
CSMHSA	County of San Mateo Health Services Agency
CSMP	Conveyance System Master Plan
CWA	Clean Water Act
dB	Decibel

dBA	A-weighted sound level
DNL	Day/Night Average Sound Level
DOC	California Department of Conservation
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EO	Executive Order
EPBM	Earth Pressure Balance Machine
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FDS	Flow Diversion Structure
FEF	Flow Equalization Facility
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FFR	Fixed Film Reactor
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FRP	Fiberglass Reinforced Pipe
GHG	Greenhouse Gas
HCP	Habitat Conservation Plan
HDPE	High-Density Polyethylene
HP	Horsepower (746 watts)
IBC	International Building Code
ISP	Invasive Spartina Project
JD	Jurisdictional Determinations
JPA	Joint Powers Authority
kWh	Kilowatt Hour
LUST	Leaking Underground Storage Tank
MBR	Membrane Bioreactor
MBTA	Migratory Bird Treaty Act
MCC	Motor Control Center
MEI	Maximum Exposed Individual
MGD	Million Gallons per Day
MMPA	Marine Mammal Protection Act
MMT	Million Metric Tons
MPPS	Menlo Park Pump Station
MTP	Metropolitan Transportation Commission
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent

NPDES	National Pollutant Discharge Elimination System
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
O&M	Operations and Maintenace
PCB	Polychlorinated Biphenyls
PM_{10}	Particulate matter of 10 microns or less in size
$PM_{2.5}$	Particulate matter of 2.5 microns or less in size
PPV	Peak Particle Velocity
PWWF	Peak Wastewater Flow
RCP	Reinforced Concrete Pipe
RCPS	Redwood City Pump Station
RHA	Rivers and Harbors Appropriation Act
RLS	Receiving Lift Station
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBSA	South Bayside System Authority
SCADA	Supervisory Control and Data Acquisition
SCPS	San Carlos Pump Station
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SMHM	Salt Marsh Harvest Mouse
SMWS	Salt Marsh Wandering Shrew
SRF	State Revolving Funds
SVCW	Silicon Valley Clean Water
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TBM	Tunnel Boring Machine
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WBSD	West Bay Sanitary District
WDR	Waste Discharge Requirements
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

INTRODUCTION

The Silicon Valley Clean Water (SVCW) Conveyance and Treatment Reliability Improvements Project (proposed Project, or Project) includes specific improvements and upgrades to portions of the conveyance system and the wastewater treatment plant. The proposed Project is made of 17 related components, and each component has a separate schedule and timing for implementation.

PROJECT BACKGROUND

SVCW is a joint powers authority (JPA) that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). The existing conveyance system includes four pump stations, one for each of the four Member Agency's collection systems, a wet weather booster station located in the San Carlos Pump Station, a lift station located at the WWTP, and an approximately nine (9)-mile long, reinforced concrete force main. The individual Member Agencies of the JPA own and operate the sanitary sewer collection systems within their respective jurisdictions, and West Bay Sanitary District (WBSD) also owns the existing Flow Equalization Facility (FEF) which can be used to store their wastewater during wet weather conditions.

The pump stations are in varying states of condition, ranging from poor to very poor. In most instances, equipment is at the end of its useful life, and the condition has degraded to the extent that the systems require extensive maintenance to ensure functionality and reliability. The majority of the 45-year old concrete force main's condition is poor and has exceeded its designed useful lifespan, with a history of joint leaks caused by unstable young bay mud soil conditions. Internal and external corrosion of the concrete and reinforcing steel lead to more significant leaks when surges (such as during a power outage) break through the weakened top of pipe. The frequency of pipeline leaks is expected to increase given the current poor condition of the pipelines, continued movement of weak soils and continuing corrosion.

In addition to the conveyance system, SVCW has been in discussions with the Regional Water Quality Control Board (RWQCB) regarding future regulatory requirements to remove nitrogen, and possibly phosphorus from its wastewater. While some wastewater treatment plants have the ability to remove these nutrients, SVCW's treatment process does not currently have that capability. SVCW would be implementing a significant change to its treatment processes to comply with future nutrient removal requirements.

Project Objectives

SVCW has identified the following objectives of the proposed Project:

- Replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions.
- Reduce the likelihood of spills and discharges of untreated sewage to the surrounding environment, which has occurred numerous times with the existing 45 year old concrete sewer force main that operates above its design pressure.
- Implement a Project that minimizes adverse environmental effects, adverse impacts to public health and private property owners, utility interference and disruption during construction, and short- and long-term cost.
- Improve plant process reliability, and increase operational readiness.
- Meet future regulatory requirements imposed by the RWQCB for nutrients discharged into the San Francisco Bay.

Project Characteristics

The proposed Project consists of the rehabilitation and/or repurposing of existing pump stations, improvements to the existing WWTP, and replacement of the existing force main pipeline with a gravity pipeline. The Project is characterized by 17 major components including installing a new Gravity Pipeline, improvements to the existing WWTP (Receiving Lift Station, Headworks Facility, Odor Conrol Facility, Flow Diversion Facilities, Influent Connector Pipes, Nutrient Removal Facilities, Secondary Clarifiers, Stormwater Facilities, Front of the Plant Civil Improvements), and four pump station replacements, rehabilitations and/or repurposings. The proposed Project would continue to provide wastewater treatment services to residents within the Project area. A detailed description with the complete list of the Project components is provided in *Section 3.0 Project Description* of this EIR.

ENVIRONMENTAL IMPACTS

The proposed Project would not result in any significant and unavdoiable impacts, as all significant impacts are capable of being reduced to less than significant levels through incorporation and implementation of feasible mitigation measures proposed by the Project, as shown below in Table ES-1.

Table ES-1:
Summary of Significant Impacts and Mitigation Measures

Significant Impacts	Mitigation Measures
Air Quality – Section 4.3	
Impact AIR-1: The proposed Project construction emissions would exceed the average daily threshold of 54 pounds per day for NO_x for calendar year 2018 which is a significant impact.	**MM AIR-1:** The construction contractor shall implement the following measures at the Project sites: • Ensure that all construction equipment (including generators) larger than 25 horsepower (HP) and used at the Project site for more than two work days meet, at a minimum, U.S. EPA Tier 2 engine emission standards; • Ensure that all stationary equipment larger than 25 HP (e.g., generators and hydraulic power packs) meet California Air Resources Boards's (CARB's)

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	most recent certification standard for off-road heavy duty diesel engines; • Portable diesel-powered equipment (including generators) larger than 25 HP and used at the project site for more than two work days meet, at a minimum, U.S. EPA Tier 3 engine emission standards for NOx; • Portable diesel-powered equipment used at the Redwood City Pump Station construction sites for more than two days shall include diesel particulate matter control devices in the form of CARB currently Verified Diesel Emission Control Strategies (VDECS). Available online at http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm; • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or as necessary to control dust; • All haul trucks transporting soil, sand, or other loose material off-site shall be covered; • All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping shall be prohibited; • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour; • All paving shall be completed as soon as possible after pipeline replacement work is finished; • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five (5) minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations (CCR)). Clear signage shall be provided for construction workers at all access points; • All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; and • Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	phone number shall also be visible to ensure compliance with applicable regulations. **Less Than Significant Impact With Mitigation**
Impact AIR-2: Construction activities at the Redwood City Pump Station would result in significant cancer risk (greater than 10.0 chances per million) at the maximally affected sensitive receptor. Construction activities at other portions of the Project would not have significant impacts.	**MM AIR-2:** Implementation of Mitigation Measure AIR-1 described above would reduce construction health risk impacts to a *less than significant level*. Specific measures would include: • Ensure that all construction equipment (including generators) larger than 25 HP and used at the Project site for more than two work days meet, at a minimum, U.S. EPA Tier 2 engine emission standards; • Ensure that all stationary equipment larger than 25 HP (e.g., generators and hydraulic power packs) meet CARB's most recent certification standard for off-road heavy duty diesel engines; • Portable diesel-powered equipment (including generators) larger than 25 HP and used at the Project site for more than two work days meet, at a minimum, U.S. EPA Tier 3 engine emission standards for NOx; • Portable diesel-powered equipment used at the Redwood City Pump Station construction sites for more than two days shall include diesel particulate matter control devices in the form of CARB currently Verified Diesel Emission Control Strategies (VDECS). Available online at http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm. **Less Than Significant Impact With Mitigation**
Biological Resources – Section 4.4	
Impact BIO-1: The proposed Project's construction activities at the Bair Island Inlet Structure could result in direct mortality and/or harassment of Federal and State Endangered Salt March Harvest Mouse (SMHM) individuals and special-status Salt Marsh Wandering Shrew (SMWS), which would be considered a significant impact.	**MM BIO-1.1:** Prior to ground disturbing activities adjacent to potential SMHM and SMWS habitat, exclusion barriers and/or fencing shall be installed to exclude individuals of these species from areas of active construction. The design of the exclusion barriers and fencing will be approved by a qualified biologist and shall be installed in the presence of a qualified biological monitor. The fence will be made of a material that does not allow SMHM or SMWS to pass through, and the bottom will be buried to a depth of a minimum of four (4) inches so that these species cannot crawl under the

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	fence. All support for the exclusion fencing will be placed on the inside of the Project footprint. Additionally, it is not anticipated that removal of marsh or associated ruderal vegetation will be necessary for the proposed Project, but in the event removal of potential SMHM or SMWS habitat is necessary, it would be completed using only hand tools and in the presence of a biological monitor. **MM BIO-1.2:** A qualified biological monitor will be present during wildlife exclusion fence installation and removal, and during all vegetation clearing and initial ground disturbance (if necessary) which take place in marsh habitats, and vegetation adjacent to marsh habitats. The monitor will have demonstrated experience in biological construction monitoring and knowledge of the biology of the special-status species that may be found in the Study Area, including SMHM and California RidgewayRail (CRR). The monitor(s) will have the authority to halt construction, if necessary, if noncompliance actions occur. The biological monitor(s) will be the contact person for any employee or contractor who might inadvertently kill or injure a special-status species or anyone who finds a dead, injured, or entrapped special-status species. Following fence installation, vegetation removal in potential habitat areas, and initial ground disturbance in potential habitat areas, the biologist will train an onsite monitor to continue to document compliance. The biologist will conduct weekly site checks to provide guidance for fence maintenance, provide environmental sensitivity training, and document compliance with permit conditions. **MM BIO-1.3:** The biological monitor shall provide an endangered species training program to all personnel involved in Project construction. At a minimum, the employee education program shall consist of a brief presentation by persons knowledgeable about the biology of sensitive species with potential to occur in the Project footprint, and about their legislative protection to explain concerns to contractors and their employees involved with implementation of the Project. The program shall include a description of this species and their habitat needs, any reports of occurrences in the area; an explanation of the status of these species and their protection under State and Federal legislation; and

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	a list of measures being taken to reduce impacts to these species during construction. **MM BIO-1.4:** Food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each work day from the investigation site to eliminate an attraction to predators of listed species. **MM BIO-1.5:** If a Federal or State listed species is observed at any time during construction in the work area, work will not be initiated or will be stopped immediately until the animal leaves the vicinity of the work area of its own volition. If the animal in question does not leave the work area, work will not be reinitiated until the appropriate agency is contacted and has made a decision on how to proceed with work activities. The biological monitor will direct the contractor on how to proceed accordingly. The biological monitor or any other persons at the site will not pursue, capture, handle, or harass any species observed. **Less Than Significant Impact With Mitigation**
Impact BIO-2: The proposed Project's construction activities at the Bair Island Inlet Structure and at the Flow Splitter Shaft may cause noise and visual disturbances that result in harassment of Federal and State Endangered CRR individuals causing nest abandonment, which would be considered a significant impact.	**MM BIO-2.1:** For Project activities occurring on Inner Bair Island, construction during the CRR breeding season (February 1 through August 31) will be avoided as much as feasible. If construction work is proposed during the CRR breeding season (February 1 through August 31), surveys will be conducted to determine the extent and location of nesting CRR. CRR surveys with USFWS-approved protocols will be conducted along Inner Bair Island in areas where construction or staging is to occur within 700 feet of tidal salt marsh habitat that is suitable for CRR nesting. Survey methods that are modified from the USFWS survey protocol may be permitted if approved by USFWS and CDFW. Results of protocol-level breeding surveys will be submitted to the USFWS and CDFW for approval. If no nesting CRR are found during the surveys, construction may proceed during the CRR breeding season. If nesting CRR are detected, work will be avoided within 700 feet of the active calling center until the end of the breeding season (August 31). **MM BIO-2.2:** For Project activities occurring in the WWTP area or at the Menlo Park Pump Station, surveys

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	for CRR as described in **MM BIO-2.1** will be conducted during the nesting season just prior to initial ground disturbance. If nesting CRR are detected within 700 feet of construction at the WWTP or Menlo Park Pump Station during these preconstruction surveys, initial ground disturbance within 700 feet of the detected calling center will be delayed until the end of the breeding season (August 31). Alternatively, if CRR nesting is detected adjacent to the WWTP or Menlo Park Pump Station and avoiding construction within 700 feet of the calling center is not feasible, a visual and auditory barrier will be erected and maintained for the duration of construction along the southwestern boundary of the WWTP Project footprint, or northern boundary of the Menlo Park Pump Station. The size and material used for the barrier would be determined based on the location of any observed CRR nesting, and would be submitted to USFWS for approval. The barrier will augment the existing levees, to provide an additional visual and acoustic barrier to prevent the elevated local noise and activity levels of construction activities from disturbing any nesting CRR in the vicinity. Following initial ground disturbance, construction activities in these areas are anticipated to be constant with consistent types of construction equipment in use. The consistent disturbance in combination with the visual and acoustic barrier provided by the adjacent levees would provide a consistent baseline for conditions of noise and visual disturbance that would continue throughout construction. **Less Than Significant Impact With Mitigation**
Impact BIO-3: Construction activities for the Bair Island Inlet Structure may directly impact overwintering burrowing owl individuals through ground disturbance and vehicle traffic, or they may impact the owl's potential habitat through ground disturbance or staging or stockpiling construction materials, which would be considered significant impacts.	**MM BIO-3:** For Project activities occurring within the Bair Island Inlet Structure Project footprint, one pre-construction survey no more than 14 days prior to initial ground disturbance shall be performed in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The pre-construction survey shall include suitable habitat up to 656 feet (200 meters) from proposed activities and be conducted prior to the start of staging and construction, regardless of time of year. If burrowing owl is detected within the Project footprint during the non-nesting season and the burrow cannot be avoided, a burrowing owl exclusion plan shall be prepared and implemented. Mitigation may be required by CDFW as part of the exclusion plan. If burrowing owl is detected outside the Project footprint but within

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	the Study Area during the non-nesting season, vehicle traffic and construction noise and visual disturbance shall be minimized to the extent feasible to minimize the potential for flushing overwintering owls from protective burrows. **Less Than Significant Impact With Mitigation**
Impact BIO-4: Project construction activities in the Project footprint for the Gravity Pipeline Project have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the Migarotory Bird Treaty Act (MBTA) and California Fish and Game Code (CFGC). Construction could directly destroy active nests or cause disturbance that results in nest abandonment.	**MM BIO-4:** Potential significant impacts to nesting special-status and other native nesting birds will be mitigated through avoiding disturbance to active nests. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. Additionally, if water is present in the ornamental ponds prior to construction and it is necessary to drain one or both ponds, the ornamental ponds will be drained during the non-breeding season (i.e., they will be drained between September 1 and January 31). If construction initiation and/or ornamental pond draining during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds. Surveys will encompass the entire construction area and the surrounding 500 feet. An exclusion zone where no construction would be allowed will be established around any active nests of any avian species found in the Study Area until a qualified biologist has determined that all young have fledged and are independent of the nest. Suggested exclusion zone distances differ depending on species, location, and placement of nest, and will be at the discretion of the biologist and, if necessary, USFWS and CDFW. These surveys would remain valid as long as construction activity is consistently occurring in a given area and will be completed again if there is a lapse in construction activities of more than 14 consecutive days during the breeding bird season.

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	Less Than Significant Impact With Mitigation
Impact BIO-5: The proposed Project's construction activities at the WWTP Improvements Project footprint immediately adjacent to marsh vegetation could result in direct mortality and/or harassment of Federal and State Endangered SMHM individuals and special-status SMWS from individuals wandering into the construction area from adjacent suitable habitat, which would be considered a significant impact.	Implementation of mitigation measures **MM BIO-1.1 through 1.5** will mitigate this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-6: The proposed Project's construction activities at the WWTP Improvements Project footprint may cause noise and visual disturbances that result in harassment of Federal and State Endangered CRR individuals causing nest abandonment, which would be considered a significant impact.	Implementation of mitigation measure **MM BIO-2.2** would reduce this potential impact to a less than significant level. **Less Than Significant Impact With Mitigation**
Impact BIO-7: Project construction activities in the Project footprint for the WWTP Improvements have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.	Implementation of mitigation measure **MM BIO-4** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-8: Project construction activities in the Project footprint for the Belmont Pump Station Improvements have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause	Implementation of mitigation measure **MM BIO-4** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
disturbance that results in nest abandonment.	
Impact BIO-9: Project construction activities in the Project footprint for the San Carlos Pump Station Repurposing Project have the potential to result in direct impacts or indirect disturbance to native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.	Implementation of mitigation measure **MM BIO-4** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-10: Project construction activities in the Project footprint for the Redwood City Pump Station Replacement have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.	Implementation of mitigation measure **MM BIO-4** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-11: The proposed Project's construction activities at Menlo Park Pump Station Rehabilitation Project footprint could result in direct mortality and/or harassment of Federal and State Endangered SMHM individuals and special-status SMWS, which would be considered a significant impact.	Implementation of mitigation measures **MM BIO-1.1 through 1.5** would reduce these potential impacts to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-12: The proposed Project's construction activities at the Menlo Park Pump Station Rehabilitation Project footprint may cause noise and visual disturbances that result in harassment of Federal and State Endangered CRR individuals causing nest abandonment, which would be considered a significant impact.	Implementation of mitigation measure **MM BIO-2.2** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
Impact BIO-13: Project construction activities in the Project footprint for the Menlo Park Pump Station Rehabilitation have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.	Implementation of mitigation measure **MM BIO-4** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-14: Construction activities adjacent to northern coastal salt marsh, freshwater marsh, seasonal wetlands, and unvegetated waters adjacent to the Bair Island Inlet Structure and the Airport Access shaft may result in unintentional fill or discharge into wetlands or non-wetland waters.	**MM BIO 5:** Prior to ground disturbing activities, flagging of sensitive habitats adjacent to Project construction areas and silt fencing shall be installed with oversight from a qualified biologist in the areas adjacent to wetlands or non-wetland waters. It should be noted that this fencing can be the same as the wildlife exclusion fencing described in **MM BIO-1.1** above. **Less Than Significant Impact With Mitigation**
Impact BIO-15: Construction activities adjacent to seasonal wetlands adjacent to the Influent Connector portion of the Project may result in incidental fill or discharge into wetlands or non-wetland waters.	Implementation of mitigation measure **MM BIO-5** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-16: Construction activities adjacent to northern coastal marsh and unvegetated waters adjacent to the Belmont Pump Station may result in unintentional fill or discharge into wetlands or non-wetland waters.	Implementation of mitigation measure **MM BIO 5** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**
Impact BIO-17: Construction activities adjacent to northern coastal marsh and unvegetated waters adjacent to staging areas for the Menlo Park Pump Station may result in incidental fill or discharge into wetlands or non-wetland waters.	Implementation of mitigation measure **MM BIO-5** would reduce this potential impact to a level that is less than significant. **Less Than Significant Impact With Mitigation**

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
Cultural Resources – Section 4.5	
Impact CUL-1: Construction activity near Redwood City Pump Station, in areas that have not been subject to previous disturbance, could encounter cultural resources which would be considered a significant impact.	**MM CUL-1:** The project shall implement either of the following measures which would reduce the impact to less than significant level. • Avoid the buried historic-era deposit by prohibiting construction associated with the pump station that would reach more than two feet below the present paved parking lot surface, primarily in construction staging areas. • If avoidance is not possible, the Project should retain a qualified historical archaeologist to monitor excavation at the three potentially intact areas at Redwood City Pump Station. The historical archaeologist would have the authority to stop construction in the unlikely event that intact features are found, and excavate and fully document features for Project mitigation recommendations. Monitoring would be limited to the zone of buried cultural deposits, within five feet of the parking lot surface, or until bay mud is encountered. **Less Than Significant Impact With Mitigation**
Impact CUL-2: Construction activities associated with the proposed Project could disturb unknown buried archaeological resources.	**MM CUL-2:** In the event cultural resources are encountered during construction, work shall halt and the SVCW project manager shall be notified. • All construction activity within 50 feet (15 meters) of the find/feature/site will cease immediately. • If human bones are found, the appropriate County authority (Coroner) and the SVCW project manager shall be notified immediately. • In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code shall be followed. Section 7050.5(b) of the California Health and Safety Code 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 of Part 3 of Division 2 of Title 3 of the Government*

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	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. **Less Than Significant Impact With Mitigation**
Geology and Soils – Section 4.7	
Impact GEO-1: The soil at the Project site is highly corrosive to buried steel and concrete. Therefore, buried reinforced concrete structure would require corrosion protection to reduce the impact to less than significant.	**MM GEO 1:** The following measures or equivalent measures are recommended for corrosion control and are proposed as part of the Project for the steel and concrete portions of the Project that are buried or are in direct contact with the soil. • Buried reinforced concrete structures should be constructed of durable concrete such as described in ACI Standards 201.2R and 222R. • The water/cement ratio should not exceed 0.45. • The concrete cover applied over all steel reinforcement bars should generally be a minimum of two (2) inches thick. • All concrete used in the area would be a mix of 50% Type II and 50% Type V cement. • Sand and water used in concrete mixtures should contain a maximum of 100 ppm of water-soluble chloride ions and water-soluble sulfate ions and have a pH in the range of 6.5 to 8.0. Water used in concrete mixtures should be potable water. **Less Than Significant Impact With Mitigation**
Hazards and Hazardous Materials – Section 4.9	
Impact HAZ-1: Construction of the proposed Project could expose construction workers to risks from hazardous materials contamination or from the storage, use and/or disposal of hazardous materials.	**MM HAZ-1.1:** Prior to initiating earthwork activities, sampling and laboratory analyses should be conducted at planned earthwork locations where spill incidents appear most likely to have impacted soil and/or groundwater, including at the Belmont Pump Station site, the northerly portion of the planned Gravity Pipeline alignment, and the northeastern portion of the San Carlos Pump Station site. This shall be done in order to establish specific,

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	appropriate site management protocols, including handling and disposal alternatives for contaminated materials and health and safety protocols. **MM HAZ-1.2:** This measure shall be implemented before and during construction of the Gravity Pipeline and pump stations, as well as any demolition. • A Site Management Plan (SMP) and Health Safety Plan (HSP) shall be prepared by the project contractor(s) and submitted to SVCW for review. • The SMP and HSP shall include the following: ▪ Site control procedures to control the flow of personnel, vehicles, and materials in and out of the construction site; ▪ Measures to minimize dust generation, storm water runoff, and tracking of soil off-site; ▪ If excavation de-watering is required, protocols to evaluate water quality and discharge/disposal options; ▪ Protocols for completing earthwork activities in areas where impacted soils, soil vapor, and/or groundwater are present or suspected; ▪ Worker training requirements, health and safety measures and soil handling procedures; ▪ Protocols to be implemented if buried structures, wells, debris, or unidentified areas of impacted soil are encountered during construction activities; ▪ Protocols to evaluate the quality of soil suspected of being contaminated so that appropriate mitigation, disposal, or reuse options can be determined; ▪ Procedures to evaluate and document the quality of any soil imported to the construction site; ▪ Methods to monitor trenches for the potential presence of volatile chemical vapors; ▪ Protocols to reduce the potential for construction equipment and vehicles to release contaminated soil onto public roadways or other off-site transfer; and ▪ Stockpiling protocols for “clean” and “impacted” soil. **Less Than Significant Impact With Mitigation**

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
Hydrology and Water Quality – Section 4.10	
Impact HYD-1: Construction of the proposed Project could increase contaminants in stormwater runoff, which could adversely affect the water quality of the San Francisco Bay.	**MM HYD-1.1:** Prior to the commencement of any ground disturbing activities outside the fenced WWTP site, the project will comply with the State Water Resources Control Board's NPDES General Construction Activities Permit, to the satisfaction of the SVCW construction manager, as follows: • SVCW will control the discharge of stormwater pollutants including sediments associated with construction activities; • Permitting for stormwater treatment could be obtained by one of two methods. The first option would be to obtain an Industrial Stormwater General Permit by filing a Notice of Intent (NOI) with the SWRCB. The second option would be to reissue the existing individual permit that expires in December 2017 and file an application with revised storm drain discharge into wetlands or the bay. **MM HYD-1.2:** The project will include Best Management Practices (BMPs) to control the discharge of stormwater pollutants including sediments associated with construction activities. Prior to installation, the contractor shall be required to prepare an Erosion Control Plan. The Erosion Control Plan may include BMPs as specified in the Manual of Standards Erosion & Sediment Control Measures for reducing impacts on the storm drainage system from installation activities. The following specific BMPs will be implemented to prevent stormwater pollution and minimize potential sedimentation during construction: • Utilize on-site sediment control BMPs to retain sediment on the Project sites; • Utilize stabilized construction entrances and/or wash racks; • Implement damp street sweeping; • Provide temporary cover of disturbed surfaces to help control erosion during installation; • Provide permanent cover to stabilize the disturbed surfaces after installation has been completed; • Store, handle, and dispose of construction materials and wastes properly, so as to prevent their contact with stormwater; • Control and prevent the discharge of all potential pollutants, including solid wastes, paints, concrete,

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	petroleum products, chemicals, washwater or sediments, and non-stormwater discharges to storm drains and watercourses; • Utilize sediment controls or filtration to remove sediment from dewatering effluent; • Avoid cleaning, fueling, or maintaining vehicles on-site, except in a designated area in which runoff is contained and treated. • Delineate clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses with field markers. • Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate. • Limit and time applications of pesticides and fertilizers to prevent polluted runoff. **Less Than Significant Impact With Mitigation**
Impact HYD-2: Water quality impacts from shallow groundwater encountered during construction could occur under the proposed Project.	**MM HYD-2:** A detailed, design-level geotechnical investigation shall be completed and shall address the need for dewatering during construction. Project construction shall follow the recommendations of the investigation. **Less Than Significant Impact With Mitigation**
Noise and Vibration – Section 4.13	
Impact NOI-1: Construction activities in relation to the ambient noise conditions over extended periods could result in a potentially significant impact.	**MM NOI -1:** The following measures will be required for all construction sites to ensure the exterior noise levels at sensitive receptor locations stay within these thresholds when feasible: o Daytime (7:00 a.m. to 10:00 p.m.) ▪ Residential districts: 60 dBA Leq (hr) ▪ Commercial districts: 70 dBA Leq (hr) ▪ Locations with ambient noise near thresholds: 5dBA Leq higher than ambient noise o Nighttime (10:00 p.m. to 7:00 a.m.) ▪ Residential districts: 45 dBA Leq (hr) ▪ Commercial districts: 52 dBA Leq ▪ Locations with ambient noise near thresholds: 5dBA Leq higher than ambient noise

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	• Noise due to extreme noise-generating construction activities, such as pile driving activities which are necessary for the proposed Project, shall be minimized to the extent feasible.[1] Pile driving activities and other noisy construction activities shall be completed as quickly as possible to limit noise exposure. Where conditions allow, vibratory pile drivers shall be used to drive sheet piles. Pile holes shall be pre-drilled to minimize the number of blows required to seat the pile. • All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment. Quieter internal combustion equipment or equipment powered by electrical motors shall be selected to reduce noise levels, where feasible. • The construction contractor shall utilize "quiet" models of air compressors, ventilation fans, and other stationary noise sources where technology reasonably exists. • Unnecessary idling of internal combustion engines shall be prohibited. • Construction staging areas shall, where practical, be established at locations that will create the greatest distance between the construction-related noise sources and receptors nearest the Project site during all Project construction. • Locate stationary noise sources as far from receptors as feasible. If they must be located near receptors, adequate muffling (with screens and enclosures where feasible and appropriate) will be used as necessary to stay within the above noise level thresholds. Any enclosure openings or venting will face away from receptors. • Locate material stockpiles, as well as maintenance/equipment staging and parking areas, as far as feasible from residential receptors. • Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing and of significant changes to the schedule. • Designate a project liaison that will be responsible for responding to noise complaints during the construction phase. The name and phone number of

[1] It has already been established that pile driving activities would exceed these thresholds, and with the understanding that pile driving would occur for 30 days or less at any one time, pile driving would be exempt from these thresholds.

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	the liaison will be conspicuously posted at construction areas and on all advanced notifications. This person will take steps to resolve complaints, including periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular Project meetings with the Project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generated excessive noise levels to the extent feasible. • Require a reporting program that documents complaints received, actions taken to resolve problems, and effectiveness of these actions. • Hold a preconstruction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed. • Implement a construction noise monitoring plan which includes a provision for noise monitoring at the nearby receptors to confirm that daytime and nighttime construction noise levels meet daytime and nighttime noise level thresholds at residential and commercial land uses. Construction monitoring shall occur weekly during the first month of general construction at a given site and on a monthly basis, thereafter, to show compliance with the construction noise level thresholds. Additional noise monitoring shall be completed on a more frequent basis if needed, in response to complaints. In the event of noise complaints, the contractor will provide information to SVCW within 48 hours of being notified of the complaint, regarding the noise levels measured and activities that correspond to the complaints, as well as the proposed changes at the site to reduce the noise levels to below the thresholds. • In the event the above noise thresholds are not being met, additional noise mitigation measures will be implemented to further reduce noise from construction activities. A site-specific noise control plan shall be developed to identify the specific construction noise control features that will be implemented at the construction site(s). These additional noise mitigation measures could include, but not be limited to, the following:

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	○ Erecting permanent or temporary noise barriers (at least 12 feet in height) and other noise control features at the perimeter of the construction site(s) between the construction activity and sensitive receptors and/or around major construction noise sources (i.e., noisy equipment) to provide shielding for nearby sensitive receptors. Permanent or temporary noise barriers could include, but would not be limited to, concerte, precast walls, plywood noise barriers, noise control blankets, cargo containers, or hay bales. The exact material, height, and configuration of these barriers shall be decided in consultation with the acoustical consultant, based on the specific equipment or activity that is causing the excessive noise. ○ Scheduling specific high noise-generating construction activities for the middle of the day. Additional noise monitoring shall be completed after the installation and completion of such measures, to confirm their effectiveness at achieving the above thresholds. If the noise thresholds are still not being met, an acoustical consultant shall make further recommendations to be implemented immediately to reduce noise levels at the construction site(s). **Less Than Significant Impact With Mitigation**
Impact NOI-2: Operational noise from regular operations at the WWTP and the specified pump stations as discussed above would lead to a potentially significant impact.	**MM NOI-2:** The following noise performance standards shall be applied to noise from regular operations at the WWTP and at the specified pump stations: • Noise resulting from regular (non-emergency) operations of WWTP equipment shall not exceed 50 dBA L_{eq} at night (10 p.m. to 7 a.m.) at the nearest residential land use located 890 feet southwest of the WWTP Improvements buildings. If the mechanical equipment at the WWTP would cause levels to exceed 50 dBA L_{eq} at night, controls could include, but are not limited to, design alternatives, fan silencers, enclosures, and screen walls. • Noise resulting from regular (non-emergency) operations of San Carlos Pump Station equipment shall not exceed 52 dBA L_{eq} at night (10 p.m. to 7 a.m.) at any point on the common property line of

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	San Carlos Pump Station and the Fairfield Inn and Suites hotel. Design alternatives, such as locating the fans on the exterior walls facing the airport, would reduce fan noise from the new odor control facility to levels at or below ambient conditions at the nearest hotel façade. Fan enclosures would be another potential mitigation measure. • Noise resulting from regular (non-emergency) operations of Redwood City Pump Station equipment shall not exceed 46 dBA L_{eq} at night (10 p.m. to 7 a.m.) measured outside the Maple Street façade of the Maple Street Shelter. Possible mitigation measures would include, but are not limited to, design alternatives, fan silencers, enclosures, and screen walls. • Low-velocity ventilation systems (which are quieter than standard ventilation systmes) and other ancillary noise controls shall be incorporated into the designs, as necessary, to meet the noise performance standards. The following noise performance standard shall be applied to noise from diesel engine-generator operations at WWTP and each of the pump stations: • The sound level from non-emergency operation of the diesel engine-generator at each facility shall not exceed 60 dBA when measured on any real property outside the property lines of the facilities (excluding US Highway 101 (U.S. 101), other roadways, and San Carlos Airport). **Less Than Significant Impact With Mitigation**
Utilities and Service Systems – Section 4.16	
Impact UTIL-1: The relocation and modification of existing utilities could result in short-term service disruption impacts during construction.	**MM UTIL-1:** The project will incorporate the following measures into the Project construction documents: • Prior to and during construction of the Gravity Pipeline alignment and the proposed connections, all utility work shall be completed with approval and coordination with the respective utility providers to minimize any potential disruption in service. • All utility modifications and relocations shall comply with respective utility providers’

Table ES-1: Summary of Significant Impacts and Mitigation Measures	
Significant Impacts	**Mitigation Measures**
	notification process for any disruption of service, including USA North requirements. **Less Than Significant Impact With Mitigation**

Section 5.0 Cumulative Impacts includes an analysis of the Project's potential contribution to cumulative impacts. The analysis determined that the Project would not have a cumulatively considerable contribution to any significant cumulative impacts when viewed in combination with other past, present, and reasonably foreseeable future projects. Please refer to Section 5.0 for a complete discussion.

As discussed in *Section 6.0 Growth-Inducing Impacts*, the Project is a conveyance and treatment reliability improvements project located within the cities of Belmont, Menlo Park, Redwood City and San Carlos. The purpose of the project is to replace the aging infrastructure and improve the reliability of the conveyance system. The project is not intended to serve new geographic areas or to induce growth in the region. Local land use plans (e.g., General Plans and Specific Plans) of the jurisdictions served by SVCW establish land use development patterns and growth policies that are intended to allow for the orderly expansion of urban development supported by adequate public services, including wastewater services. The proposed Project would serve existing and planned customers already accounted for in the General Plans of the respective cities. No additional housing or residents would be added to the Project area as a direct result of the proposed Project. The proposed replacement/improvements of the four pump stations would occur on the same sites as the existing pump stations and would provide the same function as the existing pump stations. The proposed Project would also replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions. Therefore, the proposed Project would not directly induce population or economic growth, nor would it tax existing community service facilities or encourage other activities that could significantly affect the environment.

AREAS OF CONTROVERSY

In accordance with Sections 15082(a), 151-3, and 15375 of the CEQA Guidelines, SVCW issued a Notice of Preparation (NOP) of an EIR for the proposed Project on February 19, 2016. It was circulated to the public, to local, regional, state, and federal agencies, and to other interested parties to solicit comments on the scope of the environmental review for the proposed Project. The NOP and the comments received in response to the NOP are included in Appendix A.

SVCW received comment letters from the California State Lands Commission, Native American Heritage Commission, Caltrans (District 4), and State Water Resources Control Board. The letters highlighted issues related to land ownership, potential disturbance to undiscovered Native American resources, transportation impacts during construction, and potential impacts to special status species in the area.

ALTERNATIVES TO THE PROJECT

CEQA requires that an EIR identify alternatives to the Project as proposed. The CEQA Guidelines specify that an EIR identify alternatives which "would feasibly attain the most basic objectives of the Project but would avoid or substantially lessen many of the significant environmental effects of the Project."

Below is a summary of the Project alternatives. A full analysis of the Project alternatives is provided in *Section 9.0 Alternatives* of this EIR.

Table ES-2:
Project Alternatives Summary Table

Alternative	Description
No Project	Under the No Project Alternative SVCW would retain the existing system in its current condition, i.e. pipeline infrastructure, pump stations, and wastewater treatment plant, without pursuing improvements as proposed in this EIR. Existing equipment would be maintained and replaced as needed for the foreseeable future. Despite avoiding impacts related to construction of the Project and some related to ongoing operation of the new/upgraded components disclosed in this EIR, the No Project Alternative would fail to achieve any and all of the stated objectives of the Project. The existing baseline conditions would continue to deteriorate, which would jeopardize the health and safety of residents in the Project area from failing to address the deteriorating infrastructure.
Location 5 - Microtunnel Boring Machine Redwood Shores Parkway	This location alternative would employ a microtunnel pipeline in roughly the same alignment as the proposed Project's pipeline in Redwood Shores Parkway. The smaller tunnel would require less soil excavation and related construction activity than the larger diameter tunnel of the proposed Project. As described in *Section 9.0 Alternatives*, this alternative would partially achieve project objectives, however, it would result in greater disruption during construction and would generate greater traffic with the impacts occurring along Redwood Shores Parkway due to multiple construction sites needed to construct the microtunnel alignment, compared to the proposed Project which proposes no construction activity along Redwood Shores Parkway. Therefore, this alternative was not found to be environmentally superior to the Project.
Location 7 - Remote Flow Equalization Facility	Remote Flow Equalization Facility alternative would expand the Flow Equalization Facility (FEF) in Menlo Park and construct a new FEF pump station, and a new pipeline from Menlo Park Pump Station to the FEF. Flows from the WBSD would be pumped through a rehabilitated Menlo Park Pump Station into a new 33-inch force main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City flows as it enters the existing 48-inch force main. Flow from San Carlos would be pumped through a new San Carlos Pump Station that would pump into the existing 54-inch force main, which would be sliplined to prevent leaks. A new above-ground bypass pipe would be installed to carry the flow and it would be constructed adjacent to

Table ES-2: Project Alternatives Summary Table	
Alternative	**Description**
	or ontop of the Redwood Shores Levee. Flows from Belmont would enter a new gravity pipeline, constructed using microtunneling techniques, and would be pumped to the San Carlos Pump Station. A Headworks facility would be constructed at the WWTP site. The alternative would avoid or reduce many of the proposed Project's impacts at the specific proposed component locations, however this would occur by shifting the impacts elsewhere through construction of system components at new locations, and not avoiding impacts altogether. Therefore, this alternatively was not found to be environmentally superior to the Project.
Reduced Scale	The Reduced Scale/Fewer Components alternative would include constructing some, but not all, of the Project components based on extent of impact. In the Reduced Scale/Component Alternative, the proposed Gravity Pipeline and tunnel would remain as described in the proposed Project, as this infrastructure is critical to achieving the Project objectives. This would include retaining all of the access, launch, and receiving shafts to facilitate the construction of the new pipeline and connections of other components to the pipeline. The Reduced Scale/Component alternative would forego some of the planned improvements included in the proposed Project, as listed below: • Flow Diversion Structure • Menlo Park Pump Station Rehabilitation and Redwood City Pump Station Replacement • Belmont Pump Station Rehabilitation • Belmont Force Main Improvements • San Carlos Pump Station Repurposing • Some of the Front of the Plant Site Civil Improvements The Reduced Scale/Fewer Components Alternative would be environmentally superior to the proposed Project, however, the alternative would fail to ensure the reliable operation of the conveyance system as a whole since it would exclude various components from improvements, and therefore would not achieve most Project objectives.
Alternatives Considered but Rejected from Further Consideration	
1a: Bair Island Tunnel with Slip Lining	In an effort to avoid construction along right-of-ways in the Project, the Bair Island Tunnel with Slip Lining alternative was developed. In this alternative, flows from the WBSD would be pumped through a rehabilitated MPPS into the existing 33-inch force main to the location of the existing Redwood City Pump Station. Applying for a permit to tunnel from Bair Island to the WWTP would result in the need for formal consultation and a Biological Opinion from the USFWS in addition to temporary construction access easement approval by the CDFW Lands Program. Additionally, permitting would be required for proposed geotechnical drilling in sensitive area, which would greatly increase Project schedule.

Table ES-2: Project Alternatives Summary Table	
Alternative	**Description**
	Alternative 1a was ultimately rejected for the extensive biological impacts and human safety risk for Project construction.
1b: Bair Island Tunnel with 48” Units 1,2	The Bair Island Tunnel with 48” Units 1,2 is designed so that flow from WBSD would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in force main to the location of the existing Redwood City Pump Station. This alternative would also include a microtunneling launch shaft and retrieval shaft on Inner Bair Island, which would have a much greater footprint in terms of size of construction and staging areas, level of disturbance from noise and dust/debris, and continuous duration of disturbance during project construction compared to a Tunnel Boring Machine receiving shaft. This would result in potential effects to schedule and safety, thus the alternative was rejected from further consideration.
Alternative 2a: Slough Tunnel to Redwood City Pump Station	The Slough Tunnel to Redwood City Pump Station is designed to convey wastewater from the WWTP along Steinberger Slough to the existing Redwood City Pump Station site. The alternative would tunnel beneath Steinberger Slough, which would result in the need for a potentially insurmountable set of resource agency permit requirements due to biological resources impacts and would result in substantial biotic impacts. Given the immense permitting requirements and potential for substantial biotic impacts, Alternative 2a was rejected from further consideration.
Alternative 2b: Slough Tunnel with Redwood City Pump Station 48” Units 1,2	The Slough Tunnel with RCPS 48” Units 1,2 would construct a tunnel from the WWTP along Steinberger Slough. Alternative 2b varies from 2a in how the Redwood City Pump Station would connect to the system; however alternative 2b includes the tunnel beneath Steinberger Slough and would have biological resources impacts and resource agency permitting challenges similar to 2a above. Given the amount of resource agency permit requirements due to biological resource impacts, Alternative 2b was rejected from further consideration.
Alternative 3: Lagoon Tunnel	The Lagoon Tunnel alternative would place a new gravity tunnel under Redwood Shores Lagoon, past the Belmont Pump Statio site, past San Carlos Pump Station, and terminating at the Redwood City Pump Station site. Flows from Redwood City, San Carlos, and Belmont would all connect via the new tunnel to the WWTP. Flows from Menlo Park Pump Station are conveyed in the existing pipeline to the tunnel. The alternative would construct a large diameter tunnel by launching a TBM at the WWTP, which would require a shift in the substantial construction activity the project proposes at the Airport Access launch shaft to the WWTP site. The change in construction activity would result in increased traffic, noise, and air quality impacts compared to the proposed Project and would result in greater

Table ES-2: Project Alternatives Summary Table	
Alternative	**Description**
	adverse impacts to Redwood Shores residents during Project construction. Alternative 3 was therefore rejected from further consideration.
Alternatives 4a, 4b: Middle Out Tunnel Redwood City Pump Station via 48" Units 1,2	Alternatives 4a and 4b both involve a tunnel gravity pipeline from the Airport Access Shaft to WWTP. Variations in 4a and 4b involve how the Belmont Pump Station, San Carlos Pump Station and Redwood City Pump Station connect to the conveyance system. The Menlo Park Pump Station would be rehabilitated and flows would be conveyed in the existing pipeline to the Redwood City Pump Station. Construction of either Alternative 4a or 4b would result in new construction of approximately 3,900 linear feet. These alternative do not have substantial environmental benefits and would incrementally increase construction impacts associated with a new microtunnel between the Airport Access Shaft and the Belmont Pump Station. Alternatives 4a and 4b therefore were rejected from further consideration.
Alternative 4DE: Middle Out Tunnel with Belmont Slip Line	Alternative 4DE is a variation of the proposed Project, with the primary difference involving the connection between the San Carlos Pump Station and the Redwood City Pump Station, which in this alternative consists of a new gravity tunnel between the two pump stations, while the proposed Project utilizes the recently constructed 48-inch force main Units 1,2 along Inner Bair Island. Therefore, Alternative 4DE involves additional new construction of approximately 8,900 linear feet. Alternative 4DE would eliminate the Belmont Pump Station and Redwood City Pump Station components included in the proposed Project, but it would not eliminate construction activities in those areas. Implementation of Alternative 4DE has no substantial environmental benefits and would incrementally increase construction impacts associated with design. For these reasons, Alternative 4DE was rejected from further consideration.
Alternative 6a: Redwood Shores Parkway Open Cut Alignment	This alternative would construct a large diameter pipe by cutting an open trench along Redwood Shores Parkway, which would require a shift in the substantial construction activity the project proposes at the Airport Access launch shaft to Redwood Shores Parkway, the primary roadway serving the Redwood Shores neighborhood. Implementation of Alternative 6a would result in increased traffic, noise, and air quality impacts relative to the proposed Project, and would create substantial negative impacts on Redwood Shores residents from open cut trenches on Redwood Shores Parkway. For these reasons, Alternative 6a was rejected from further consideration.
Alternative 6b: Redwood Shores	Alternative 6b differs from Alternative 6a in the proposed construction method to replace the 54-inch diameter force main starting near the Airport Access site to the WWTP. Like Alternative 6a, this alternative would construct a large diameter

Table ES-2:
Project Alternatives Summary Table

Alternative	Description
Parkway Multiple Pipe Open Cut Alignment	pipe by cutting an open trench along Redwood Shores Parkway, which would require a shift in the substantial construction activity the project proposes at the Airport Access launch shaft to the primary roadway serving the Redwood Shores neighborhood. Implementation of Alternative 6b would substantially increase impacts on the Redwood Shores neighborhood, and would provide no substantial environmental benefits. For these reasons, Alternative 6b was rejected from further consideration.

1.0 INTRODUCTION

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The Silicon Valley Clean Water (SVCW) wastewater treatment agency, as the Lead Agency, has prepared this Draft Environmental Impact Report (EIR) for the Wastewater Conveyance System and Treatment Plant Reliability Improvement Project in compliance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines. This document has also been prepared in accordance with the environmental review requirements of the California State Revolving Fund (SRF) Loan Program known as "CEQA-Plus."

As described in CEQA Guidelines Section 15121(a), an EIR is an informational document that assesses the potential environmental impacts of a proposed Project, as well as identifies mitigation measures and alternatives to the proposed Project that could reduce or avoid adverse environmental impacts (CEQA Guidelines 15121(a)). As the CEQA Lead Agency for this Project, SVCW is required to consider the information in the EIR (the Draft EIR and Final EIR; refer to Section 1.2 below for discussion of EIR process) along with any other available information in deciding whether to approve the proposed Project. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth-inducing impacts, and cumulative impacts. It is not the intent of an EIR to recommend either approval or denial of a project. This EIR is a combination "Program EIR," for the Wastewater Conveyance System and Treatment Plant Reliability Improvement Project ("proposed Project"), pursuant to CEQA Guidelines Section 15161 and "Project EIR" for most Project components ("Project component(s)"), where appropriate. The components that need more detail in the future are nutrients removal and Secondary Clarifiers (discussed in detail in Chapter 3.0), and will be handled with an addendum or amendment to this EIR. A program EIR is used in situations when there are related projects and one or more of the projects are at different levels of project description detail or are scheduled for construction at different times. This type of EIR focuses on the changes in the environment that would result from implementation of the Project, including construction and operation.

1.1.1 <u>CEQA-Plus Requirements</u>

SVCW plans to seek funding for the Project from the SRF program through the State Water Resources Control Board (SWRCB). The SRF Loan Program is partially funded by the U.S. Environmental Protection Agency (USEPA) and subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA). Federal agencies have their own policies on how they comply with federal environmental laws. Instead of the National Environmental Policy Act (NEPA), USEPA has chosen to use CEQA as the compliance base for California's SRF Loan Program, in addition to compliance with ESA, NHPA and CAA. Collectively, the SWRCB calls these requirements "CEQA-Plus." The CEQA-Plus documentation requirements will be completed in conjunction with this EIR. The CAA conformity requirements are discussed in Section 4.3 Air Quality, the ESA considerations are addressed in Section 4.4 Biological Resources, and the NHPA requirements are discussed in Section 4.5 Cultural Resources. The SWRCB, as a responsible agency for the proposed Project, was consulted as part of the scoping for this EIR, and will consider this CEQA document prior to any SRF loan authorization.

1.2 EIR PROCESS

1.2.1 Notice of Preparation and Scoping

In accordance with Sections 15063 and 15082 of the CEQA Guidelines, SVCW prepared a Notice of Preparation (NOP) for this EIR. The NOP was circulated to local, state, and federal agencies on February 19, 2016. The standard 30-day comment period concluded on March 23, 2016. The NOP provided a general description of the proposed Project and identified possible environmental impacts that could result from implementation of the Project. SVCW also held a public scoping meeting on March 2, 2016 to discuss the Project and solicit public input as to the scope and contents of this EIR. The meeting was held at SVCW's Administrative Office, located at 1400 Radio Road, Redwood City, CA. Appendix A of this EIR includes the NOP and comments received on the NOP.

1.2.2 Draft EIR Public Review and Comment Period

Publication of this Draft EIR will mark the beginning of a 45-day public review and comment period. During this period, the Draft EIR will be available to local, state, and federal agencies and to interested organizations and individuals for review. Notice of this Draft EIR will be sent directly to every agency, person, and organization that commented on the NOP. Written comments concerning the environmental review contained in this Draft EIR during the 45-day public review period should be sent to:

Kim Hackett
Silicon Valley Clean Water
1400 Radio Road,
Redwood City CA 94065-1220
Email: engineering@svcw.org

1.2.3 Final EIR/Responses to Comments

Following the conclusion of the 45-day public review period, SVCW will prepare a Final EIR in conformance with CEQA Guidelines Section 15132. The Final EIR will consist of:

- Revisions to the Draft EIR text, as necessary;
- List of individuals and agencies commenting on the Draft EIR;
- Responses to comments received on the Draft EIR, in accordance with CEQA Guidelines (Section 15088);
- Copies of letters received on the Draft EIR.

Section 15091(a) of the CEQA Guidelines stipulates that no public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings. If the lead agency approves a project despite it resulting in significant adverse environmental impacts that cannot be mitigated to a less than significant level, the agency must state the reasons for its action in writing. This Statement of Overriding Considerations must be included in the record of project approval.

1.2.4 Notice of Determination

If the Project is approved, SVCW will file a Notice of Determination (NOD), which will be available for public inspection and posted within 24 hours of receipt at the County Clerk's Office for 30 days. The filing of the NOD starts a 30-day statute of limitations on court challenges to the approval under CEQA (CEQA Guidelines Section 15094(g)).

2.0 PROJECT INFORMATION AND OVERVIEW

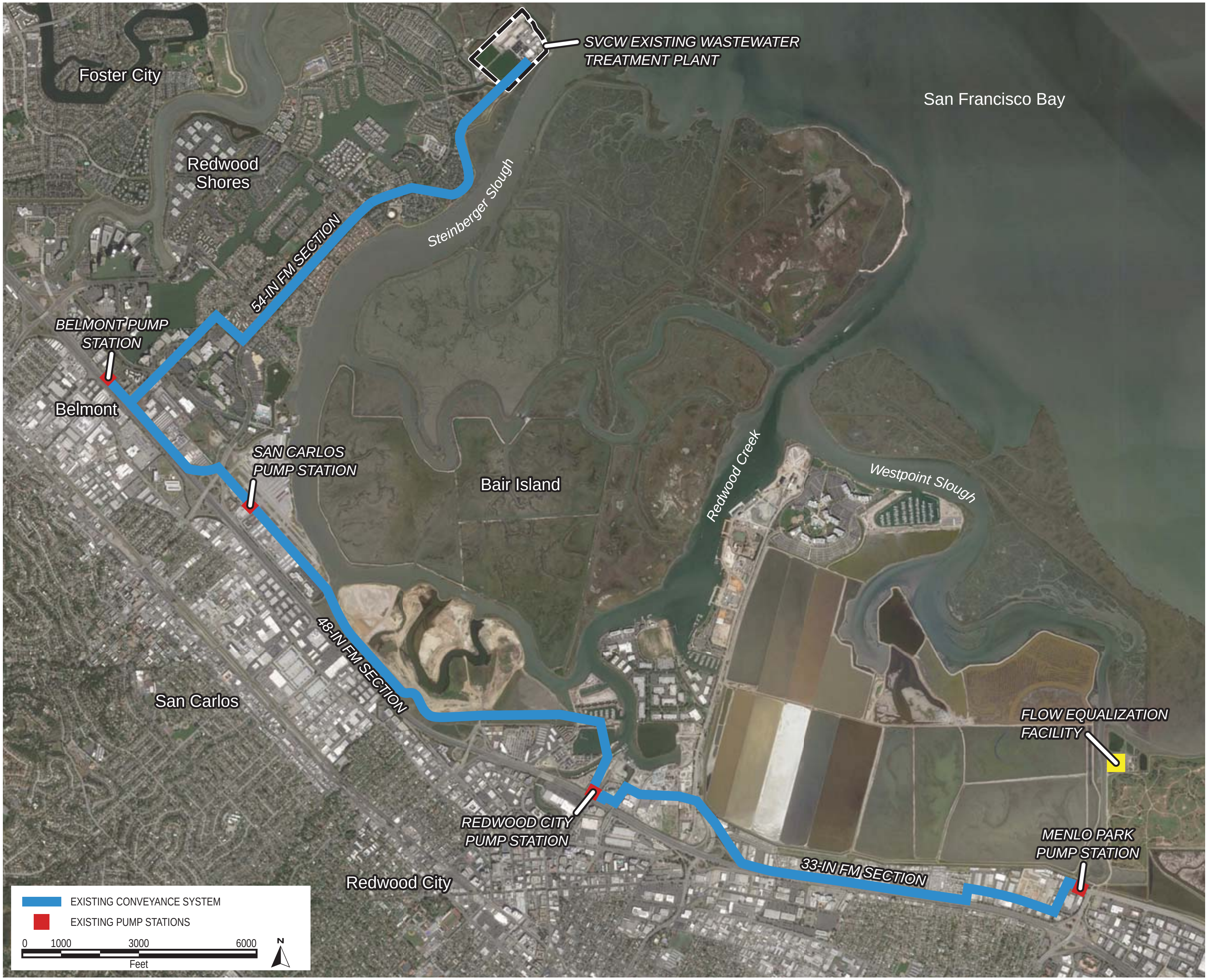
SVCW proposes the Wastewater Conveyance System and Treatment Plant Reliability Improvements Project (proposed Project, or Project) which is located within the cities of Belmont, Menlo Park, Redwood City, and San Carlos. SVCW is a joint powers authority (JPA) that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities. The JPA members include the cities of Belmont, Redwood City, and San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). The individual members of the JPA own and operate the sanitary sewer collection systems within their respective jurisdictions, and West Bay Sanitary District (WBSD) also owns the existing Flow Equalization Facility (FEF) which can be used to store their wastewater during wet weather conditions. SVCW owns and operates the wastewater treatment plant (WWTP) as well as the sanitary sewer force main and pump stations that convey the sewage to the treatment plant.

The proposed Project consists of several Project components, with each component including specific improvements and upgrades to portions of the conveyance system and the WWTP. Each component has a separate schedule and timing for implementation.

2.1 BACKGROUND

SVCW's existing conveyance system includes four pump stations, one for each of the four collection systems, a wet weather booster station located in the San Carlos Pump Station, a lift station located at the WWTP, and an approximately nine (9)-mile long, reinforced concrete force main. The wastewater from the communiy of Redwood Shores is pumped directly to the WWTP by the Redwood Shores Pump Station, not utilizing the SVCW conveyance system. Additionally, SVCW leases a remote FEF from the WBSD, considered an integral part of the existing conveyance system. Figure 2.1-1 shows the components of the existing conveyance system infrastructure. The property upon which the pump stations are built is owned by the respective member agencies whereas the assets are owned by the JPA. For the purposes of this EIR, an asset is defined as any structure, pipe, tank, instrument, piece of mechanical or electrical equipment, piece of automation or communications equipment, or vehicle.

The pump stations are in varying states of condition, ranging from poor to very poor. In most instances, equipment is at the end of its useful life and the condition has degraded to the extent that the systems require extensive maintenance to ensure functionality and reliability. The 45-year old concrete force main's condition is poor with a history of numerous leaks. Sections of the pipeline were originally designed to be a gravity pipeline and were subsequently pressurized as a force main with pressures now carefully managed to minimize leaks. Force mains often have lifespans of 25 to 35 years. The SVCW force main has exceeded its useful lifespan. Failures of the force main have included numerous joint leaks caused by unstable young bay mud soil conditions as well as ocassional catistrophic failure caused by internal and external corrosion of the concrete and reinforcing steel along with system surge.



EXISTING CONVEYANCE SYSTEM

FIGURE 2.1-1

Beginning in 2009 and accepted by the SVCW Commission in 2011, SVCW prepared a Conveyance System Master Plan (CSMP) laying out improvements to the entire conveyance system to meet current and future needs. With the CSMP completed, SVCW moved forward with fast-tracked implementation of replacing the 48-inch section of force main, given the history of leaks in this section of the system. An approximately 1.7-mile long portion of the 48-inch diameter force main, which was the location where the most force main leaks were ocuring, was replaced. This section of pipe extends from the Redwood City Pump Station to the north end of Inner Bair Island. The new section of 48-inch force main was put into service towards the end of 2015.

Concurrent with the design and construction of the 48-inch force main Project, SVCW began moving forward with planning for the other conveyance system projects. The single largest project was replacement of the 54-inch section of the SVCW force main. The existing 2.9-mile long segment consists of an existing 54-inch diameter reinforced concrete pipe force main, which begins at the San Carlos Pump Station and terminates at the SVCW WWTP, and carries raw sewage from the four member agencies to the WWTP. The recommended alignment considered in the CSMP involved using open cut construction methods in Redwood Shores Parkway. Many members of the public and the City of Redwood City indicated that this initial proposal would create significant disruption and inconvenience to Redwood Shores residents. SVCW responded to these concerns by re-evaluating alternative alignments and construction methods.

The alternatives evaluation identified over 140 different pipeline alignments. These alternative alignments included different routes for the pipelines, different construction methods, and different modes of operation. Each alignment alternative affected the scope, cost, and operation of the other overall conveyance system projects identified in the CSMP. The effects included eliminating some pump stations, changing the capacity of the treatment processes at SVCW WWTP, operating the pipelines in a gravity mode[2] versus a force main[3] mode, and location of flow equalization facilities. Based on an extensive alternatives evaluation, these 140 alternatives were reduced to 15 alternatives. These 15 were then more extensively evaluated resulting in SVCW's proposed Wastewater Conveyance System and Treatment Reliability Improvement Project (the 'proposed Project').

The alternative evaluation methodology and the selection criteria used to evaluate the 15 alternatives that were studied in detail, but were ultimately dismissed, are described in Section 9.0 of this EIR.

In addition to the conveyance system, SVCW has been in discussions with the Regional Water Quality Control Board (RWQCB) regarding future regulatory requirements to remove nitrogen, and possibly phosphorus, from its wastewater. While some wastewater treatment plants have the ability to remove these nutrients, SVCW's treatment process does not currently have that capability. SVCW may need to add nutrient removal equipment and processes, which would be a significant change to its treatment processes, to comply with future nutrient removal requirements.

2.2 PROJECT LOCATION

The proposed Project is located in the same general area as the existing conveyance system, within the cities of Belmont, Menlo Park, Redwood City, and San Carlos, as shown in Figure 2.2-1. The

[2] Gravity pipelines are sloped so that a liquid can flow in one direction using gravity instead of energy needed for pumping.
[3] In a force mains, liquid is pumped into the pipelines, causing the pipeline to be under pressure and always full.

proposed Project would be located within lands under a variety of ownerships: existing SVCW land and easements, local jurisdiction (cities of Belmont, Menlo Park, Redwood City, and San Carlos) public rights-of-way; San Mateo County airport land, California State Lands, U.S. Fish & Wildlife Service (USFWS) lands, and privately owned property.

2.3 OVERVIEW OF CHANGES TO EXISTING CONVEYANCE SYSTEM

The Project proposes a combination of rehabilitating, repurposing, and decommissioning existing SVCW conveyance system assets, and the construction of replacement assets. This EIR provides a detailed description of the new, rehabilitated and repurposed components. Chapter 3.0 provides a brief summary of the proposed changes to SVCW's existing force main conveyance system, starting from the outer most reach of the system.

As shown on Figure 2.2-1, at the southernmost point of the SVCW conveyance system is the Menlo Park Pump Station. The Menlo Park Pump Station would be rehabilitated. The 2.7-mile 33-inch force main pipeline that connects the Menlo Park Pump Station to the Redwood City Pump Station to the north would remain as it exists. Two activities would be occurring at the Redwood City Pump Station site: 1) a new Redwood City Pump Station would be built adjacent to the existing Redwood City Pump Station within the current site boundaries; and 2) the existing pump station building would be repurposed to house auxiliary equipment that supports the new Redwood City Pump Station. During peak rain events this new Pump Station would pump both WBSD flows from the Menlo Park Pump Station and Redwood City's wastewater north.

Between the Redwood City Pump Station and the San Carlos Pump Station is a 2.5-mile 48-inch force main pipeline. The southern portion of this force main, between the Redwood City Pump Station and the northern end of Inner Bair Island, was replaced in 2015 and would be incorporated into the proposed Project. The remaining 0.8 miles of the existing 48-inch pipeline, from Inner Bair Island to the San Carlos Pump Station, is the original pipeline. This portion of the 48-inch force main would not be needed in the proposed Project and would be set aside for possible future uses.

A new, 11-foot inside diameter gravity pipeline would be constructed from the northern end of the recently constructed 48-inch force main pipeline (on Inner Bair Island) to the WWTP, a total distance of 3.3 miles. This new gravity pipeline would replace the need for the remaining original 48-inch and the existing 54-inch diameter force main pipelines. Unlike the existing force main pipeline, which is under pressure, the wastewater would flow by gravity the entire length of the new 11-foot pipeline. Therefore, the San Carlos Pump Station would no longer be needed and would be decommissioned. Portions of the pump station building and yard would be repurposed to house odor control and ancillary equipment needed by the proposed Project.

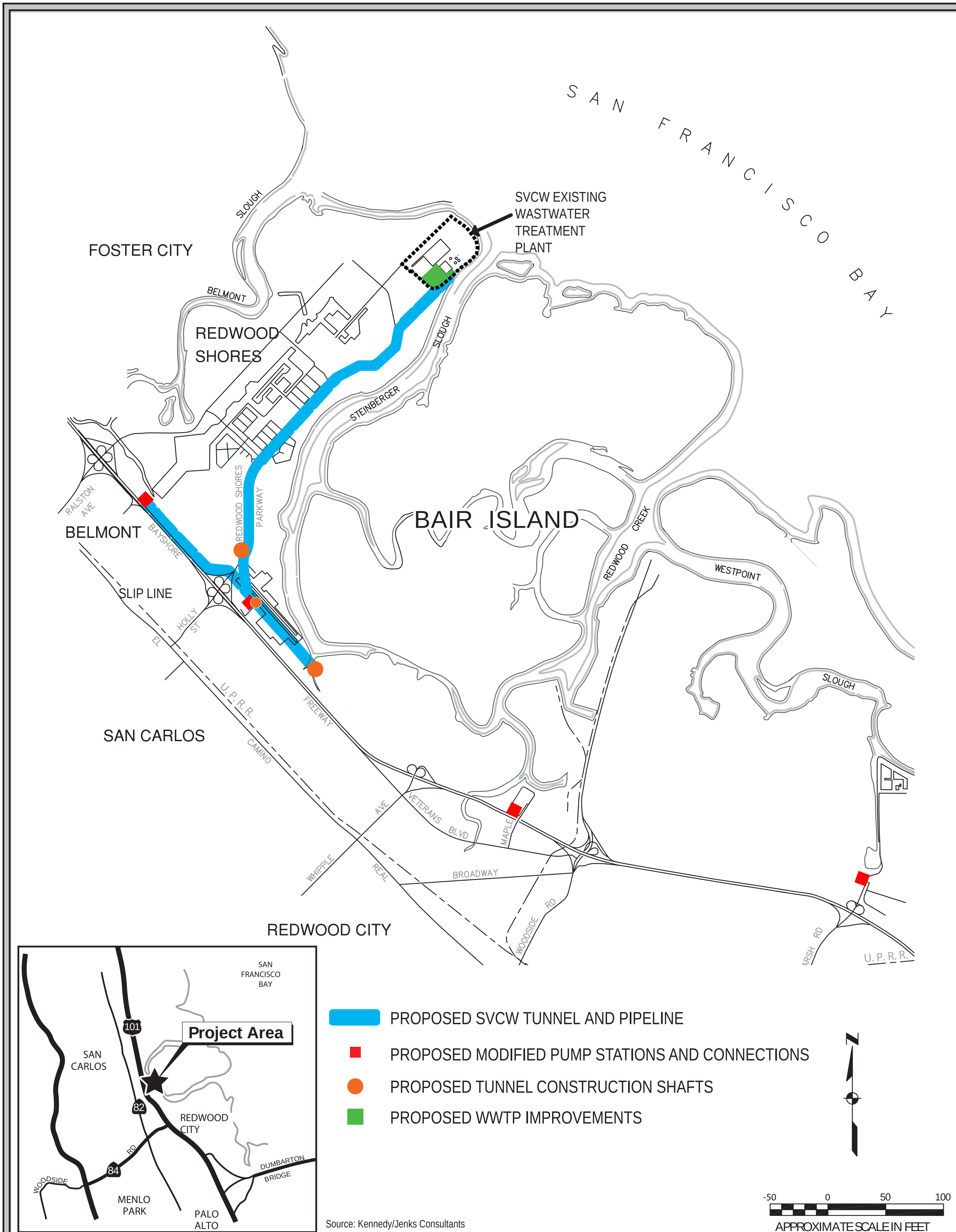
The Belmont Pump Station would remain as part of the proposed Project and would be rehabilitated to pump Belmont's wastewater to the new gravity pipeline. The existing 24-inch pipeline and a portion of the 54-inch pipeline would be rehabilitated and used to connect the Belmont Pump Station to the San Carlos Pump Station site. The remaining three miles of the 54-inch force main would be set aside for possible future uses.

The Belmont wastewater would be pumped to the south by the Belmont Pump Station through the rehabilitated force main. The Belmont flow would be combined with the San Carlos flow at the San Carlos Pump Station site and would be discharged into the new 11-foot gravity pipeline through a drop shaft built on the San Carlos Pump Station site.

The Project proposes four new facilities that would be constructed at the WWTP: a Receiving Lift Station, a Headworks Facility, Flow Diversion Facilities, and a pipeline that connects these facilities to the existing WWTP. The Receiving Lift Station would be built where the Gravity Pipeline would terminate at the WWTP. The Receiving Lift Station would pump the wastewater from the Gravity Pipeline, which would be about 52 feet below grade, to the surface and would discharge it into the new Headworks Facility where the rags, grit, sand and other debris would be removed from the wastewater. The Project also proposes building a Flow Diversion Structure consisting of a three million gallon, above-grade concrete tank to provide short-term storage downstream of the Headworks Facility.

The wastewater would be pumped by the Receiving Lift Station and then would flow by gravity through the HeadworksHeadworks Facility and the new 1800-foot Influent Connector Pipes to the primary treatment process. Alternatively, if short-term storage is needed or desired, the wastewater would flow by gravity from the Headworks Facility to the new Flow Diversion Structure. The storage wastewater would be pumped from the Flow Diversion Structure to the existing treatment plant through the Influent Connector Pipes. The combination of storage volume in the 11-foot inside diameter Gravity Pipeline and the Flow Diversion Structure would provide SVCW with the ability to store peak wet weather flow or equalize daily flow; this would result in a more uniform flow to the WWTP that would benefit the treatment processes.

The proposed Project also includes two more components that address nutrient removal requirements and plant process improvements: the Secondary Clarifierand Nutrient Removal Facilities.



Source: Kennedy/Jenks Consultants

PROPOSED PROJECT FIGURE 2.2-1

3.0 PROJECT DESCRIPTION

SVCW is implementing a Capital Improvement Program (CIP) that includes improving the reliability of the conveyance system and the WWTP. Several elements of this CIP are referred to as the Wastewater Conveyance System and Treatment Plant Reliability Improvement Project or 'proposed Project'. The proposed Project is made of up 17 components, each consisting of specific improvements and upgrades to portions of the conveyance system and the WWTP. Each component has a separate schedule and timing for implementation.

The Project components would ensure that SVCW can efficiently, reliably, and safely convey and treat wastewater from its four member agencies. The components are listed and briefly described below and described in further detail in sub-section 3.1.

The Project components are as follows:

Gravity Pipeline

- An 11-foot inside diameter **Gravity Pipeline** would be installed using tunnel boring machine (TBM) methods, and would function to convey wastewater to the WWTP. This larger diameter pipe would be used to convey flows and store peak flows for a short period of time (up to two days) to minimize the need for additional improvements at the plant. This component also includes the abandonment or repurposing of SVCW's existing 54-inch diameter force main and the remaining section of 48-inch force main on San Carlos Airport property.

WWTP Improvements

- A deep, submersible pump station, called the **Receiving Lift Station (RLS)** would be built to pump the incoming wastewater from the Gravity Pipeline to an elevation sufficient to flow through the newly constructed Headworks Facility and additional WWTP processes.
- A **Headworks Facility** (Headworks) would be constructed to provide coarse screening and grit removal from the raw wastewater. This process would improve the reliability of the equipment at the WWTP by removing rags, sand, and debris that damage pumps and other process equipment.
- The new **Odor Control Facility** would treat odors from the Gravity Pipeline, RLS, and Headworks. Odors that are expected in the air within the conveyance system will be conveyed through the headspace of the Gravity Pipeline (the airspace between the wastewater and the top of the pipe) to the RLS. Air within the RLS wet wells will be collected and sent to dedicated Odor Control Facilities located adjacent to the Headworks building.
- Flow Diversion Facilities would be constructed to increase storage volume, and the **Flow Diversion Structure (FDS)** would be used in conjunction with the Gravity Pipeline to store incoming wastewater for a short period to allow for a more consistent flowrate into the WWTP processes. The Gravity Pipeline will be used as the primary method of storage. When additional storage is needed, the FDS (a three million gallon, above-grade concrete tank) would be used for additional storage. A

pipeline would be constructed from the FDS to Drying Bed "A" to transport any overflow water to the drying bed in the event FDS is filled to capacity.

- The new WWTP components would be connected to the existing WWTP processes via new **Influent Connector Pipes** that would convey the flow from the Headworks and the FDS, to the primary wastewater treatment processes.
- Based on extensive discussions with the RWQCB, SVCW is preparing for new regulations that would require reductions in nitrogen and possibly phosphorus from its outgoing wastewater flow. The **Nutrient Removal Facilities** component would add wastewater processes to the WWTP to remove these nutrients.
- The **Secondary Clarifiers** component would provide additional secondary clarification capacity, improving the reliability of this process during wet weather events.
- The **Stormwater Treatment Planters** will be installed to treat any rainwater prior to reaching the Stormwater Pump Station. Within the treatment planters will be specified plants and landscape soil to treat the stormwater once it enters the planter.
- The **Stormwater Pump Station** would assure that all rainwater and stormwater that falls on the newly improved Front of the Plant site gets pumped to either the existing stormwater system or a future system that provides the necessary treatment, disposed of as required by SVCW's National Pollutant Discharge Elimination System (NPDES) permit.
- Based on the discussions with the Sequoia Audubon Society, SVCW plans to make enhancements to the 5-acre pond to provide sanctuary islands for birds and a viewing area for the public. Improvements to the 5-acre pond will not affect SVCW's ability to fill and drain recycled water from the pond, but will also allow the pond to be filled with treated stormwater. Water within the pond will continue to be fresh water. As a non-plant related function, minor earthwork will be performed within the pond to create sanctuary islands for birds and to create parking and viewing areas for the public. The pond may be removed in the future for treatment facility needs, subject to future environmental review as is the case for all facility improvements.

Belmont Force Main Improvements

- The **Belmont Force Main Rehabilitation** component would consist of lining the existing force main sections that will convey the wastewater flow from the City of Belmont to the SVCW system.

Belmont Pump Station Rehabilitation

- The **Belmont Pump Station Rehabilitation** would rehabilitate the pump station with seismic structural upgrades, replace the pumps with lower pressure pumps that are appropriate for future flow rates and pressures, and install piping and electrical upgrades.

San Carlos Pump Station Repurposing

- Since the force main that currently conveys wastewater to the WWTP from San Carlos Pump Station would be replaced with a Gravity Pipeline, the existing San

Carlos Pump Station would no longer be needed. At the location of the existing pump station, improvements would be needed to connect the flow from San Carlos and Belmont to the new Gravity Pipeline. The **San Carlos Pump Station Site Improvements** component would install the piping and improvements on the site to take the existing pump station off line, provide metering and sampling of the San Carlos and Belmont flow, and connect the two pipelines to the Gravity Pipeline.

- The **San Carlos Odor Control Facility** would be built on the San Carlos Pump Station site to contain and treat foul air venting from the drop shaft where the Belmont and San Carlos flows connect into the Gravity Pipeline. Equipment includes chemical scrubbers (or other treatment method such as carbon), storage tanks for chemicals used in the scrubbers, metering pumps, secondary containment piping, electrical equipment, and other ancillary equipment which will be located at the existing San Carlos Pump Station building. The installation of the new odor control equipment includes removal of existing equipment and interior walls, and major upgrades and renovations of the San Carlos Pump Station building to maintain the long-term operation of the Odor Control Facility.

Redwood City Pump Station Replacement

- At the location of the existing **Redwood City Pump Station**, a new pump station would be built to pump the wastewater flow from Redwood City into the SVCW Conveyance System. The current pump station building would be repurposed to house odor control and electrical facilities including standby power and control system upgrades.

Menlo Park Pump Station Rehabilitation

- The **Menlo Park Pump Station Rehabilitation** component would rehabilitate the pump station and replace the pumps with lower pressure pumps that are appropriate for future flow rates and pressures along with seismic upgrades to the existing structure, odor control, and electrical facilities including standby power and control system upgrades.

Front of Plant Site Civil Improvements

- **Civil improvements** are needed for the Front of the Plant area to accommodate the new RLS, Headworks, and a FDS, such as: earthwork and grading to allow access to new facilities and for proper drainage; storm drainage improvements to prevent site flooding and to treat stormwater runoff; driveway and roadway improvements to create safe vehicle routing; walls and fencing for site securiity and screening; and tree planting for further site screening and visual improvements.

All new facilities and equipment would be connected to and monitored through the existing SVCW Supervisory Control and Data Acquisition (SCADA) system. The status of pumps, storage volume, electrical equipment, site security, standby power, and other ancillary equipment would be monitored via the SCADA system. Data on flows, power demand, wet well levels, pumping rates, and other information would be collected on timed intervals appropriate for each item, acted upon and stored within the SCADA data base.

3.1 PROJECT COMPONENTS

The 17 Project components of the proposed Project, which were discussed briefly above are described in further detail below.

3.1.1 Gravity Pipeline

During the early 1970s, the existing 48-inch and 54-inch diameter force mains were constructed of reinforced concrete pipe (RCP) with bell-and-spigot joints spaced at 12 foot intervals. These sections of pipeline were initially built to function as gravity sewers and subsequently repurposed to be pressurized force mains. Now the pressure in the force mains is carefeully managed by limiting the flow to minimize leaks. The existing force main is located in "young bay mud", which is an unstable soil strata, and since the joints are spaced every 12 feet, they move in the unstable bay mud and consequently leak, requiring repairs along streets, in backyards, and within biologically sensitive environments. Corrosive soils outside the pipe and corrosion from sewer gases inside the pipe have weakened the pipe. When surges in flow such as during a power outage occur, the resulting pressure and suction surge conditions have broken the weakened pipeline resulting in major spills of sewage.

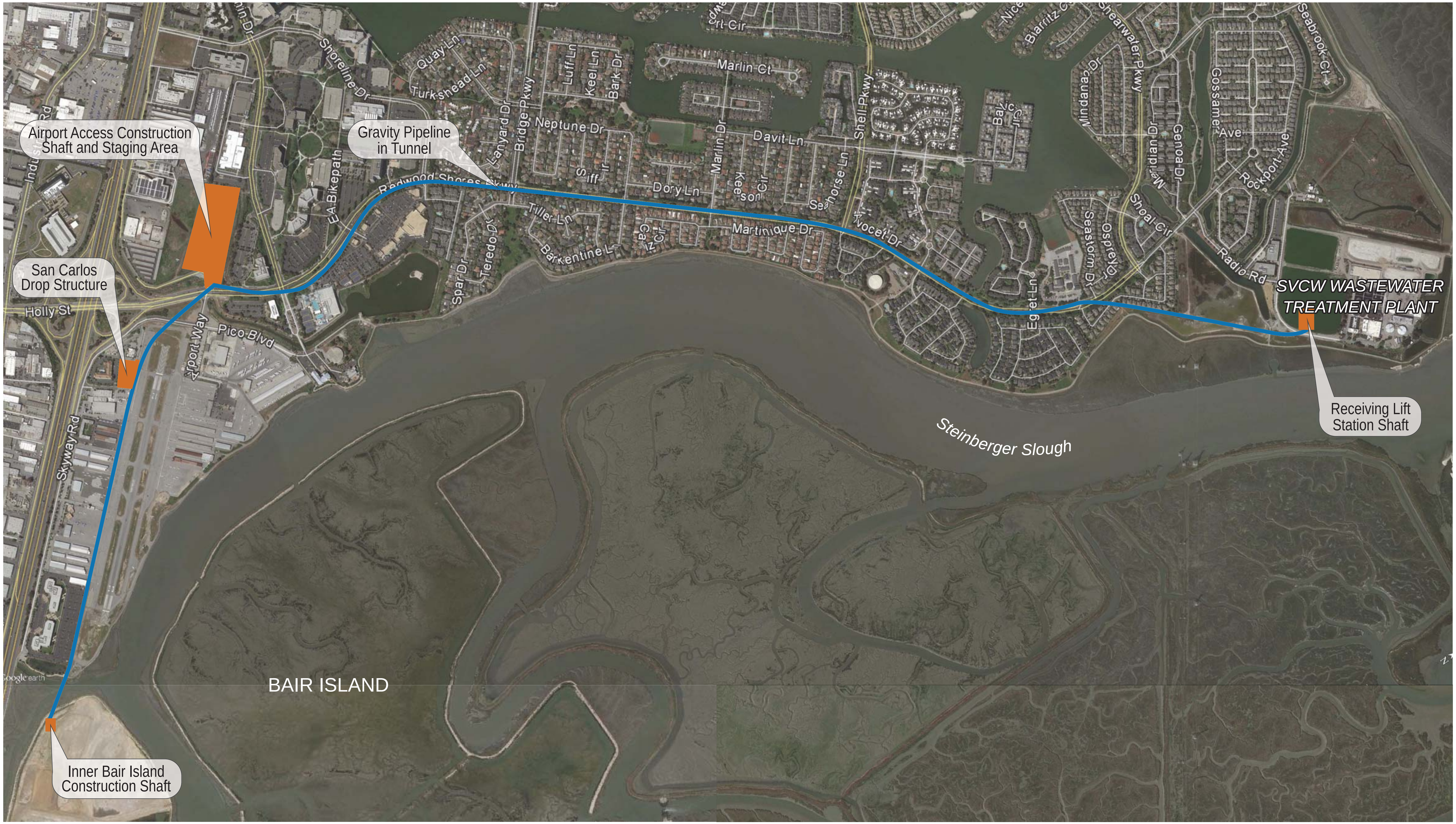
The Gravity Pipeline component is a new 17,600-linear foot pipeline constructed by a TBM between the SVCW WWTP and the north end of Inner Bair Island, as shown on Figure 3.1-1. This would replace the need for the remaining 48-inch diameter RCP and the 54-inch diameter segment of the existing force main. A portion of the 54 inch would be repurposed by relining that section for use by the Belmont Pump Station to move flows to the San Carlos location.

The top of the tunnel would be situated roughly 20 to 52 feet below the ground surface between the northern end of Inner Bair Island and SVCW WWTP. A new, 11-foot inside diameter fiberglass reinforced pipe (FRP) would be installed within a 13-foot inside diameter concrete tunnel (15-foot outside diameter) in two separate sections of tunnel, constructed from the proposed Airport Access Shaft, located just north of the Shoreway Road and Redwood Shores Parkway/Holly Street intersection, in Redwood City. The wastewater in the pipeline would flow by gravity (unlike the current under-pressure force main).

While the tunnel and carrier pipe are continuous from the influent end on Inner Bair Island to the WWTP, the tunnel would be constructed in two separate sections. The first tunnel section constructed would be located between the Airport Access Shaft and the SVCW WWTP RLS Shaft with most of the tunnel located beneath the Redwood Shores Parkway right-of-way. This tunnel section would be 12,400 feet in length and would be installed at a depth of 34 to 52 feet below ground surface (to the top of the tunnel). The second tunnel section constructed would be located between the Airport Access Shaft and Inner Bair Island Receiving Shaft. This tunnel would be located under Redwood Shores Parkway (Holly Street), Skyway Road, the San Carlos Airport property and Pulgas Creek, where it would connect to the recently completed 48-inch force main pipe on Inner Bair Island. This tunnel section would be 5,200 feet in length and would be installed at a depth of 20 to 34 feet below ground surface.

3.1.1.1 *Connection from Existing Force Main to the New Gravity Pipeline*

Once the Gravity Pipeline is completed and connected, all flows from Menlo Park and Redwood City would be directed to the new gravity line at the Inner Bair Island connection. All Belmont and San Carlos flows would enter the new Gravity Pipeline at the new San Carlos Drop Shaft.



GRAVITY PIPELINE COMPONENT FIGURE 3.1-1

3.1.2 WWTP Improvements

Land to construct improvements on the existing 22-acre SVCW plant site is extremely limited. SVCW has explored several land development options to locate the required WWTP improvements and only the 10-acre ornamental pond southwest of the existing WWTP offers the acreage needed for the required improvements near the existing plant facilities. The ornamental pond is created and maintained by SVCW through pumping water from SVCW's Recycled Water facility into the area immediately southwest of the existing treatment plant. This use is consistent with recycled water regulations in Title 22, Division 4, Chapter 3 of the California Code of Regulations (CCR) describing appropriate use of recycled water for "an aesthetic landscape impoundment". The water in the ornamental pond flows back into the treatment plant and is treated for discharge under SVCW's existing wastewater treatment permits. The ornamental ponds have been filled and drained by SVCW as needed for treatment plant operations, maintenance and explorations. The 10-acre area would be drained and utilized for construction of the RLS, the Headworks, Front of the Plant Odor Control Facility, the FDS, the treatment planter, the Stormwater Pump Station, civil site improvements, the Nutrient Removal Facilities, and the clarifiers. An overview of these facilities and how they would be connected is described below and shown on Figure 3.1-2. Two new transformers will be constructed to provide power for the facilities and will be located adjacent to the Headworks structure. Additional standby power generators would also be needed during the nutrient removal improvements phase. Those standby electrical generators, when required, would also be located adjacent to the Headworks structure.

The RLS would be located at the terminus of the Gravity Pipeline at the WWTP. It would be used to pump raw sewage in the Gravity Pipeline to the Headworks. Raw wastewater can include high levels of odorous dissolved hydrogen sulfide, which tends to transfer into the surrounding air wherever the wastewater surface is open to the air. SVCW plans to continue its current practice of injecting calcium nitrate into the sewage in the conveyance system to help control downstream odors. To further limit odors at the RLS facility, this foul air would be conveyed to the Odor Control Facilities located adjacent to the Headworks building. In the Headworks, the wastewater goes through screens, which remove coarse material (plastics, wood, metal, etc.), followed by grit (sand, gravel, stones, etc.) removal equipment. The Influent Connector Pipes would be two new large diameter pipes (44 inch and 72 inch inside diameter pipes) that connects the Headworks and the FDS to the existing primary sedimentation basins.

The Gravity Pipeline and FDS would store wastewater during wet weather when flows exceed the WWTP capacity. During wet weather conditions, if the Gravity Pipeline and FDS fills to capacity, the screened wastewater could be diverted to Sludge Drying Bed A. When the peak wet-weather conditions subside, the stored wastewater would be pumped to the primary sedimentation basins through the new Influent Connector Pipes. During dry weather, the Gravity Pipeline and FDS would be used to equalize the daily flows, allowing for a constant rate of flow into the WWTP to benefit downstream treatment processes. These facilities are described in detail in the following corresponding sections.

3.1.2.1 *Receiving Lift Station*

Overview

The purpose of the RLS would be to lift the wastewater at the downstream end of the Gravity Pipeline and convey it into the Headworks for preliminary treatment.

Connection to Conveyance System and WWTP

The RLS would be located on the SVCW property that currently holds the existing 10-acre ornamental pond area. The structure housing the RLS would extend approximately 10 feet above grade and approximately 88 feet below grade, as shown in Figure 3.1-3. The invert of the wet well would be 68 feet below grade. The RLS would extend 18 feet above grade. The footprint of the RLS structure would occupy approximately 2,800 square feet with a width of 44 to 50 feet and length of 65 to 75 feet. The footprint of the pipe galleries would occupy approximately 2,600 square feet and be adjacent to the RLS and between the RLS and Headworks. The RLS flow control and pumps would be installed within one of the two shafts constructed as part of the Gravity Pipeline component Project. Construction for the RLS would begin after completion of the tunnel segment to the WWTP. One of the shafts would be used initially for the TBM retrieval and then would be used for flow splitting upstream of the RLS. The second and larger shaft would be used exclusively for the RLS. The discharge piping would convey flow from the RLS into a distribution channel at the entrance of the new Headworks.

Wet Wells

The RLS would consist of a flow splitter section and then two, rectangular trench-style wet wells that would each contain four submersible pumps, for a total of eight pumps, as shown in Figure 3.1-4. The Gravity Pipeline flow would be split between the two wet wells to stabilize flow and maintain grit and other solids in the wastewater under normal operating conditions. A slide gate would be installed in the first shaft in front of each wet well to allow one wet well to be isolated while the other wet well remained in operation. When one wet well is taken out of service for maintenance activities, the slide gate will be closed and stop logs could also be installed to serve as a secondary isolation mechanism. Stop logs would only be installed when isolating the wet well for maintenance activities.

Pumps

The RLS would have a minimum redundant pumping capacity of 75 million gallons per day (MGD). Each wet well could consist of four submersible non-clog pumps: one 7.5 MGD pump and three 15 MGD pumps in each wet well, for a total of two 7.5 MGD and six 15 MGD pumps. The two 7.5 MGD pumps in combination would be capable of handling most of the equalized dry weather flows up to an Average Dry Weather Flow (ADWF) of 15 MGD. The combination of five 15 MGD pumps operating would convey 75 MGD with the sixth 15 MGD pump as an installed standby.

Pump Discharge

Each of the eight pumps would have its own discharge piping that would discharge into an open channel at the new Headworks to allow flexibility in operation and various options for conveyance during emergency situations. Each wet well would have four discharge pipes that exit the RLS. The discharge piping may be directly buried or may be located within a pipe gallery structure located below ground on each side of the RLS. The approximate width and height of each pipe gallery would be up to 12 feet wide by 16 feet deep.

Pump Removal

Pumps would require removal approximately every six months for maintenance inspections and oil changes. Pump removal would be completed through the use of a guiderail system on each pump that is attached to the RLS shaft walls. Pumps would slide up and down the guiderail system and be lifted using a truck mounted heavy duty crane brought to the site as needed. Pump removal from the wet well would be assisted with a bracket and counterweight that slides down the guiderail and attaches to the top of pump to remove it. A remote camera would be used to help align the bracket and cable tension sensors in order to aid the attachment/release of the pump.

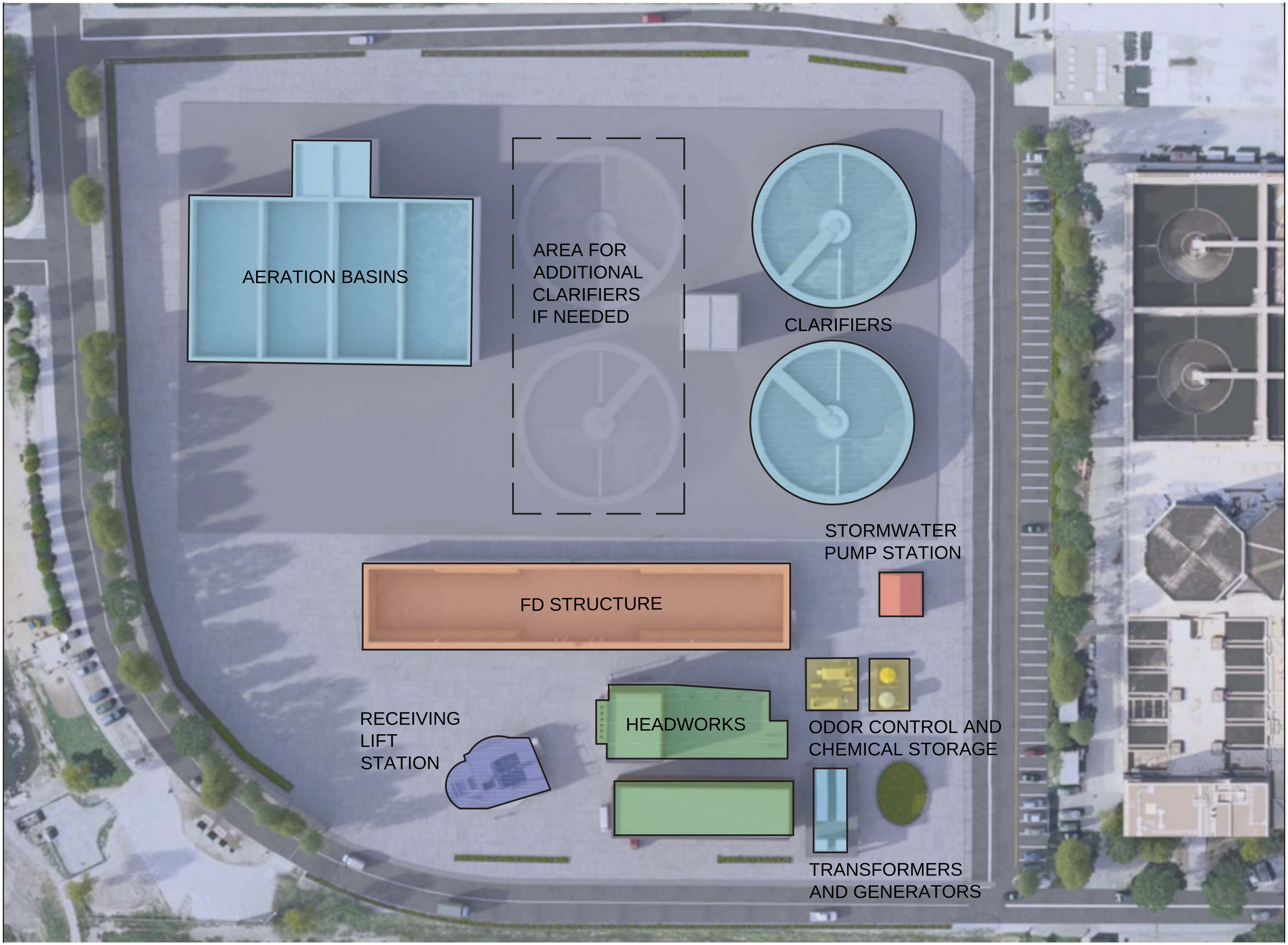
Odor Handling

Odors expected in the air will be conveyed through the headspace of the Gravity Pipeline and air combined with the RLS wet well air spaces. SVCW plans to continue injecting calcium nitrate or a similar odor control method into the sewage upstream at each pump station to help control downstream odors. In the future, SVCW may explore other upstream alternatives for odor control, such as oxygen injection, that would have fewer delivery trucks (onsite oxygen production taken from air). Foul air reaching the RLS would be conveyed to the Odor Control Facilities located adjacent to the Headworks building. Odor control for the RLS would treat two distinct areas: air conveyed through the headspace of the tunnel and air within the wet wells. Air from the tunnel would be drawn from the front area of the RLS within the smaller shaft using exhaust fans at a peak rate of approximately 3,900 cubic feet per minute (CFM) and conveyed to the Odor Control Facilities. The wet well odor handling system would require both supply and exhaust fans to ventilate the wet well air space within the larger RLS shaft. An air flow rate of approximately 7,400 CFM for four ventilation changes per hour would be supplied and ventilated from the space.

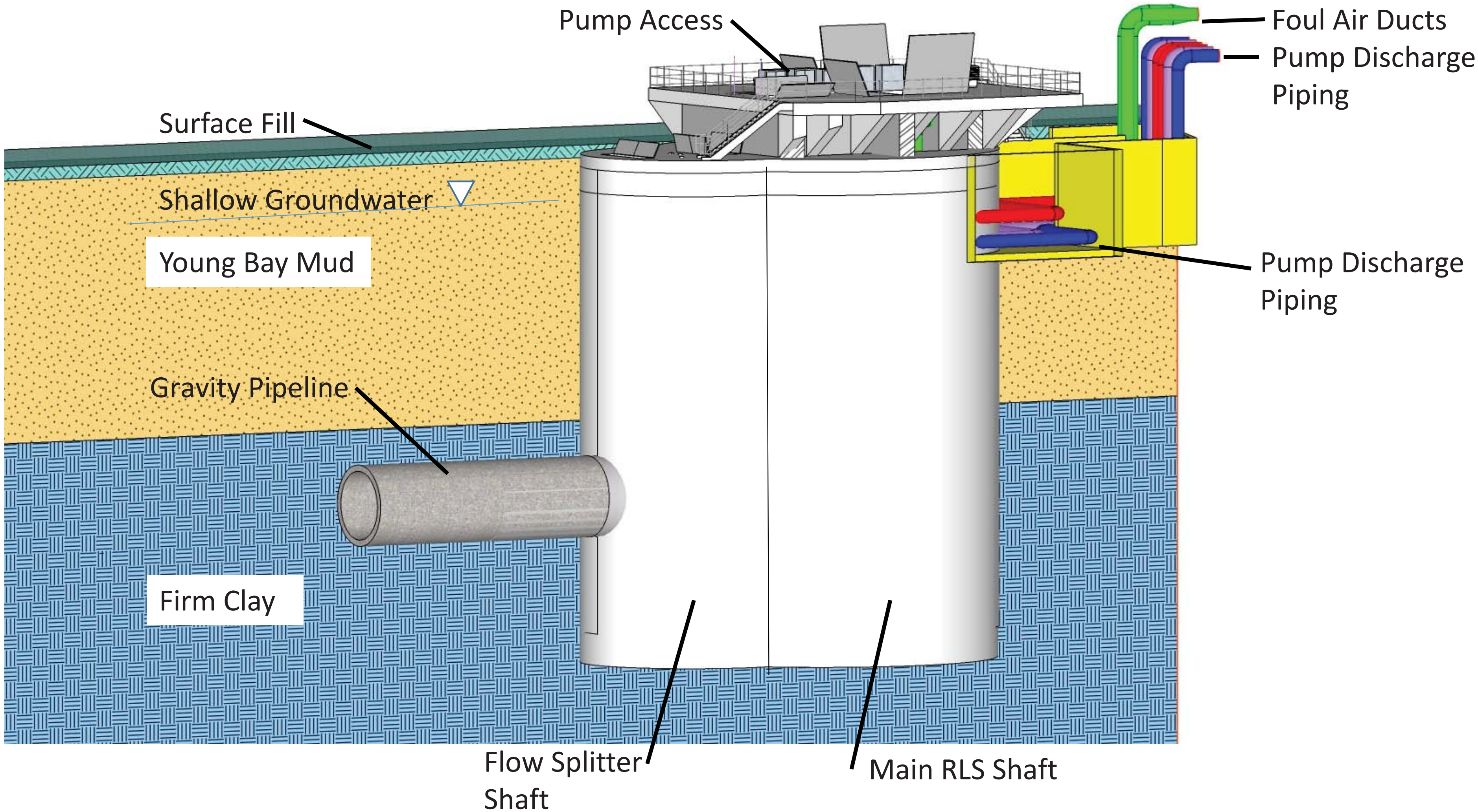
Electrical Facilities

The electrical facilities for the RLS would be accommodated in conjunction with the electrical facilities constructed for the Headworks with capacity for a FDS. The electrical facilities would require motor control centers, switchgear and variable frequency drives, a remote terminal unit, and instrumentation systems. Standby power with diesel engine-driven generators may be required in the future. The connected horsepower (HP) of the pumps would be approximately 2,500 HP for the assumed pump configuration of two 7.5 MGD pumps (200 HP each) and six 15 MGD pumps (350 HP each). At a peak flow rate of 75 MGD, the operating power needed would be approximately 1,750 HP with five 15 MGD pumps operating. The electrical equipment will be located in the electrical room within the Headworks building.

Approximately two megawatts of standby power would be needed for the conveyance improvements. The standby power would be supplied by existing standby generators at the WWTP.

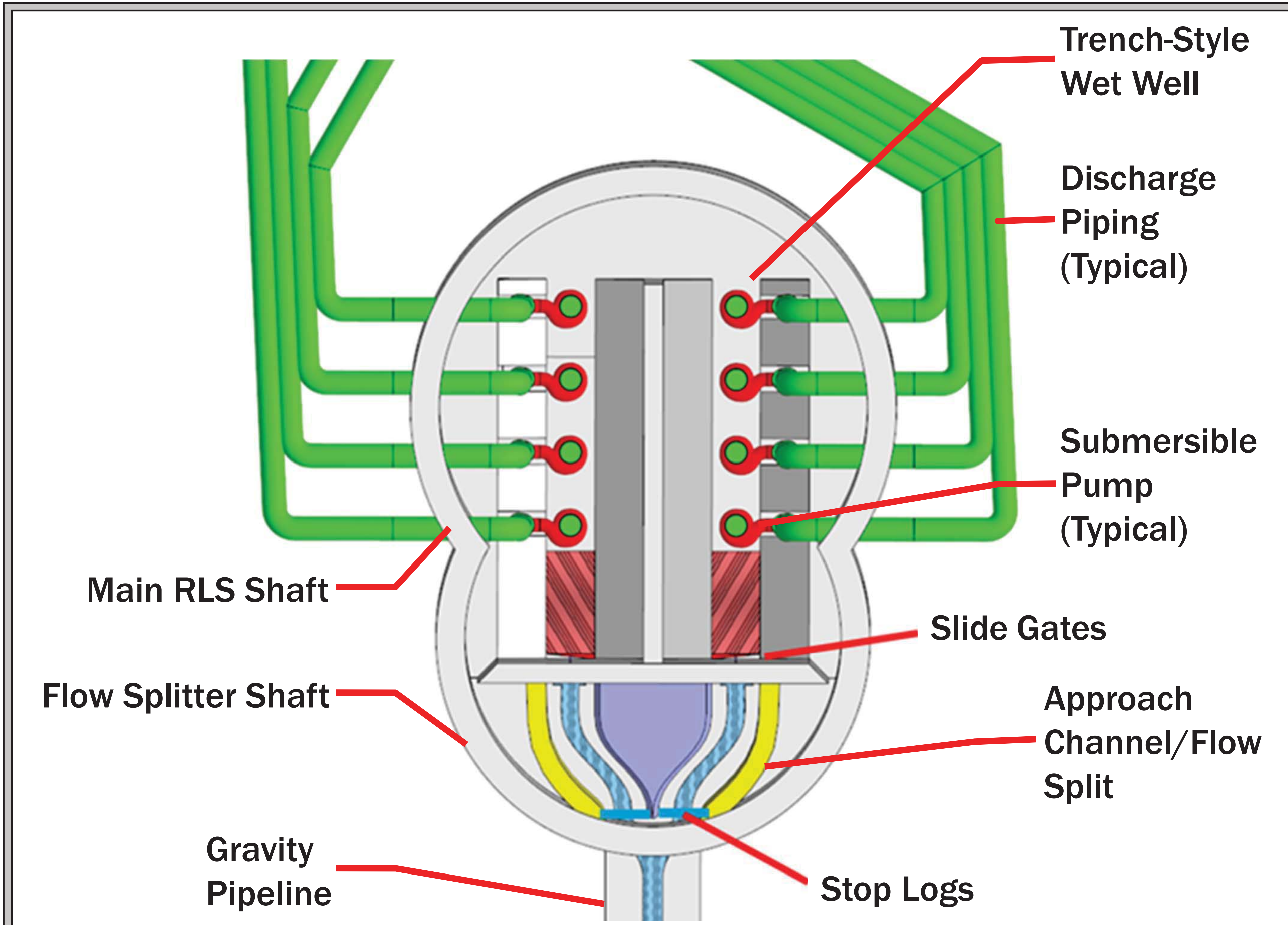


PROPOSED WWTP FACILITIES SITE MAP FIGURE 3.1-2



RECEIVING LIFT STATION PROFILE

FIGURE 3.1-3



RECEIVING LIFT STATION WET WELLS

FIGURE 3.1-4

3.1.2.2 *Headworks Facility*

Overview

A Headworks Facility, is the first step of treatment at a WWTP. A Headworks Facility receives all raw wastewater influent.[4] Headworks typically include equipment to screen coarse material (plastics, wood, metal, etc.), followed by grit removal (sand, gravel, stones, etc.). Process sidestreams and stormwater from the treatment plant also are sometimes returned to the Headworks.

Currently, the SVCW WWTP does not have Headworks and only has partial screening and a limited grit removal process. The current partial screening and grit removal processes continue to allow too much downstream grit and unscreened material that causes excessive wear on equipment as well as high maintenance and repair costs.

Headworks Facility

A new Headworks would be constructed upstream of the existing primary treatment process and downstream of the RLS. It would consist of a flow diversion box which directs flow into or around the Headworks and then a screening facility, grit removal facility, grit and screening processing equipment, and an electrical room, refer to Figure 3.1-5. The de-ragged and degritted wastewater would then flow through the outlet flow diversion box to the Influent Connector Pipes. The Headworks structure would extend approximately 38 feet above grade, but its height will not exceed the height of the existing Fixed Film Reactors (FFRs) at the main treatment plant. The Headworks structure would extend 10 feet below grade. The below-grade portion of the structure would be approximately 17,000 square feet in size. The operating deck of the new facilities would be 20 feet above the new ground surface with a structure over portions of the operating deck. The paved area for truck traffic and maintenance activities would be approximately 19,000 square feet.

The facility would be designed to accommodate a peak flow of 80 mgd. Peak flows from the Headworks could be discharged directly to the primary sedimentation tanks via the Influent Connector Pipes.

The screening portion of the Headworks would receive raw sewage from the new RLS; remove, wash and compact the debris; and load it into a roll-off debris bin. After the sewage is screened, course and fine grit would be removed by vortex units, washed and loaded into a separate roll-off debris bin. The debris bins would be picked up by trucks, accessed from one side of the Headworks, and transported to a landfill. This debris transport process would be a continuation of the existing practices at the WWTP; with the proposed Project, the overall volume of material removed from the plant would be similar.

Odor Handling

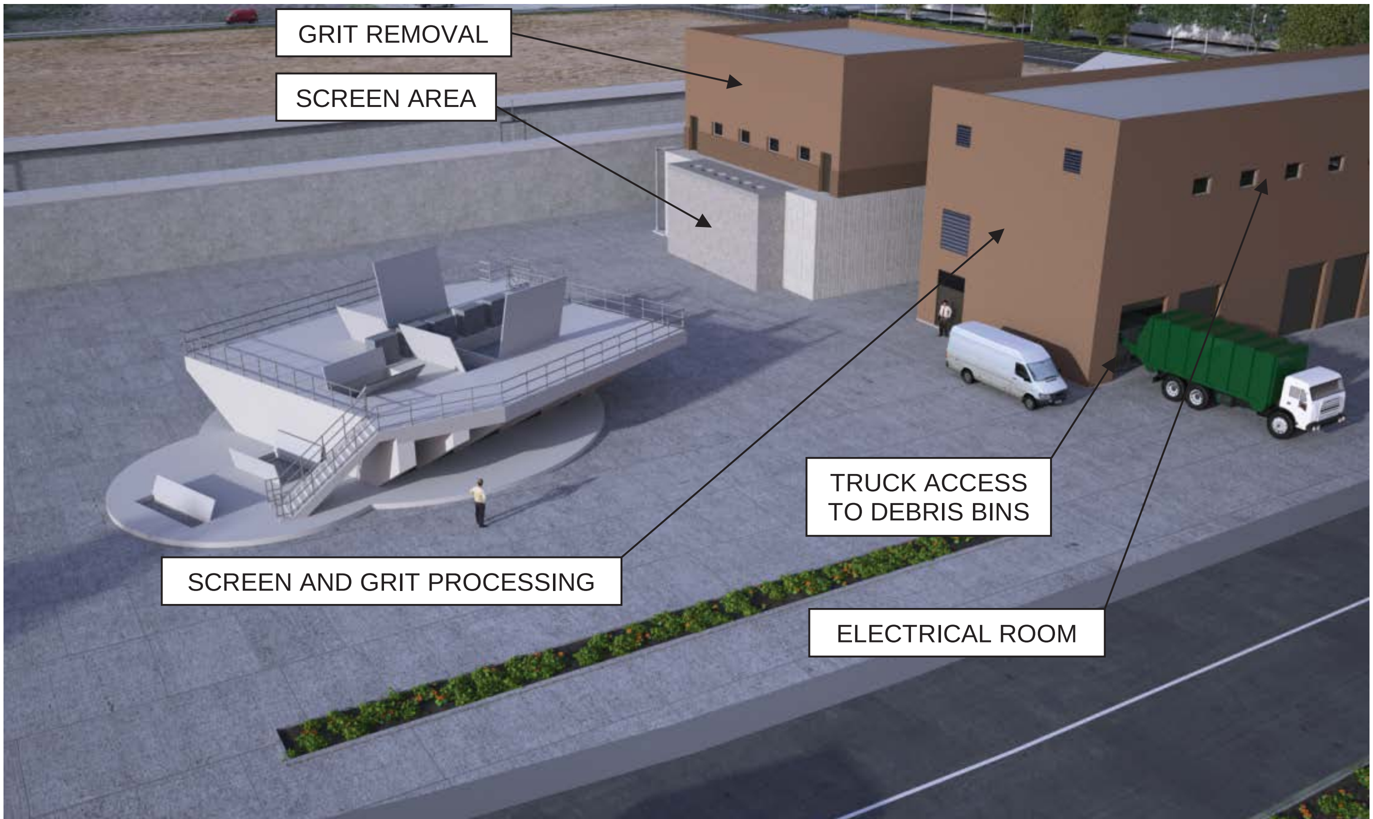
Raw wastewater can include high levels of odorous dissolved hydrogen sulfide, which tends to transfer into the surrounding air wherever the wastewater surface is open. This release of hydrogen

[4] Influent is wastewater flowing into a treatment plant.

sulfide is increased where turbulence is introduced during the screening and grit removal process and through the Headworks structure. To limit odors at the facility, odorous areas would be covered and contained, and foul air would be extracted and conveyed through ducts to a separate treatment process where the odorous components would be removed before the air is released into the atmosphere. The new Odor Control Facility, as shown in Figure 3.1-6, would treat the odorous air from the Headworks as well as from the RLS. The odor treatment system would use either carbon cartridges or chemical scrubbers using a solution of water, sodium hypochlorite, and sodium hydroxide. Storage tanks for the sodium hypochlorite and sodium hydroxide chemicals would be placed onsite with full spill containment.

Electrical Facilities

The electrical facilities for the Headworks and RLS with capacity to serve the FDS would be accommodated within an electrical room constructed within the Headworks building. The anticipated electrical demand for the Headworks equipment and odor control ventilation equipment is expected to be approximately 250 HP. The electrical demand for the RLS would be 2,625 HP. Power supply would be from two new transformers located at the same elevation as the electrical building adjacent to the Headworks building. At the time when nutrient removal and secondary clarification facilities are constructed, new standby generators would be installed upon the same platform as the new transformers, adjacent to the Headworks structure.



HEADWORKS FACILITY - ARTIST RENDERING

FIGURE 3.1-5

ODOR CONTROL FACILITIES - ARTIST RENDERING

FIGURE 3.1-6

3.1.2.3 *Flow Diversion Facilities*

Background

There is currently no equalization structure at the SVCW facility on Radio Road. There is, however, an existing FEF utilized by SVCW and owned by the WBSD and located at an out-of-commission wastewater treatment plant location that is adjacent to Bedwell Bayfront Park in the City of Menlo Park, refer to Figure 3.1-7.

The FEF is used currently for wet weather storage of the WBSD flows and it would continue to be used while the aged pipeline is in service and during construction of the conveyance system improvements. Upon completion of the proposed Project, it is assumed that the existing West Bay FEF would remain in place and could be available for WBSD's own use.

Overview

Influent wastewater can be equalized for multiple reasons. Two of the common reasons are to achieve a relatively constant treatment flow rate during dry weather to stabilize the treatment processes, and to provide short-term storage of wet-weather flows when the hydraulic and/or treatment capacity of the WWTP is exceeded.

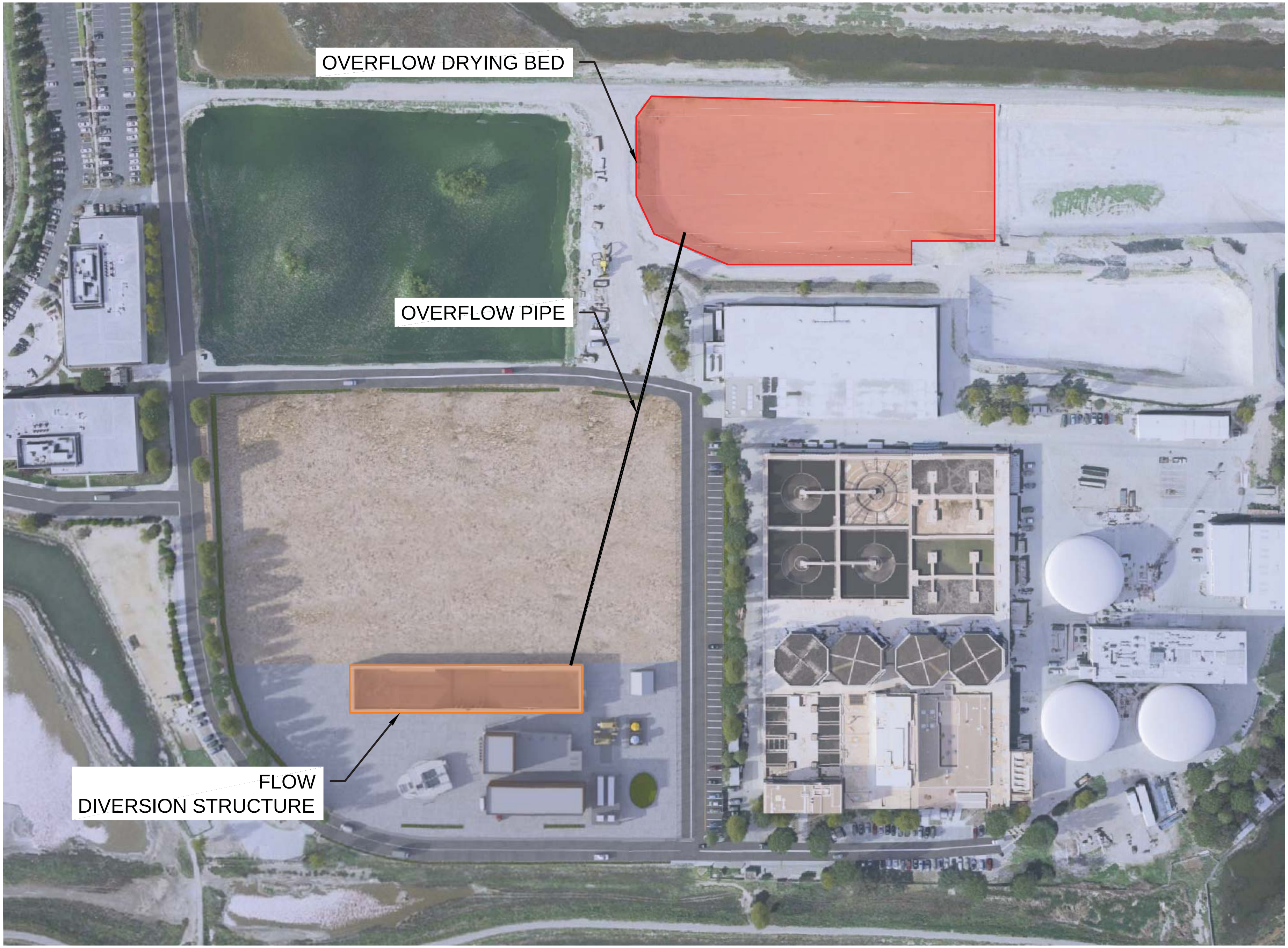
Equalization in the new conveyance system will be provided by the new Gravity Pipeline and FDS for both daily and wet weather flows. The Gravity Pipeline and the FDS would provide the storage capacity required to provide SVCW the option to limit wastewater flow through the WWTP to 60 MGD during the wet weather season and a constant daily flow during the dry weather season to enhance the operation of the treatment processes. This would be achieved in wet weather with a combination of storage in the Gravity Pipeline and installation of overflow piping from the FDS to one of SVCW's existing drying beds that would provide an additional 4.4 million gallons of storage (refer to Figure 3.1-8).

The peak wet weather storage would be designed for a single, 10-year, 24-hour storm event with incoming flow rates to the WWTP at 108 MGD (which includes five MGD of peak flow from the Redwood Shores Force Main), and would have sufficient storage volume to reduce the process flow to the maximum wet weather treatment plant process flow rate of up to 80 MGD. A total storage volume of 15.4 million gallons would be needed to limit process flows to up to 80 MGD. While current peak flow capacity of the WWTP is higher than 60 MGD, this facility would improve the ability to store wastewater short-term and increase the reliability of the processes during storm events.

LOCATION MAP

EXISTING WBSD FLOW EQUALIZATION FACILITY, MENLO PARK

FIGURE 3.1-7



FLOW DIVERSION STRUCTURE SITE MAP

FIGURE 3.1-8

Flow Diversion Components

The Flow Diversion Facilities would be comprised of the Gravity Pipeline storage, the FDS, and the Drying Beds (See Figure 3.1-8). It is anticipated that during a wet weather event, wastewater in need of storage would first be stored in the Gravity Pipeline, and in extreme storms overflow by pipeline to the FDS, fill the FDS to capacity, then overflow via a 48-inch diameter High-density Polyethylene (HDPE) pipe from the FDS to the Drying Beds, if needed.

The FDS would be an uncovered three million gallon concrete tank with the base and walls of the tank cast-in-place concrete. The top of the structure is anticipated to be approximately 11 feet above the ground surface, and the invert of the structure is anticipated to be an average of 15 feet below the ground surface. The footprint would be approximately 76 feet wide by 336 feet long.

The drying beds, if utilized, would be drained of stored wastewater by a portable pump, pumping flow into the FDS. The return pumps within the FDS would consist of four 7.5 MGD, 75 HP submersible pumps. Pumps would alternate with a maximum of three pumps in simultaneous operation, sized to pump wastewater at a total flow rate of up to 22 MGD. Each pump would be installed on an individual rail system to allow its removal from the wet well for maintenance without SVCW staff entering the FDS.

Odor Control

The FDS will be open to the atmosphere. It would be operated in a manner that would limit odor emissions. If odor control is needed, it would be provided via chemical addition as discussed in *Section 4.3 Air Quality*.

Electrical Facilities

All of the electrical supply components required for the Flow Diversion Facilities, as well as for the RLS, Headworks and Odor Control Facilities, would be located in the Headworks building. Anticipated connected electrical demand of Flow Diversion Facilities is 300 HP.

3.1.2.4 *Influent Connector Pipelines*

Overview

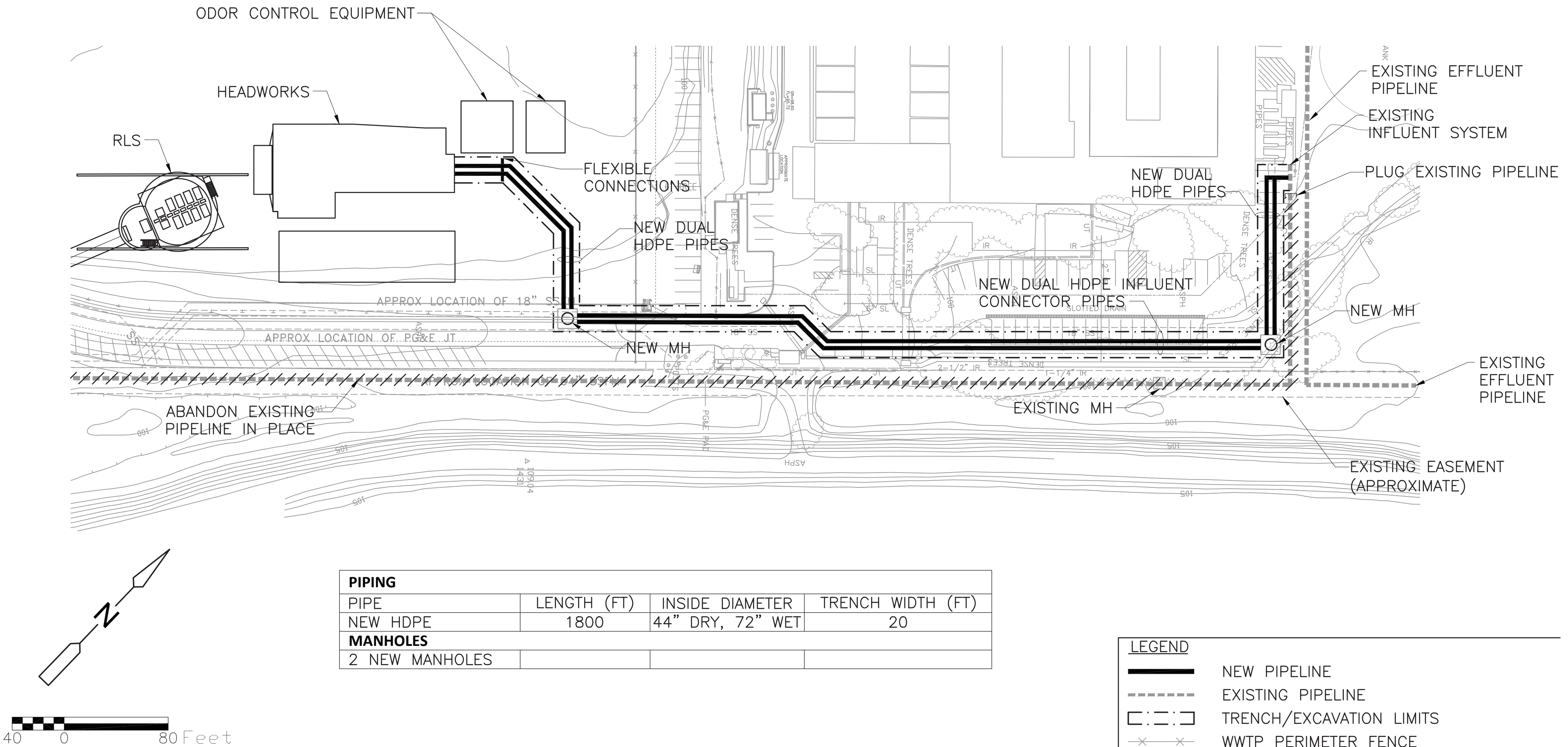
The purpose of the Influent Connector Pipelines are to transport the wastewater from the proposed Headworks to the influent side of the existing primary treatment system. These pipelines would connect the WWTP Improvement components of the Project to the location where plant influent currently enters the plant primary treatment process.

Influent Connector Pipes Improvements

The Influent Connector Pipes are two parallel pipes; a 44-inch inside diameter pipe and a 72-inch inside diameter pipe that would be constructed on the south side of the WWTP property. The proposed pipelines in combination would transport up to 80 MGD of screened and de-gritted wastewater flow from the proposed Headworks to the existing primary treatment process.

It is anticipated that the 44-inch inside diameter pipeline would be used to convey the flow during dry weather, with flow going through both pipelines during wet weather events.

The Influent Connector Pipes would be located in the area immediately adjacent to the west side of the current WWTP facilities and along the southern parking lot, and connect to the existing WWTP at its south east corner. The alignment shown below in Figure 3.1-9 was selected after review of multiple alignment options by SVCW, including tunneling and reusing a portion of the existing influent line.



PIPING			
PIPE	LENGTH (FT)	INSIDE DIAMETER	TRENCH WIDTH (FT)
NEW HDPE	1800	44" DRY, 72" WET	20
MANHOLES			
2 NEW MANHOLES			

LEGEND
- NEW PIPELINE
- EXISTING PIPELINE
- TRENCH/EXCAVATION LIMITS
- WWTP PERIMETER FENCE
- EXISTING EASEMENT

Source: CDM Smith, April 2016.

INFLUENT CONNECTOR PIPELINES ALIGNMENT

FIGURE 3.1-9

3.1.2.5 *Nutrient Removal Facilities*

Pursuant to the Federal Clean Water Act and California's Porter-Cologne Water Quality Control Act, the RWQCB regulates wastewater discharges to surface waters, such as the San Francisco Bay, through the NPDES program. Within the next decade, the RWQCB is likely to impose nutrient removal requirements in wastewater discharged into the San Francisco Bay.[5]

The requirement for nutrient removal is imminent and other agencies similar to SVCW have already started to explore feasible nutrient removal processes at their facilities. To address this future RWQCB regulation and to comply with the impending NPDES permit provisions, SVCW has designated land within the WWTP property for Nutrient Removal Facilities. Current plans for the nutrient removal improvements include biological processes that would reduce effluent total nitrogen and total phosphorus to RWQCB's acceptable limits prior to discharge.

SVCW has explored potential technologies and locations for the nutrient removal improvements. The only identified place with space available to accommodate these improvements is in the area of the existing 10-acre ornamental pond, located to the west of the existing WWTP and north of the RLS and Headworks; refer to Figure 3.1-10.

The Nutrient Removal Improvements as currently envisioned by SVCW would include several elements including changes to current secondary treatment processes as well as new process tanks. There are two treatment methods SVCW is considering for nitrogen removal; using tankage for nitrification/denitrification or using tankage followed by a membrane bioreactor both of which are described in the following paragraphs. Both alternative offers some advantages and some disadvantages. When the needs of future nutrient removal requirements are known, SVCW will select the desired alternative.

Biological Nutrient Removal Tanks for Nitrification and Denitrification

If a biological treatment process is selected, then the nutrient removal process would require concrete basins for nitrogen conversion and removal. The tanks would be similar in size to SVCW's existing aeration basins but the exact size cannot be determined until the requirements of future nutrient regulations are established.

Biological Nutrient Removal Followed By a Membrane Bioreactor (MBR) System

If an MBR process is selected, additional tanks followed with a membrane filter process would be required. The tanks for a MBR system would be smaller in size then needed for just a biological treatment process.

3.1.2.6 *Secondary Clarifiers*

This Project includes the installation of secondary clarification improvements, to increase WWTP peak wet weather capacity to 80 MGD. Actual improvements are currently being defined, but one potential solution would be to construct two, 125-foot diameter Secondary Clarifiers to the southwest of the existing WWTP within the 10-acre ornamental pond, refer to Figure 3.1-10.

[5] Nutrient removal is not likely to be required prior to two NPDES permit cycles (5-10 years).

The 5-acre northern ornamental pond area shown in Figure 3.1-10 would be used as a temporary construction staging and equipment storage area for the Nutrient Removal and the Clarification Improvements components. Following construction, SVCW could resume pumping recycled water into the 5-acre ornamental pond.

3.1.2.7 *Stormwater Facilities*

Stormwater collected within the 10-acre ornamental pond area would require treatment during and after completion of the WWTP improvement components of the Project. Stormwater treatment planters will be installed following regional municipal separate storm sewer systems (MS4) Requirements.[6] These planters will collect and treat stormwater. Stormwater will be directed to these planters that will convey flow to the new Stormwater Pump Station. The Stormwater Pump Station will be a submersible pump station, capable of conveying 10-year storm flows to the adjacent 5-acre pond north of the 10-acre pond. Stormwater will be stored in this 5-acre pond and ultimately sent through the plant via an effluent overflow weir back to the SVCW storm drain system and then conveyed to the WWTP for further treatment, as required by the plant's NPDES permit. When the 5-acre pond is being used for staging, a designated stormwater area shall be maintained.

3.1.2.8 *5-Acre Pond Enhancements*

The 5-acre pond is at the northwest corner of plant property, with Radio Road to the West, the 10-acre pond to the South, and drying beds to the East. Figure 3.1-10 shows the location of the 5-acre pond on SVCW property, relative to planned plant improvements within the 10-acre pond. Planned plant improvements within the 10-acre pond shown in the figure include a Receiving Lift Station, a Flow Diversion Structure, Headworks, Stormwater Pump Station, and facilities anticipated to meet State Water Board Nutrient Removal requirements. In an effort to meet State Water Board stormwater requirements, improvements within the 10-acre pond also include treatment planters to filter stormwater collected during the early stages of storm events.

The following improvements are planned for the 5-acre pond to maintain the current function of recycled water storage, provide storage for treated stormwater during the wet weather season, and enhance bird viewing within the pond.

- Fill and Discharge piping into the pond to allow filling of pond with treated stormwater or recycled water in order to maintain water levels.
- Working with a biologist to design and create islands within the pond for bird sanctuary.
- Creation of public parking and a viewing area.

Improvements within the 5-acre pond will be constructed with minor fill and grading to create islands and parking/viewing areas. The 5-acre pond will be drained and dried sufficiently to allow for equipment to enter the pond for the filling and grading operations. The pond may be removed in the future for treatment facility needs, subject to future environmental review as is the case for all facility improvements.

[6] These requirements are spelled out in the National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s).

NUTRIENT REMOVAL AND CLARIFICATION IMPROVEMENTS LOCATION MAP

FIGURE 3.1-10

3.1.3 Belmont Conveyance System Improvements

3.1.3.1 *Overview*

The existing Belmont Pump Station, built in 1971 and upgraded in 1982, pumps all of the wastewater for the City of Belmont and its surrounding unincorporated areas of San Mateo County into the existing SVCW force main system. Flow is transported from the City of Belmont collection system to the Belmont Pump Station by a 30-inch diameter gravity sewer. The pump station consists of a wet well/dry well structure with three 100-HP pumps used to pump flow through a 24-inch tape-wrapped and cement-mortar-lined steel force main (approximately 1,150 linear feet) that connects to a 54-inch RCPforce main. The 54-inch diameter force main, constructed in 1970, is a continuation of the existing force main conveyance system and is connected to the 48-inch diameter force main and the San Carlos Pump Station to convey flows from the member agencies to the WWTP. This Project encompasses rehabilitation of both the Belmont Force Main and the Belmont Pump Station.

Currently, the Belmont Pump Station requires frequent hands-on maintenance and there are several ongoing operational challenges with the pump station in its current configuration. The existing equipment has exceeded its useful life. Despite system-wide repairs and regular maintenance, the conveyance system components, like the Belmont Pump Station, are in need of replacement. The existing pump station configuration also has very little space for safe work access inside the facility.

The condition of the existing 24-inch force main is not known, and determining the condition of the force mains would require a considerable amount of effort and expense. A break occurred on the existing 54-inch diameter force main near the San Carlos Pump Station in 2001; therefore, the condition is believed to be poor and in need of rehabilitation or replacement. Based on the age of the force mains, it is assumed that they are at or nearing the end of their useful life.

The Project site is located within Shoreway Road and Skyway Road rights-of-way, as well as within the California Department of Transportation's (Caltrans) rights-of-way at the Holly Street and U.S. 101 interchange and at the Belmont Pump Station and San Carlos Pump Station properties. The entire Project area is located within the cities of Belmont and San Carlos.

3.1.3.2 *Belmont Force Main Rehabilitation*

The Belmont Force Main Rehabilitation Project would change how Belmont flow enters the SVCW conveyance system and would include the following components: rehabilitate an existing 1,150 foot 24-inch segment of the force main; and slipline (by insertion of new pipe within existing pipe) 3,550 feet of the 54-inch diameter force main to transport the Belmont flow to the new gravity wastewater pipeline in the vicinity of the San Carlos Pump Station.

These operational changes are needed for the Belmont system to function with the proposed Gravity Pipeline and; therefore, require the force mains to be rehabilitated to function correctly from a hydraulic and water quality standpoint.

24-inch Belmont Force Main Rehabilitation

Approximately 1,150 linear feet of the existing 24-inch diameter Belmont Force Main from Belmont Pump Station to the pipe connection near the existing 54-inch diameter force main, located near the north end of 75 Shoreway Road, would be rehabilitated through a cured in-place pipe (CIPP) construction method. Refer to Figure 3.1-11 for the location of the 24-inch diameter force main and the connection to the 54-inch diameter force main (named 'Belmont Tee'). Use of CIPP would be the preferred method of rehabilitation as the existing 24-inch does not require a change in diameter to function properly with the proposed changes to the conveyance system and only needs rehabilitation to improve the condition of the pipe.

The 24-inch diameter force main rehabilitation would require construction of three access pits (each approximately 15 feet wide by 15 feet long) along the 1,150 linear foot force main; refer to Figure 3.1-11 for the locations of the access pits. The final inside diameter of the force main is anticipated to be approximately 22-inches. This segment of pipe is an average of approximately six feet in depth (as measured from ground surface to the bottom of the pipe), but is upwards of 16 feet deep near the Belmont Pump Station. The access pits would require excavating approximately one to two feet below the bottom of the force main; therefore, it is anticipated that CIPP Access Pit 1 would be 18 feet deep and Access Pits 2 and 3 would each be eight feet deep. Approximately 1,000 square feet of space at the surface would be needed around each access pit to support the CIPP installation and curing process but this area would not require any ground disturbance. Open cut trenching to replace an approximately 175-foot section of the Belmont Force Main may occur within Shoreway Road between CIPP Access Pit 1 and CIPP Access Pit 2; refer to Figure 3.1-11 for the location. If open cut construction is utilized, one less CIPP access pit, CIPP Access Pit 1, will be necessary.

The CIPP process installs a resin (polyester, or vinylester) impregnated liner that is pulled or inverted into position and then cured in place with hot water or steam. For this Project, it is assumed that the liner would be inserted using water to help maintain a tight fit of the liner within the host pipe. The internal diameter of the existing pipe, when installed, would be reduced based on the thickness of the CIPP liner. CIPP liners typically range from 0.5 to 1.0 inches in thickness depending on the diameter, condition of the existing pipe, depth, groundwater level, and type of resin used. Of all the rehabilitation methods, CIPP lining provides the lowest profile, maintaining the largest inside diameter in the host pipe.

CIPP installation requires full bypassing of the wastewater flow around the section of pipeline being rehabilitated. For this Project, an existing gravity bypass into the San Carlos sanitary sewer system would be available at the intersection of Harbor Boulevard and Karen Road and would be utilized for all dry weather flow diversions. This is the current practice used by SVCW maintenance crews when access to the Belmont Pump Station wet well is required.

In locations with high groundwater, soil grouting, groundwater draw-down, or spot repairs could be necessary prior to the insertion of the liner. Spot repairs involve excavating down to the bottom of the pipe to replace and/or repair a section of the pipe. Soil grouting and ground water draw-down would require some drilling into the ground to either install grout or to pump down the ground water. A water source would be required for inserting and curing the CIPP. Styrene from the uncured resin enters the water as part of the curing process and could disrupt biological treatment at the SVCW; therefore, the curing water must be treated prior to discharging into the sewer. The treatment process would use carbon filter towers that would be installed on a flat-bed trailer, as described below.

54-inch Force Main Slipline

Approximately 3,550 linear feet of the 54-inch force main, from the pipe connection at the existing 24-inch Belmont Force Main (located near the north end of 75 Shoreway Road) to the San Carlos Pump Station, would be sliplined, refer to Figure 3.1-11. As previously discussed, the 54-inch force main requires rehabilitation since the purpose of the force main is being revised as part of the overall proposed Gravity Pipeline changes to the conveyance system. As proposed, this portion of the force main would only carry Belmont flows from Belmont Pump Station to the San Carlos Pump Station; this would result in an overall reduction in flows from current operations of the 54-inch pipe, and flows would be in the reverse direction. To accommodate the changes, the 54-inch force main must be reduced in diameter to function properly with the proposed revised hydraulics, and sliplining with a smaller diameter pipe is the preferred method for accomplishing this change. This is a trenchless rehabilitation method that would require the construction of two slipline insertion pits (each 40 feet long by 15 feet wide) and one slipline pull pit (20 feet long by 20 feet wide). The sliplined pipe would have an inside diameter of 28 inches to function within the hydraulic constraints and outside diameter of approximately 30 inches. This segment of pipe averages approximately 9.5 feet in depth, but is more than 18.5 feet deep near U.S. 101 and Holly Street area. The insertion and pull pits would require excavating up to two feet below the bottom of the force main invert; therefore, it is anticipated that Insertion Pit 1 would be 11 feet deep, Insertion Pit 2 would be 10 feet deep, and the Pull Pit would be 14 feet deep.

Sliplining involves inserting a new liner pipeline within the existing pipeline. Continuous sliplining requires the pipe liner to be continuously fused together and inserted through an insertion pit and then grouted into place along its entire alignment. Installation requires construction of insertion pits and a staging/laydown area to field weld the joints prior to installation. A pull pit is required to assist in the pulling of the new liner pipe into the existing pipe. After the liner is installed within the pipeline, grout is used to secure the liner within the existing pipe. The lining process requires the full bypass of the sewage from the section of pipeline being rehabilitated. After lining is completed, there would be approximately 24 inches of space between the outside of the liner and the inside of the existing pipe that would be grouted. This would provide a nearly 28-inch diameter pipe.

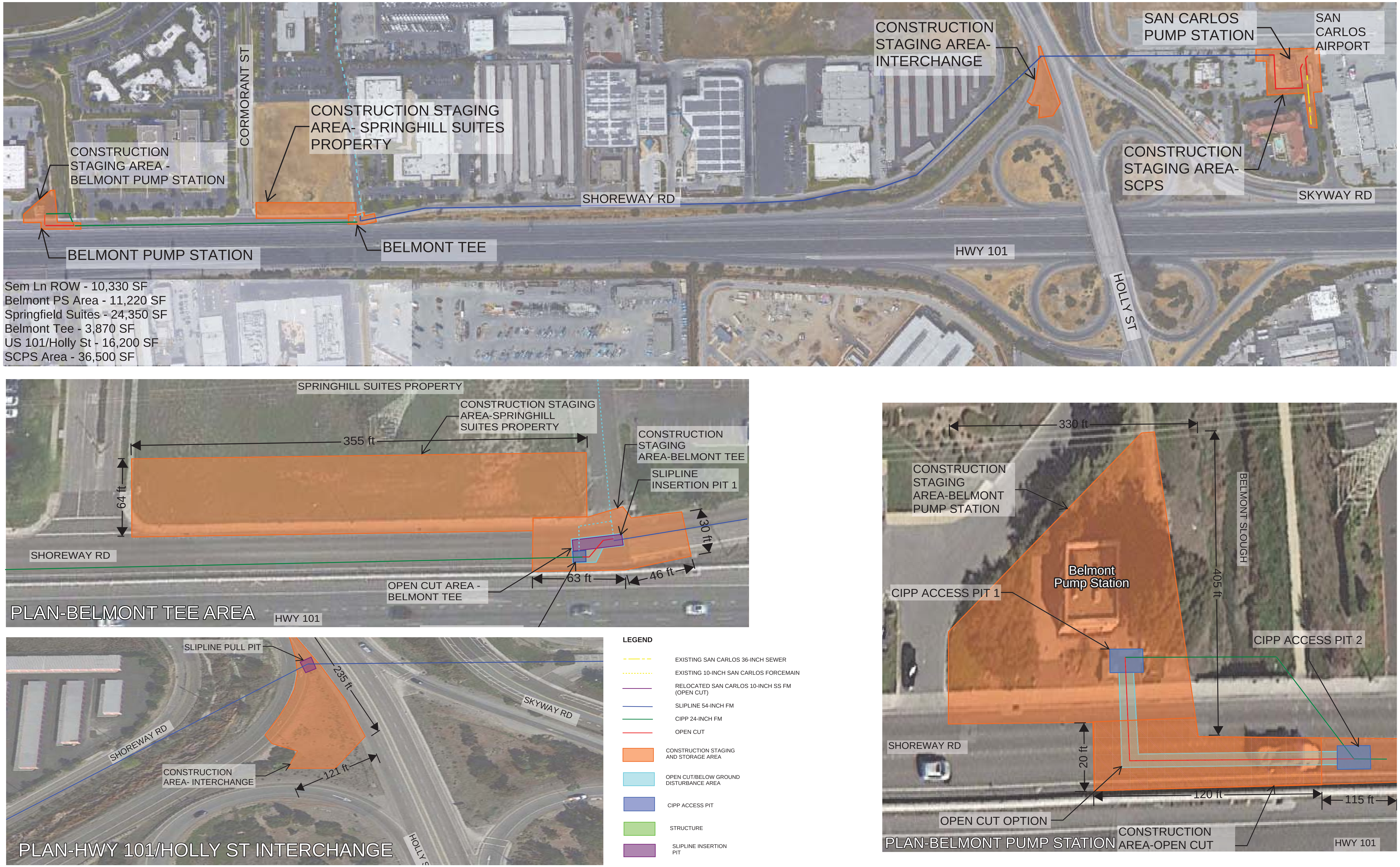
Both segments of the force main would require the installation of air release valves. These valves would be less than five feet in height and located outside of sidewalks or out of the travel way where no sidewalks exist along Shoreway Road.

3.1.3.3 *Belmont Pump Station Rehabilitation*

The purpose of pump stations in wastewater collection systems is to handle raw wastewater that is fed from underground Gravity Pipelines. Wastewater drains into an underground pit, commonly known as a wet well. The wet well is equipped with instrumentation to detect the level of wastewater present. When the wastewater level rises to a predetermined point, a pump is started to convey the wastewater upward through a pressurized pipe system called a force main.

The 0.06-acre Belmont Pump Station property is owned by the City of Belmont and is located on Shoreway Road, as shown in Figure 3.1-12. The existing Belmont Pump Station includes the pump station building and three pumps. The three existing pumps within the Belmont Pump Station would be replaced with two new 8.2 MGD, 100-HP pumps and one new 1.8 MGD, 10-HP Pump. In addition, all internal piping, all electrical components, and all site security within the Belmont Pump Station would be upgraded to current SVCW standards at the time of construction. Most of the rehabilitation and replacement at the pump station is expected to occur within the existing building. Additionally, some site improvements may be necessary to accommodate new electrical components (e.g., generator) and containment walls for accommodating future sea level rise.

The power demand for the Belmont Pump Station would be reduced from a peak demand of 300 HP to approximately 210 HP with the pump station renovations, since a much lower pressure is required for operation of the Belmont flows to connect to the proposed gravity conveyance system.



BELMONT FORCE MAIN REHABILITATION COMPONENTS

FIGURE 3.1-11

BELMONT PUMP STATION REHABILITATION PLAN

FIGURE 3.1-12

3.1.4 San Carlos Pump Station Repurposing

3.1.4.1 *Overview*

The San Carlos Pump Station property is owned by the City of San Carlos and is located at the northwest end of Monte Vista Drive adjacent to the San Carlos Airport as shown in Figure 3.1-13 The 0.92-acre site includes the existing 0.48-acre San Carlos Pump Station building and a 0.44-acre paved parking lot adjacent to a restaurant (Izzy's at 525 Skyway Road). The San Carlos Pump Station currently pumps wastewater from the City of San Carlos and unincorporated areas of San Mateo County into the SVCW force main system. The San Carlos Pump Station also includes booster pumping capability to reduce operating pressure in the conveyance system to prevent pressure-related pipe failures, which is used primarily for wet weather flows.

As a result of the proposed change in operations to improve the conveyance system, the existing San Carlos Pump Station would no longer be an active pumping station but would primarily be used to house Odor Control Facilities to contain and treat odors venting from the San Carlos Drop Shaft, the location where Belmont and San Carlos flows enter the Gravity Pipeline. Several other improvements at the pump station would be required to allow for Belmont and San Carlos flows to connect to the proposed Gravity Pipeline as discussed in detail below.

3.1.4.2 *San Carlos Repurposing Improvements*

The improvements at San Carlos Pump Station include: extending the San Carlos sanitary sewer to the proposed Gravity Pipeline; extending the Belmont Force Main to allow Belmont wastewater flows to connect to the proposed Gravity Pipeline; relocating the 10-inch San Carlos force main; installing flow metering and sampling structures; and installing a Flow Combination Structure and 48-inch diameter pipe at the drop shaft stub-out to connect to the proposed Gravity Pipeline.

The San Carlos wastewater pipeline, which currently ends at the San Carlos Pump Station wet well, would be extended by a 36-inch diameter gravity flow pipe to ultimately connect to the proposed Gravity Pipeline at the drop shaft. The Belmont wastewater flows, not currently discharging at San Carlos Pump Station, would continue in a new, open cut constructed, 30-inch diameter force main extending from the end of the sliplined 54-inch diameter force main to ultimately enter the proposed Gravity Pipeline.

Separate flow meter and sampling structures would be installed on the San Carlos gravity pipe and Belmont Force Main so that the flows from each member agency can be metered and sampled as required for the changed operations proposed with this Project. These structures would require approximately 745 square feet of excavation to construct, with the Belmont Force Main structure and the San Carlos structure approximately 22 feet deep.

Prior to discharge, the Belmont and San Carlos pipes would enter an irregular-pentagon shaped structure to combine the flows and provide one connection point to the proposed Gravity Pipeline. This structure, referred to as the Belmont/San Carlos Combo Structure, would require approximately 400 square feet of excavation to construct and would be 23 feet in depth, refer to Figure 3.1-13. A trash rack would be installed in the Combo Structure on the inlet for the San Carlos flows to allow for the removal of large debris. A new approximately 25-foot 42-inch diameter gravity pipe, would connect the Combo Structure to the proposed Gravity Pipeline at the drop structure stub-out.

As a result of the changed operations and the installation of the proposed Gravity Pipeline, an existing 10-inch diameter force main from a City of San Carlos lift station, located near the on-ramp to northbound U.S. 101 from westbound Holly Street, would be relocated on the San Carlos Pump Station site. This force main, currently routed around the north and east sides of the building and discharging to the San Carlos Pump Station wet well, would be rerouted around the west and south sides of the San Carlos Pump Station building, as shown in Figure 3.1-13, terminating in the new San Carlos inlet manhole upstream of the flow meter and sampling structure. The 275-foot force main would be constructed using traditional open cut methods in an approximately five-foot deep, vertically shored trench.

The existing San Carlos Pump Station building would remain and house the new Odor Control Facility as described below; however, the pump and equipment would be removed, as needed. Foul air ducting with a diameter of 24-inches would be installed between the new structures to remove foul air when the structures are entered.

3.1.4.3 *San Carlos Odor Control Facility*

Odors are expected in the air that exists in the headspace of the Gravity Pipeline. SVCW plans to continue injecting calcium nitrate into the sewage to help control downstream odors. During periods when the Gravity Pipeline is flowing partially full, these odors will travel down the Gravity Pipeline to the RLS, where they will be extracted with an exhaust fan and conveyed to the Odor Control Facilities located adjacent to the Headworks building.

When the Gravity Pipeline is used for storage of wet weather or diurnal flows, it will partially fill with water. As it fills, the water level will rise above the top of the pipe at the downstream end and air in the headspace of the pipe will be blocked from entering the RLS shaft. Under these conditions, the extraction fans in the RLS shaft will not be able to pull the odorous air in the headspace of the Gravity Pipeline to the SVCW plant odor control system and the odorous air will be forced out at the San Carlos Drop Shaft. Therefore, Odor Control Facilities will be installed at the San Carlos Drop Shaft site to contain and treat odors venting from the drop shaft, see Figure 3.1-14.

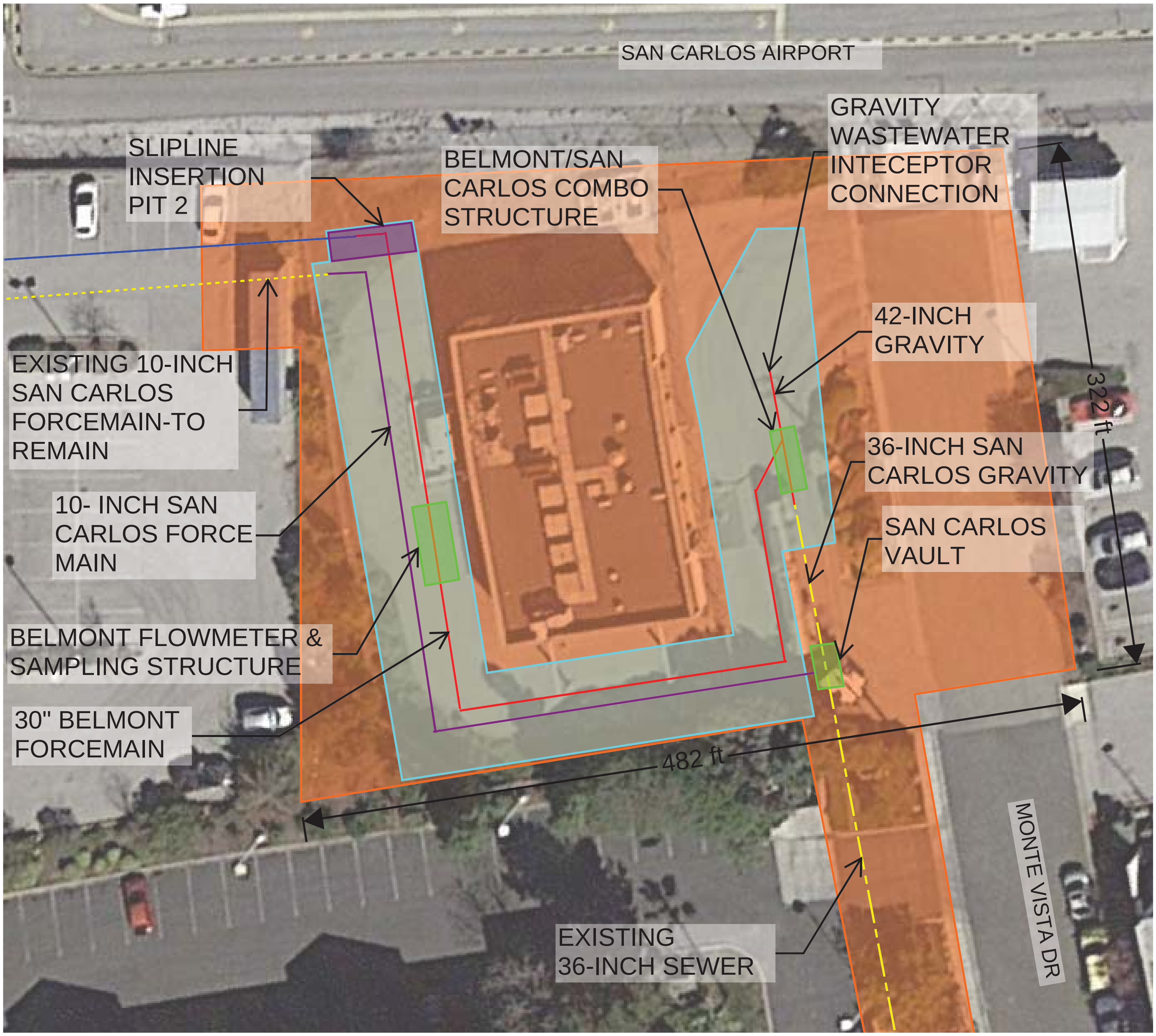
The amount of air venting from the San Carlos Drop Shaft site is estimated to be up to 5,000 CFM during diurnal flow storage events and could be as high as 16,000 CFM during wet weather storage events. Diurnal storage events could occur as often as daily for a period of two – three hours. Wet weather storage events are anticipated to occur two – three times per year for a period of 24 hours or less.

As shown in Figure 3.1-14, odor control equipment used to treat the odorous air venting from the San Carlos Drop Shaft could include three chemical scrubbers, each with a capacity of 5,000 CFM. Each unit would be equipped with a fan to collect air from the drop shaft, push it through the scrubber, and vent it to the atmosphere through a stack extending approximately up to 25 feet above the ground (seven feet above the roof). The chemical scrubbers use a solution of water, sodium hypochlorite, and sodium hydroxide. A 30-day supply of the required chemicals will be stored on-site. This will require a 1,000 gallon storage tank for 12.5% sodium hypochlorite and a 1,000 gallon storage tank for 25% sodium hydroxide. Chemical metering pumps, secondary containment piping, electrical equipment, and other ancillary equipment will also be required. Based on final evaluation of probable air flows an option that will be considered during design is the use of carbon canister treatment instead of chemical scrubbers.

As the San Carlos Pump Station is no longer needed for pumping, the building can be repurposed to house the odor control equipment described above. The equipment will be installed on the ground level floor of the pump station. Prior to installing the new odor control equipment, the existing equipment will need to be removed, including large wastewater pumps, small chemical metering pumps, chemical storage tanks, air handling fans, electrical motor control centers (MCCs), and other miscellaneous equipment, piping and conduit. In addition, interior walls will need to be removed, new walls erected, floor openings sealed, the roof modified to accommodate odor scrubber vent stacks, and new doors installed to provide access to the equipment. Renovations to the building may also include updates to meet the latest codes and cosmetic updates to the building exterior, which would be addressed during detailed design.

The chemical scrubbers will require a 42-inch duct, run underground from the drop shaft to the odor control equipment to convey the odorous air. The 42-inch diameter duct could run in the same alignment as an existing 48-inch diameter steel pipe. The existing 48-inch diameter pipe would be removed to make room for the duct. In addition, a six-inch diameter sanitary sewer line will be needed to drain spent scrubbing water from the odor control units back into the Gravity Pipeline. The sewer line could run parallel to the 42-inch diameter air duct. The depth of the excavation required for these two pipes is approximately eight feet.

A layout of the duct, drain line, and odor control equipment inside the existing San Carlos Pump Station is shown on Figure 3.1-14.



LEGEND

- EXISTING SAN CARLOS 36-INCH SEWER
- EXISTING 10-INCH SAN CARLOS FORCEMAIN
- RELOCATED SAN CARLOS 10-INCH SS FM (OPEN CUT)
- SLIPLINE 54-INCH FM
- CIPP 24-INCH FM
- OPEN CUT
- CONSTRUCTION STAGING AND STORAGE AREA
- OPEN CUT/BELOW GROUND DISTURBANCE AREA
- CIPP ACCESS PIT
- STRUCTURE
- SLIPLINE INSERTION PIT

N

SAN CARLOS RE-PURPOSING IMPROVEMENTS

FIGURE 3.1-13

SAN CARLOS ODOR CONTROL FACILITY LAYOUT

FIGURE 3.1-14

3.1.5 Redwood City Pump Station Replacement

3.1.5.1 *Overview*

The existing Redwood City Pump Station is located on an approximately 0.55-acre property owned by the City of Redwood City. The site consists of the existing pump station building, a Pacific Gas and Electric Company (PG&E) transformer, electrical equipment, a standby engine generator and fuel storage tank, six 100-HP pumps and various underground piping and force main connections, and biofilters for odor control, all of which are surrounded by a chain-link fence. There is an entrance gate on Maple Street that provides access to the pump station site.

Currently, the Redwood City Pump Station requires frequent hands-on maintenance, and there are several ongoing operational challenges with the pump station in its current configuration. The existing equipment is at or near the end of its useful life. Also, access to the site is limited when flooding from storm events and/or king tides[7] occurs near the Maple Street entrance.

3.1.5.2 *Pump Station Replacement*

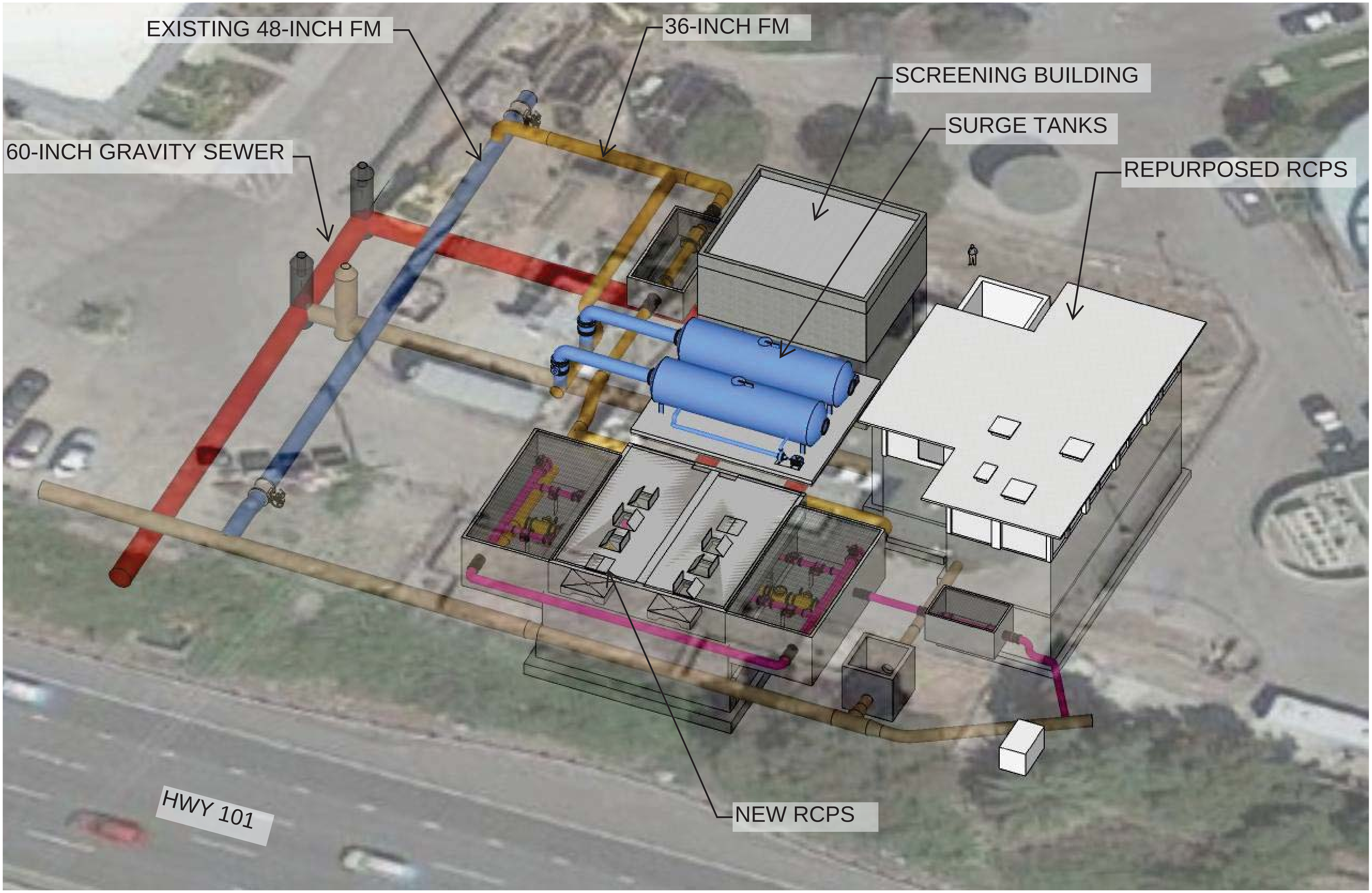
The proposed Redwood City Pump Station Project includes major upgrades and improvements to maintain long-term operation of the pump station and conveyance system.

The existing Redwood City Pump Station building would remain on the site and be repurposed to house the new electrical equipment, standby power generator and other ancillary items needed for the long-term operation of the new pump station. A proposed layout of the upgraded pump station is shown on Figure 3.1-15. A new pump station structure would be constructed adjacent and to the west of the existing Redwood City Pump Station building and would include coarse screening of the wastewater flow and two new wet wells that contain dry weather and wet weather pumps. Coarse screens, with bar spacing of approximately 0.75- inches, are located at this pump station to remove large solids, rags and debris that are contributed by the jail facilities upstream. Coarse screening is included in this component to protect the pumps from clogging.

Additional above grade improvements to the Redwood City Pump Station include installation of surge control tanks, screenings building, chemical storage facility, fuel tank, exterior façade upgrades to the existing pump station building, flood protection improvements, onsite storm water management, seismic building upgrades, security fencing and lighting, and limited landscaping (if space allows). New facilities that would be placed within the existing Redwood City Pump Station building include a chemical odor scrubber, exhaust fans, electric equipment and standby power generator.

The only access to the Redwood City Pump Station site is via two entrances from Maple Street, which are subject to flooding. A second vehicle access point to the site through the San Mateo County Police Station property would be provided as part of this Project.

[7] King tides are the highest tides.



REDWOOD CITY PUMP STATION IMPROVEMENTS SCHEMATIC FIGURE 3.1-15

As part of a separate, previously approved City of Redwood City project, a 60-inch diameter gravity sewer would be constructed under U.S. 101 and within Maple Street that would be extended as part of this Project to convey flows into the new screening building.

The connected horsepower of the existing pumps is 600 HP. The new Redwood City Pump Station would increase the connected horsepower to 1,740 HP to accommodate re-pumping of Menlo Park flows during peak wet weather events. At a combined wet weather peak flow rate of 60 MGD, the operating power would be 960 HP. A new transformer would be required for the increase in power requirements. Additionally, the existing PG&E transformer is in conflict with the proposed new utilities. This transformer also supplies power to the Redwood City Police Station. The transformer would be relocated to a different location within the Redwood City Pump Station construction site with the new power routed to the pump station and police station.

3.1.5.3 *Redwood City Pump Station Wet/Dry Operations*

Eight new submersible pumps would be installed within the new pump station. The flows range from 1.36 MGD at minimum flow to 60 MGD at the peak wastewater flow (PWWF). The ADWF is approximately 7.7 MGD. At a flow rate of approximately 14 MGD, flows from Menlo Park Pump Station would be diverted through the Redwood City Pump Station and these pumps would convey the combined flow from Redwood City and Menlo Park to the Gravity Pipeline shaft. The force main from the Menlo Park Pump Station would be connected to the outlet channel in the screening building to combine the flow from Menlo Park Pump Station and Redwood City prior to entering the Redwood City Pump Station wet wells. Flow rates less than 14 MGD would be pumped by Menlo Park Pump Station only and combine with Redwood City Pump Station flows downstream of Redwood City Pump Station. Utilizing the Redwood City Pump Station to pump all of Menlo Park Pump Station's flows when Menlo Park Pump Station flows are greater than 14 MGD allows rehabilitation of segment one pipelines from Menlo Park Pump Station to Redwood City Pump Station to be postponed and decreases the size of the pumps required at Menlo Park Pump Station.

3.1.6 Menlo Park Pump Station Rehabilitation

3.1.6.1 *Overview*

The existing Menlo Park Pump Station is located on a 0.5-acre property that is owned by the WBSD. The property is located at the northwest corner of the Haven Avenue and Marsh Road intersection within the City of Menlo Park. The Project site currently consists of the existing pump station building and related ancillary equipment, all of which are surrounded by a chain-link fence. The existing pump station consists of five 100-HP pumps and two wet wells, with one wet well housing two pumps and the other wet well housing three pumps.

The Menlo Park Pump Station was designed in the late 1970s, constructed in 1980, and rehabilitated in 1990. Currently, the Menlo Park Pump Station requires frequent hands-on maintenance. The existing equipment is at or near the end of its useful life. Despite system-wide repairs and regular maintenance, the conveyance system components like the Menlo Park Pump Station are in need of rehabilitation to provide safe and reliable operation and to accommodate the future projected flows through the system.

3.1.6.2 *Pump Station Improvements*

Improvements to the pump station include both above ground and below ground modifications. The above-grade improvements include exterior façade upgrades to the existing pump station building, a new 18-inch exterior perimeter wall and access ramps for flood protection, onsite storm water management, new security fencing and lighting, landscaping, new vacuum relief valves, a new odor control system, seismic upgrades to the existing building, and an upgraded HVAC system. The new odor control system would contain a single stage chemical scrubber to treat hydrogen sulfide from the wet well. In addition, five new 5.5 MGD, 85-HP pumps, new pump discharge manifold and valves, a flow meter, grinders, and related equipment would be installed below grade. The existing pump station building would be reused and would house new electrical controls, standby power, odor control, and other ancillary equipment needed to operate and maintain the new pump station. The Menlo Park Pump Station site is shown on Figure 3.1-16. The proposed improvements, with the exception of the flow meter, would be located within the existing Menlo Park Pump Station building.

Vehicle access to the site would be from the gate located at the existing entrance road leading to Bedwell Bayfront Park and a new entrance at the southwest end of the site off of Haven Avenue.

The connected horsepower of the existing pump station is 500 HP. The connected horsepower for the upgraded Menlo Park Pump Station is less than the existing at 425 HP. The connected horsepower for the upgraded pump station would be less, because the Menlo Park Pump Station would only need to pump peak flows to Redwood City and not all the way to the San Carlos Booster Pump Station or to the SVCW WWTP. As a result, the existing PG&E electrical service would not need to be upgraded. At a peak flow rate of 22 MGD, the operating horsepower would be 300 HP.

MENLO PARK PUMP STATION SITE OVERVIEW

FIGURE 3.1-16

3.1.7 Front of Plant Civil Improvements

3.1.7.1 *Overview*

Several improvements are planned for the Front of the Plant both near and long term. Near term improvements include a RLS, Headworks, and FDS. Long term improvements would include Nutrient Removal Facilities and may include recycled water treatment and clarification capacity improvements. Civil improvements that are needed for the Front of the Plant area to accommodate these new facilities include: site work required to establish a contractor village and staging area, setting the site elevations to allow access to new facilities and for proper drainage; storm drainage improvements to prevent site flooding; walls and fencing (permanent architectural precast wall) for site securing and screening; driveway and roadway improvements to create safe vehicle routing; and tree planting for further site screening and visual improvements and temporary construction offices.

3.1.7.2 *Front of Plant Improvements*

Site Grading and Drainage

The Front of the Plant area would be graded to elevations required to provide access to new facilities and provide adequate site slope for drainage. The final surface grade around new facilities is anticipated to be approximately at Elevation 103 (NGVD29+100'). Fill would be imported to raise subgrade to an elevation that achieves site final grades when final pavement section thickness is added. Areas where no current improvements will be occurring will be graded to an approximate elevation of 101 (NGVD29+100).

The contractor village and staging areas are anticipated to be approximately six acres in size. Fill would be required for the contractor trailer and parking area (contractor village) to bring the area elevation up six inches. The contractor village will be used by all contractors constructing improvements on plant property and will include all necessary construction trailers and contractor parking required. Soil existing within staging areas would be graded, but not filled, to allow flat work areas for contractors.

A storm drainage system would be constructed within the Front of the Plant area capable of collecting a 10-year, 24-hour storm event. Storm drainage runoff from plant property cannot be discharged into the bay directly. Stormwater runoff would be collected into vegetated stormwater swales and basin planters constructed in the WWTP improvement Project area. Stormwater will then drain to a local Stormwater Pump Station that would send stormwater to the 5-acre ornamental pond north of the 10-acre pond. From the northern pond, stormwater will flow over a flat weir into the existing SVCW storm water system and be pumped to the plant influent where it will be treated and then released with SVCW discharge under their existing NPDES permit. The northern ornamental pond will remain wet during construction of the initial WWTP improvements, except when draining is needed to facilitate the Front of the Plant civil improvements. The construction of the WWTP improvements described above will not affect the northern ornamental pond. Storm drain piping is anticipated to be 12" to 24" in diameter.

Walls and Fencing

A screen wall, 12-feet in height and composed of either concrete masonry unit (CMU) block or architectural pre-cast concrete panels would be constructed along the western perimeter of the 10-acre ornamental pond. The approximate limits of the wall are between the new roadway to be constructed for plant and construction trailer access to a new security gate west of the RLS, across from the dog park. The wall would be approximately 650 feet in length and would be grey, brown or tan in color. The 12-foot wall could be constructed initially at the the WWTP site to provide shielding for surrounding noise receptors during construction activities (refer to Section *4.13 Noise and Vibration*, of this EIR).

A new metal security gate would be constructed near the RLS. The gate would be set on rails and would be controlled by remote or a call box.

Pavements and Roadways

Areas south of the FDS and around the RLS, and Headworks would have base rock placed and paved with asphalt concrete (AC) pavement to provide a drivable, weather proof surface to access and serve the new facilities. The current main entrance road will be closed during construction. A new roadway would be constructed along the northern and eastern perimeter of the 10-acre ornamental pond within the Front of the Plant, to provide vehicular access to the WWTP away from heavy contractor equipment which is anticipated along existing Radio Road. Approximately 170,000 square feet of AC paving is anticipated. Areas that do not have base rock or paving installed will be hydroseeded immediately following construction.

A rolled curb and adjacent new sidewalk may be constructed from the new security gate to the existing gate to provide both a pedestrian pathway and a visual barrier to better define vehicular travel routing. Approximately 100 cubic yards of concrete would be anticipated for this.

Landscaping

Approximately 35 trees, eventually reaching 25-30 feet in height are planned adjacent to the screen wall to provide further screening. Initially the trees would be about 10 feet tall. The trees are anticipated to be spaced every 20 feet (on center) and would be species suitable for the local environment. Recycled water would be extended for irrigation for these new trees.

3.2 PROJECT CONSTRUCTION

This section describes the anticipated construction schedule, staging areas, need for imported and exported soil, and vehicle and truck trips for the proposed Project components.

3.2.1 Construction Schedule

Construction of the Project components would involve multiple phases with overlapping schedules estimated to occur over multiple years, with the total construction period to complete the entire Project ranging from six to seven years.

A breakdown of the anticipated construction and construction phasing (i.e., which components would be constructed concurrently and in what order) is shown in Table 3.2-1 and described below. It should be noted that because construction may occur concurrently for specific Project components, the total construction duration may not necessarily be equal to the sum of each component's individual construction duration, as shown below. Project work hours would generally be completed in 12-hour shifts from 7:00 a.m. to 7:00 p.m. Monday through Saturday, except where noted below in the Project component descriptions.

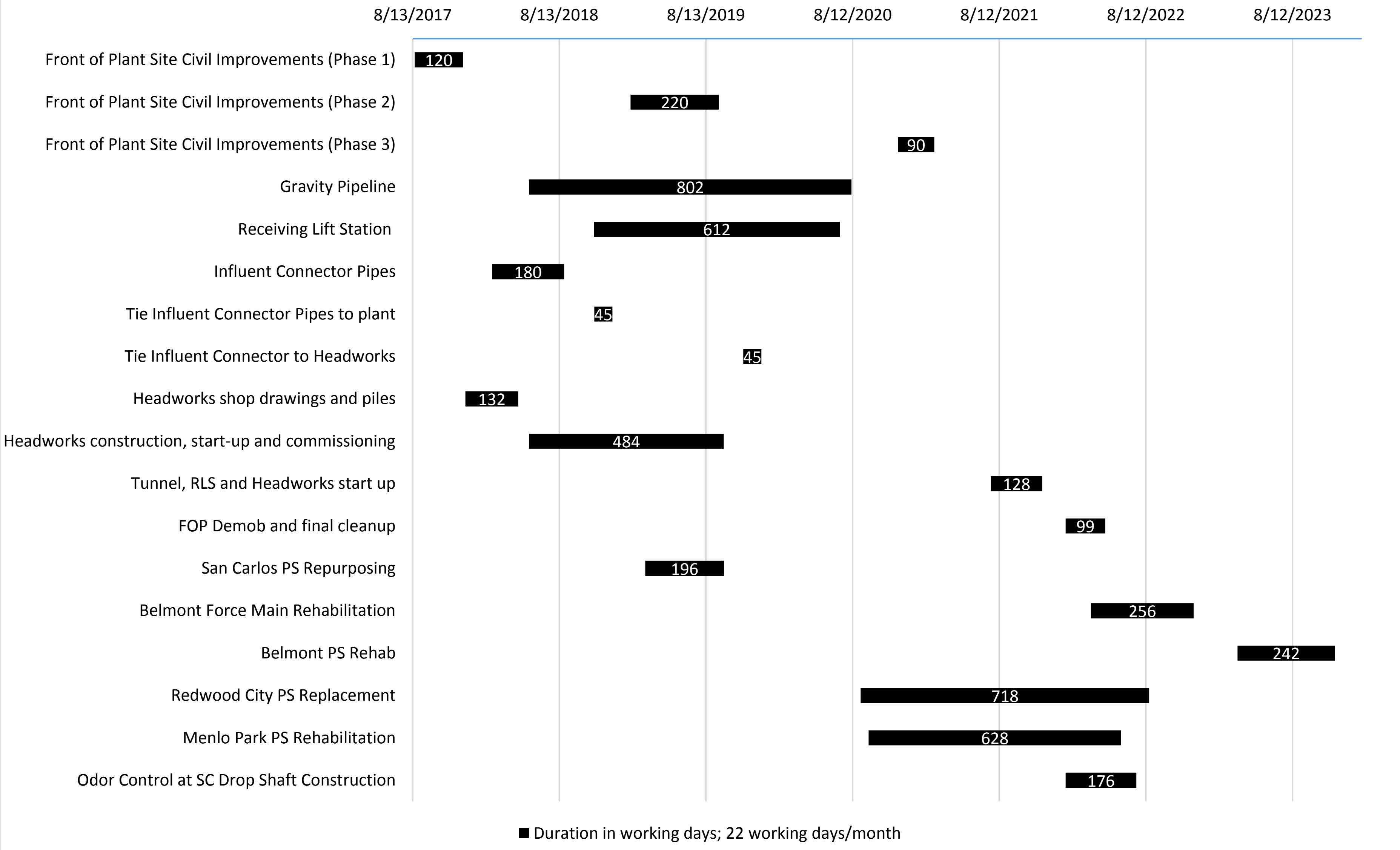


Table 3.2-1 Estimated Construction Duration and Phasing (Note: To be updated as appropriate)

3.2.1.1 *Gravity Pipeline*

Overview

The Gravity Pipeline construction is estimated to occur from early 2018 through mid-2021 and is planned to be implemented in two overlapping phases, as described below.

Airport Access Shaft construction would start first followed by tunnel excavation to the WWTP. As tunnel excavation to the WWTP proceeds, the retrieval shaft at the WWTP would be completed. After the tunnel excavation to the WWTP is completed, the tunnel excavation would continue at the Airport Access Shaft for excavation to Inner Bair Island. After excavation to Inner Bair Island is completed, installation of the Gravity Pipeline in both the tunnels would begin. Pipe installation would be followed by grouting, testing and final connections.

Project work hours for the gravity pipe would generally be completed in two, 10-hour shifts from Monday through Saturday, with some equipment maintenance performed outside these shifts.

Tunnel Shaft Construction

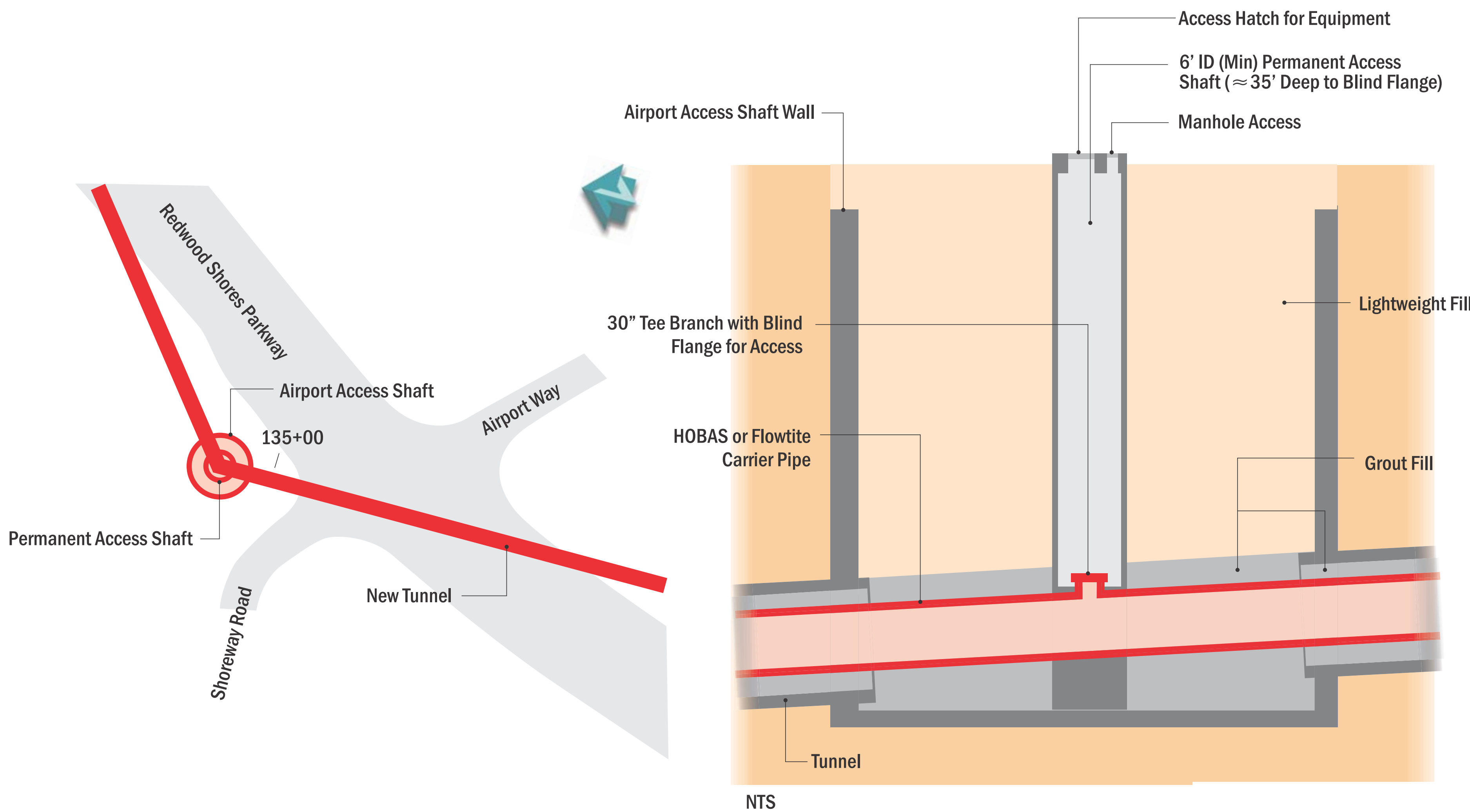
To construct the Gravity Pipeline, five shafts would be constructed, as described below. These consist of one launch shaft, two tunneling equipment retrieval shafts, a drop shaft to connect to another pipeline and a shaft to house the RLS.

<u>Airport Access Shaft</u>

The Airport Access Shaft is so named because during operations it will be used to access the pipeline if necessary. During construction it would be the launch shaft for each of the two tunneling sections used to construct the new pipeline. The TBM would be inserted into this shaft, excavate the first section of the pipeline to the WWTP, retrieved from that location, relocated back to the Airport Access Shaft, reinserted, and then excavate the second section of the pipeline with retrieval at the Inner Bair Island Shaft.

The Airport Access Shaft would be constructed just north of the Shoreway Road and Redwood Shores Parkway (Holly Street) intersection, (refer to Figure 3.2-1 and Figure 3.2-5A). This area has historically been used for construction staging activity. Depending on the construction method, the shaft would be approximately 35 feet in diameter and the bottom of the shaft would be approximately 47 feet below the ground surface. The material that is excavated by the TBM during the tunneling effort would be removed from the tunnel via the Airport Access Shaft and transported to the surface for disposal offsite.

For all construction methods, a temporary working surface (consisting of a reinforced concrete floor slab) would be placed at the base of the shaft. Once the shaft is completed, a lifting system, such as a temporary gantry crane, would be installed above the shaft to facilitate tunneling activities. The crane would be used to remove excavated soil from the tunnel (if a conveyor system is not used) and to deliver concrete segments to the shaft for use in constructing the tunnel wall, as the tunneling process moves ahead. The crane would also be used to place and remove tunnel excavation support lines (e.g., power, air, soil additives) and to take the 11-foot inside diameter Gravity Pipeline pipe sections down to the tunnel for placement.



Source: Kennedy/Jenks Consultants., June 11, 2015.

AIRPORT ACCESS SHAFT, LOCATION AND SECTION, REDWOOD CITY- CONCEPTUAL

FIGURE 3.2-1

After all tunnel construction activities are completed, the Airport Access Shaft would serve as an access-way if access to the tunnel is needed in the future. The access-way would consist of a fiberglass liner within the shaft (circular space between the shaft and the liner would be filled with grout) and access lids would be located at the top of the access-way structure, flush with the finished surface. During construction and in the finish condition, appropriate security measures will be in place to prevent public access to the shafts. During construction this will include perimeter fencing, shaft fencing, security personnel and shaft covers as appropriate. During the finished condition all access shaft entrances will be securely locked to prevent public access.

Flow Splitter Shaft

The Flow Splitter Shaft would be located at the WWTP and would initially be used to retrieve the tunneling machine. It would be installed in an area that has historically been used for the 10-acre ornamental pond within the WWTP property, refer to Figure 3.2-5A. This shaft is known as the Flow Splitter Shaft because it would house the flow control and splitting facilities for the RLS after the tunnel is completed.

The TBM would be removed from the Flow Splitter Shaft after tunnel completion. Soon after the TBM is removed, the construction of the flow control and splitting facilities within the shaft would be initiated. Refer to *Section 3.1.2.1* for details on the operation of the flow control and splitting facilities.

Receiving Lift Station Shaft

The second shaft at the SVCW WWTP would be used for construction of the RLS that would pump wastewater from the tunnel up to the WWTP for treatment. Depending on the construction method, the shaft would be approximately 49 feet in diameter and would extend approximately 93 feet below the ground surface. The Flow Splitter Shaft and the RLS Shaft could be adjacent to each other forming a figure eight or they could be separate shafts with a connection made near the bottom to connect the Flow Control Shaft to the pumping shaft. If the Flow Splitter Shaft is constructed separate from the RLS Shaft, it would be approximately 32 feet in diameter and would extend approximately 65 feet below the ground surface.

A construction access road will be constructed on an existing elevated corridor located on the north side of the 10-acre ornamental pond that contains buried utilities for the recycled water pump station and storage tanks. The staging area would be cleared of vegetation, raised in elevation, fenced and base rock placed, as needed.

San Carlos Drop Shaft

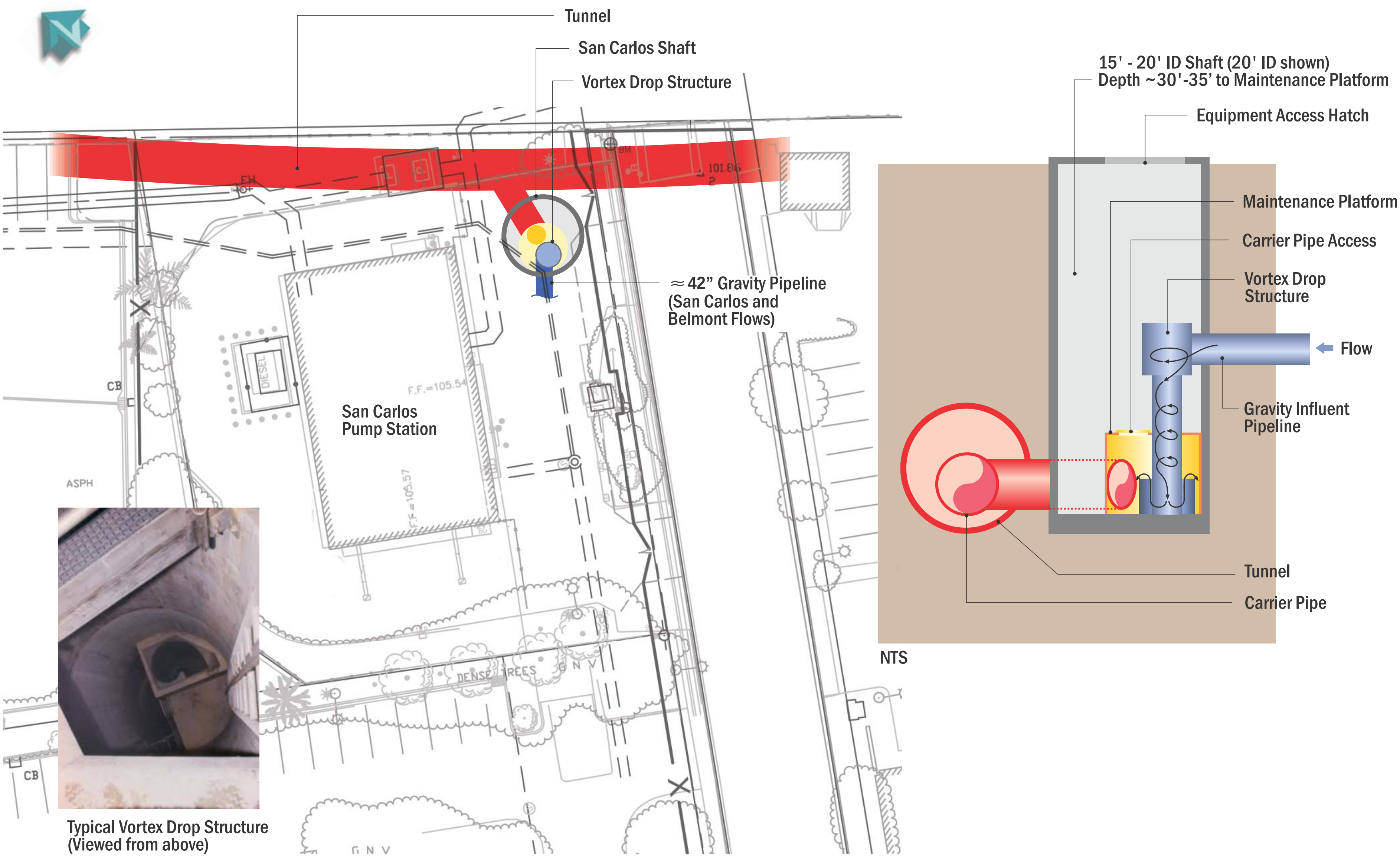
Wastewater from the cities of Belmont and San Carlos would connect to the Gravity Pipeline east of the location of the existing San Carlos Pump Station. This connection would be made through a drop structure, as described in Section 3.1.4. The wastewater pipe containing the flow from the cities of Belmont and San Carlos is located about 18 feet below the surface, and the proposed Gravity Pipeline tunnel would be about 46 feet deep. The San Carlos Drop Shaft would contain a vortex drop structure to transfer the combined Belmont and San Carlos wastewater vertically downward approximately 25 feet to the tunnel invert. The vortex drop structure would provide a vertical transition of incoming wastewater, while minimizing maintenance and operational issues associated with odor, debris and corrosion. A 20-foot diameter shaft would be constructed within the existing San Carlos Pump Station property and located in front of the existing San Carlos Pump Station building which would house the drop structure, refer to Figure 3.2-2. Access to the drop shaft would be from Monte Vista Road via Skyway Road and Redwood Shores Parkway (Holly St.).

The San Carlos wastewater pipeline, which currently ends at the San Carlos Pump Station wet well, would be extended by a 36-inch diameter gravity flow pipe to ultimately connect to the proposed Gravity Pipeline at the drop structure. The Belmont wastewater flows, not currently discharging at San Carlos Pump Station, would continue in a new open-cut constructed 30-inch diameter force main extending from the end of the slip-lined 54-inch force main to ultimately enter the proposed Gravity Pipeline.

After the TBM has been excavated past the San Carlos Pump Station, the San Carlos Drop shaft would be excavated adjacent to the TBM excavation to an elevation below the TBM excavation, with the final horizontal connection completed by hand excavation between the TBM excavation and shaft. Once the TBM excavation and shaft are connected, a corrosion resistant manhole would be constructed within the interior of the shaft. Then a pipe would be placed in the tunnel and connected to the corrosion resistant manhole and a vortex drop structure would be installed inside the shaft.

Finally, access lids would be installed at the top of the manhole and drop structure, flush with the finished surface. The vortex drop structure would be connected to the incoming sewer line and would carry the combined wastewater flow from the cities of Belmont and San Carlos. During construction and in the finish condition appropriate security measures will be in place to prevent public access to the shafts. During construction this will include perimeter fencing, shaft fencing, security personnel and shaft covers as appropriate. During the finished condition all access shaft entrances will be securely locked to prevent public access.

An air transfer pipeline would be constructed from the shaft interior to the existing San Carlos Pump Station building to allow an air treatment connection to the shaft. Odor control equipment would be installed inside the current pump station, as described above in *Section 3.1.4*.



SAN CARLOS DROP SHAFT LOCATION AND SECTION

FIGURE 3.2-2

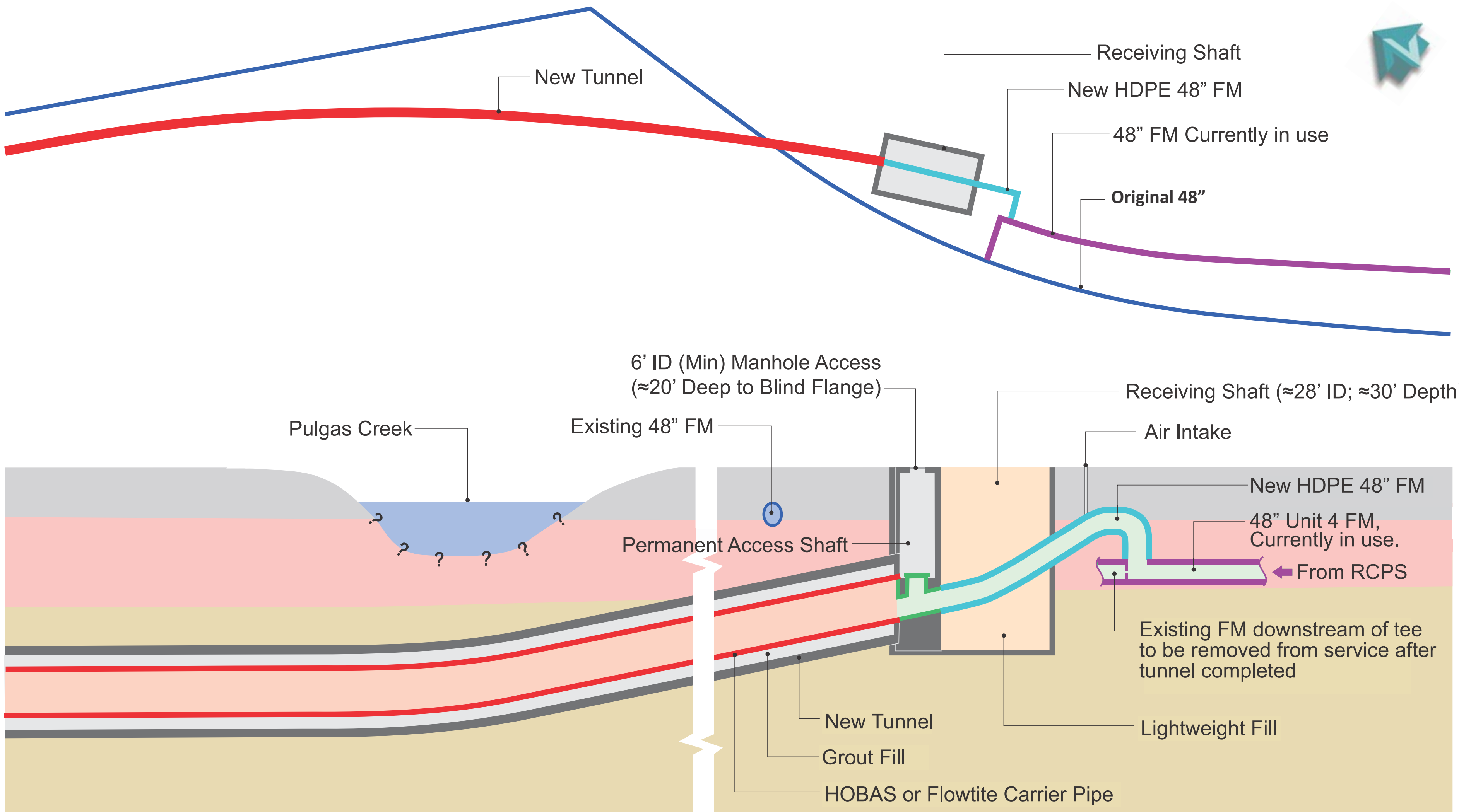
Bair Island Inlet Structure

After the completion of the first section of the tunnel, the TBM would be transported from the WWTP and reinstalled in the Airport Access Shaft for the TBM drive extending south to Bair Island. A TBM retrieval and ramped inlet shaft would be constructed on the northern end of Inner Bair Island at the terminus of the new 48-inch diameter force main from the Redwood City Pump Station (refer to Figure 3.2-3). A rectangular shaft with horizontal dimensions of approximately 20 feet by 60 feet would be constructed. This shaft would include a ramped inlet pipe to take wastewater from the 48-inch diameter force main into the Gravity Pipeline at the southern terminus of the proposed TBM tunnel. This section of 48-inch diameter force main would carry flows from Menlo Park and Redwood City to the tunnel, where gravity flow conveyance would extend to the SVCW WWTP. The ramped inlet pipe would transition the wastewater flow from a pressurized force main to a gravity condition as it enters the 11-foot inside diameter pipeline in the tunnel. This transition would be designed to minimize maintenance and operational issues associated with odors, solids, and corrosion.

The TBM would then be removed from the shaft and transported off-site. The pipeline transition between the force main and Gravity Pipeline, including the associated access way, would be constructed inside the shaft after the TBM has reached the shaft and has been removed.

The 11-foot diameter Gravity Pipeline inside the tunnel and the ramped tunnel inlet would be designed to convey air inside the gravity pipe to the SVCW WWTP. Air in the 11-foot wastewater Gravity Pipeline would travel at approximately one-third of the wastewater velocity. An air inlet pipe would be constructed from the top of the ramped pipe inlet at this shaft to the ground surface to allow air to enter the tunnel and convey foul air inside the gravity pipe to the WWTP or to the San Carlos Pump Station where Odor Control Facilities are planned (the tunnel carrier pipe would be designed to create air movement to draw air into the pipe and not allow foul air to exit at this shaft location). The air inlet is to avoid discharge of foul air on Inner Bair Island to the maximum extent feasible. However, during very large storm events (10-year storm events), these pipes would also be utilized to let air out of the tunnel at Bair Island. It is anticipated that up to four air handling pipes with diameters up to 18 inches each may be needed. Each would emerge up to six feet out of the ground, and would be enclosed on all sides by a six-foot-tall fence, possibly chain link. All air handling piping would be located in a locked secure area and designed for minimal aesthetic disruption.

Upon completion of the shaft construction and connection of the 48-inch diameter force main to the Gravity Pipeline, the construction and staging area would be restored to pre-construction conditions. Minimal access to the site would be needed after restoration to allow monitoring of the conveyance system by SVCW Operations and Maintenance staff (e.g., truck access).



NTS - Vertical Dimension of Profile is Exaggerated

BAIR ISLAND RAMPED INLET CROSS SECTION

FIGURE 3.2-3

Tunnel Construction

Once the Airport Access Shaft is completed, the tunnel would be constructed utilizing TBM equipment (See Figure 3.2-4). TBMs are operated by personnel within the tunnel using real time monitoring of tunneling progress and performance. Tunnel personnel, assisted by robotics, assemble the concrete tunnel segments to construct the exterior walls of the tunnel within the front shield area of the TBM (first ~40 feet of the ~300 foot long TBM). These concrete segments, which form the tunnel walls, provide the thrust resistance required to move the TBM forward in the ground.

To construct the tunnel, an Earth Pressure Balance Machine (EPBM), pressurized face type TBM would be utilized. EPBMs are sealed against external fluid pressures and prevent water infiltration into the tunnel which is advantageous in soft soils below the water table, similar to the existing project soil conditions. By utilizing this construction technique, the external pressure would be controlled by adjusting the rate of progress and the rate of muck (excavated soil conditioned with Underwriters Laboratory (UL) approved, NSF International Standard 61 compliant-biodegradable additives), and removal through the screw conveyor, which is located immediately behind the rotating cutting face of the machine.

The TBM and trailing gear includes a drilling head and approximately 300 feet of support equipment needed for muck handling, concrete tunnel segment transport, and placement. The first 1,000 feet of tunnel is considered to be part of the “setup” of the TBM in the tunnel given the 300-foot long TBM and trailing gear.

Initiation of the TBM process includes initial setup of the above and below ground support services needed for the tunneling operation, including air supply/movement, conveyors, electrical facilities, and rails for transporting segments, equipment and laborers into and out of the tunnel.

Excavation of the tunnel includes removal of the muck from the tunnel by use of a conveyor system or muck cars pulled by a locomotive on rails installed as the tunnel advances. Once the muck is brought to the surface at the Airport Access Shaft, it would be removed from the site and disposed offsite (likely for use as fill at another construction site). After the first 1,000 feet, approximately 100 feet of the tunnel would be excavated each day.

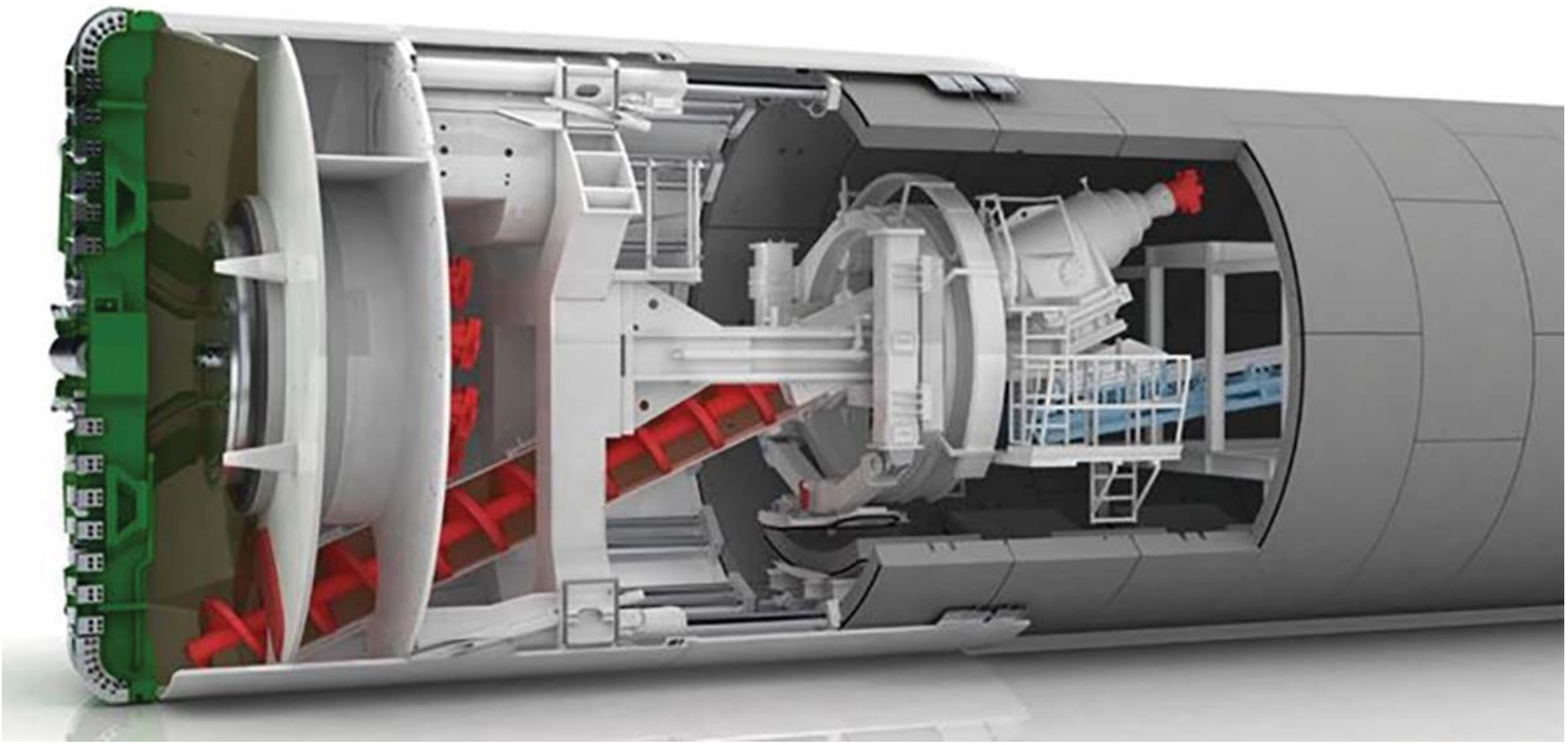
Once the TBM and trailing gear reaches the SVCW WWTP Flow Splitter Shaft, it would be disassembled, removed from the shaft and transported by truck back to the Airport Access Shaft. The TBM and trailing gear would then be reinstalled in the Airport Access Shaft to construct the tunnel to Inner Bair Island. Once the TBM and trailing gear reaches the Inner Bair Island Retrieval Shaft, construction using the TBM would be complete and would again be disassembled; this time for final removal from the site, by the contractor.

Following completion of the final tunnel section, the TBM and trailing gear inside the tunnel used for tunnel construction would be removed in preparation for installation of the carrier pipe (Gravity Pipeline). Final surveying would then be completed for grade control of the 11-foot inside diameter Gravity Pipeline installation inside the completed tunnel.

Both sections of the tunnel would be constructed before the Gravity Pipeline is installed. Sections of this 11-foot FRP pipe (10-foot lengths) would be delivered to the Airport Access Shaft site and installed in the tunnel using a pipe carrier that travels on the rails installed for the tunnel construction process. Each section of FRP pipe would be secured in place with appropriate blocking to prevent movement of the pipe during subsequent grouting operations. At the completion of the Gravity Pipeline placement, the area between the Gravity Pipeline and the inside of the tunnel would be filled with flowable grout.

As the Gravity Pipeline placement proceeds, each joint would be thoroughly inspected to confirm proper placement and seating. Each joint would also be vacuum tested before grout placement. Given that the pipe is a gravity pipe (no pump force to push water through the pipe) and the pipe is 20 to 52 feet below the groundwater level (13 to 26 pounds per square inch pressure for water wanting to get into the pipe from outside), any leakage of the pipe from the outside will be evident when the pipe is empty during inspection.

The final testing of the Gravity Pipeline and the permanent Airport Access Shaft access way would be followed by removal of all equipment and materials from the site and restoration of the area similar to pre-construction conditions. The at-grade access way shaft cover would remain as a permanent facility. During construction and in the finish condition appropriate security measures will be in place to prevent public access to the shafts. During construction this will include perimeter fencing, shaft fencing, security personnel and shaft covers as appropriate. During the finished condition all access shaft entrances will be securely locked to prevent public access.



EXAMPLE TUNNEL BORING MACHINE CUT AWAY

FIGURE 3.2-4

3.2.1.2 *WWTP Improvements*

The construction at the WWTP is estimated to occur from early 2018 through late 2020 and is planned to be implemented in the following sequencing schedule as described below.

Project work hours would generally be completed in 12-hour shifts from 7:00 a.m. to 7:00 p.m. Monday through Saturday. Limited 24-hour workday requirements or emergency work may be required.

Receiving Lift Station

Construction of the RLS would require approximately 33 months to complete, including start-up. Construction can begin after the Gravity Pipeline contractor has completed the RLS Shaft.

Headworks Facility

Construction of the Headworks would require approximately 24 to 30 months to complete.

Flow Diversion Facilities

Construction of the Flow Diversion Facilities would require approximately 18 months to complete.

Influent Connector Pipes

Construction of the Influent Connector Pipes would require approximately 12 months to complete.

5-Acre Pond Enhancements

This project can be constructed anytime during the conveyance system improvement program, with the only requirement being that pond should be improved prior to the new stormwater pump station coming into operation. The work would be completed in approximately 8 weeks.

3.2.1.3 *Belmont Conveyance System*

Construction of the Belmont Conveyance System would be completed in three phases. The *first phase* would consist of the connections at the current San Carlos Pump Station including: 1) the San Carlos vault for the 10-inch force main discharge and trash rack, 2) the Belmont flow meter/sampling structure, 3) the Belmont/San Carlos Combo Structure (the San Carlos flow meter and sampling equipment), 4) the Belmont 30-inch diameter force main from the end of the 54-inch diameter slip line to the Combo Structure, 5) the 10-inch diameter San Carlos Force Main relocation, and 6) the 42-inch diameter gravity sewer pipe to connect the Combo Structure to the drop structure stub-out. The *second phase* would include the Force Main Rehabilitation which includes rehabilitation of the 24-inch diameter force main using CIPP and sliplining the 54-inch diameter force main. The *third phase* would consist of the Belmont Pump Station Rehabilitation including, but not limited to, pump replacement, electrical improvements, and SCADA.

Generally, the first phase is planned to be completed prior to the start-up of the tunnel and RLS to be ready for connection to the Gravity Pipeline. The second and third phases are planned to be completed during the first dry season following startup of the Gravity Pipeline and RLS.

Though construction may extend across three years in the dry seasons, construction work could occur at the Belmont Pump Station and along the pipeline at the same time. It is expected that CIPP of the 24-inch diameter force main (from the Belmont Pump Station to the Belmont Tee) and slip-lining the southern end of the 54-inch diameter force main (between the Pull Pit and Insertion Pit 2) could occur at the same time. Construction of the northern end of the 54-inch diameter force main (between Insertion Pit 1 and the Pull Pit) during 24-inch diameter CIPP is unlikely to occur at the same time as a result of limited space and the need for each activity to access the existing force mains in nearly the same location (slip-lining Insertion Pit 1). The slip lining of the pipeline for the Belmont sewage flow is proposed to be completed during the first dry season following the tunnel and RLS start-up to avoid septic conditions in the 54" pipeline.

With the exception of the access/insertion pits located at the two pump stations, all pit construction would occur at night, generally between 9:00 p.m. and 6:00 a.m., to allow normal day time vehicular traffic patterns to remain intact. Night time traffic operations would take into account the additional noise abatement required to meet noise thresholds (refer to *Section 4.13 Noise and Vibration* of this EIR). Both CIPP and slip-lining activities would require continuous construction (24-hours a day, seven days a week) for key components of the installations.

3.2.1.4 *Redwood City Pump Station*

The Redwood City Pump Station would be constructed over a 33-month period. Tie-ins and last part of construction would need to be done during low-flow conditions (i.e., generally April to October). Construction activities at the pump station would occur between the hours of 7:00 a.m. to 6:00 p.m. on weekdays with the exception of some work such as electrical switchovers and piping connections completed at night during low flow periods.

3.2.1.5 *Menlo Park Pump Station*

Menlo Park Pump Station would be constructed over a 29-month period, with the majority of the construction taking place during the dry weather seasons during those two years. Construction activities at the pump station would occur between the hours of 7:00 a.m. to 6:00 p.m. on weekdays with the exception of some work such as electrical switchovers and piping connections completed at night.

3.2.1.6 *Front of the Plant Civil Improvements*

The overall construction schedule for the civil improvements is estimated to require approximately 24 months over a period of 57 months once construction starts. Phase 1 (soil stablization) would take six months, followed by Phase 2 (utilities) which would run 12 months. Phase 3 (paving) would begin 6 months before the RLS was completed and take four months.

3.2.2 <u>Construction Staging</u>

The following section describes the construction staging areas for the proposed Project components.

3.2.2.1 *Gravity Pipeline*

The Gravity Pipeline component would include four staging areas within the areas shown in Figure 3.2-5A and 3.2-5B. Construction staging would include storage of tunnel equipment, laydown area for pipe segments, storage of construction materials (pre-cast concrete segments, muck, etc.), and equipment and similar activities, as described in detail below.

Airport Access Shaft Staging Area

The Airport Access Shaft staging area would be approximately 6.4 acres and located adjacent to the Airport Access Shaft just north of the Shoreway Road and Redwood Shores Parkway (Holly Street) intersection.

Access to the staging area would be provided from Shoreway Road. Initially, the staging area would be cleared of vegetation, fenced and covered with a surface layer of base rock to provide a working surface for construction activities. Construction trailers would be placed on the site, both for use as office space for the contractor and to support the tunneling operation. Driveways with security gates would be installed to enhance the safety of the public and prevent unauthorized access. Equipment activity would include a range of trucks and excavators necessary to: remove and transport waste from the site clearing operation; haul-in and spreading gravel; install construction trailers; develop electrical poles and wiring system; provide sewer, water and drainage facilities; and construct site fencing. During construction, materials needed for construction of the shaft, tunnel, and Gravity Pipeline would be brought to the staging area (steel, concrete tunnel segments, TBM and TBM support equipment, 11-foot gravity pipe) and stored until needed. Mechanical and electrical materials will be stored on the site in addition to the construction materials.

WWTP RLS Shaft Staging Area

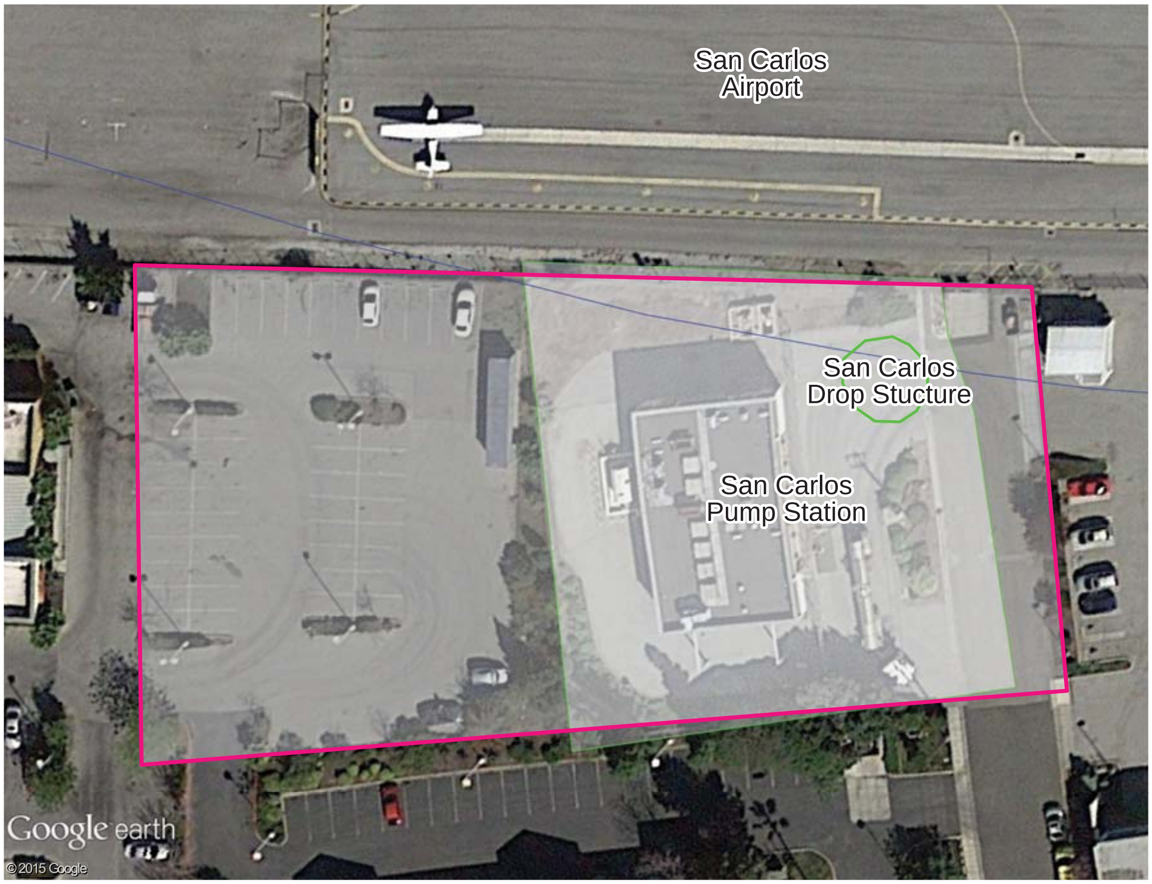
The WWTP RLS shaft staging area would be within the 10-acre ornamental pond area of the WWTP property. Access would be from Radio Road via Redwood Shores Parkway. The staging area would be cleared of vegetation, raised in elevation, fenced, and base rock placed, as needed. Construction trailers would be placed on the site and utilities connected. During shaft construction materials needed for the shafts (primarily steel and concrete) would be brought to the staging area for use.

AIRPORT ACCESS LAUNCH SHAFT STAGING AREA

WWTP STAGING AREA

GRAVITY PIPELINE CONSTRUCTION STAGING AREAS

FIGURE 3.2-5A



SAN CARLOS PUMP STATION STAGING AREA

BAIR ISLAND INLET STRUCTURE STAGING AREA

GRAVITY PIPELINE CONSTRUCTION STAGING AREAS

FIGURE 3.2-5B

San Carlos Pump Station Staging Area

The San Carlos Pump Station staging area used for the shaft construction would cover a total of 0.7-acres, which includes the 0.5-acre San Carlos Pump Station property and 0.2 acres in the adjacent Monte Vista street right-of-way. Part of the Airport Access Shaft staging area would be available for staging as well due to limited available area at the San Carlos Pump Station and the need to keep the pump station in operation during construction. Construction trailers may be placed on the site and utilities (water, sewer, electric) may be connected. During shaft construction, materials needed for shaft construction would be brought to the staging area as needed.

Bair Island Inlet Structure Staging Area

The Bair Island Inlet Structure staging area would be comprised of approximately 1.5-acres and located along the levee road of Inner Bair Island, north of Whipple Avenue. This staging area includes the shaft construction site and an access road from the east end of Whipple Avenue, across Inner Bair Island. Construction trailers would be placed on the site and utilities (water, sewer, electric) would be connected or provided on-site. Low-noise generators will be used to provide power on Bair Island. During shaft construction, materials needed for shaft construction would be brought to the staging area and stored until needed.

3.2.2.2 *WWTP Improvements*

The staging areas for the WWTP improvements are described in the sections below.

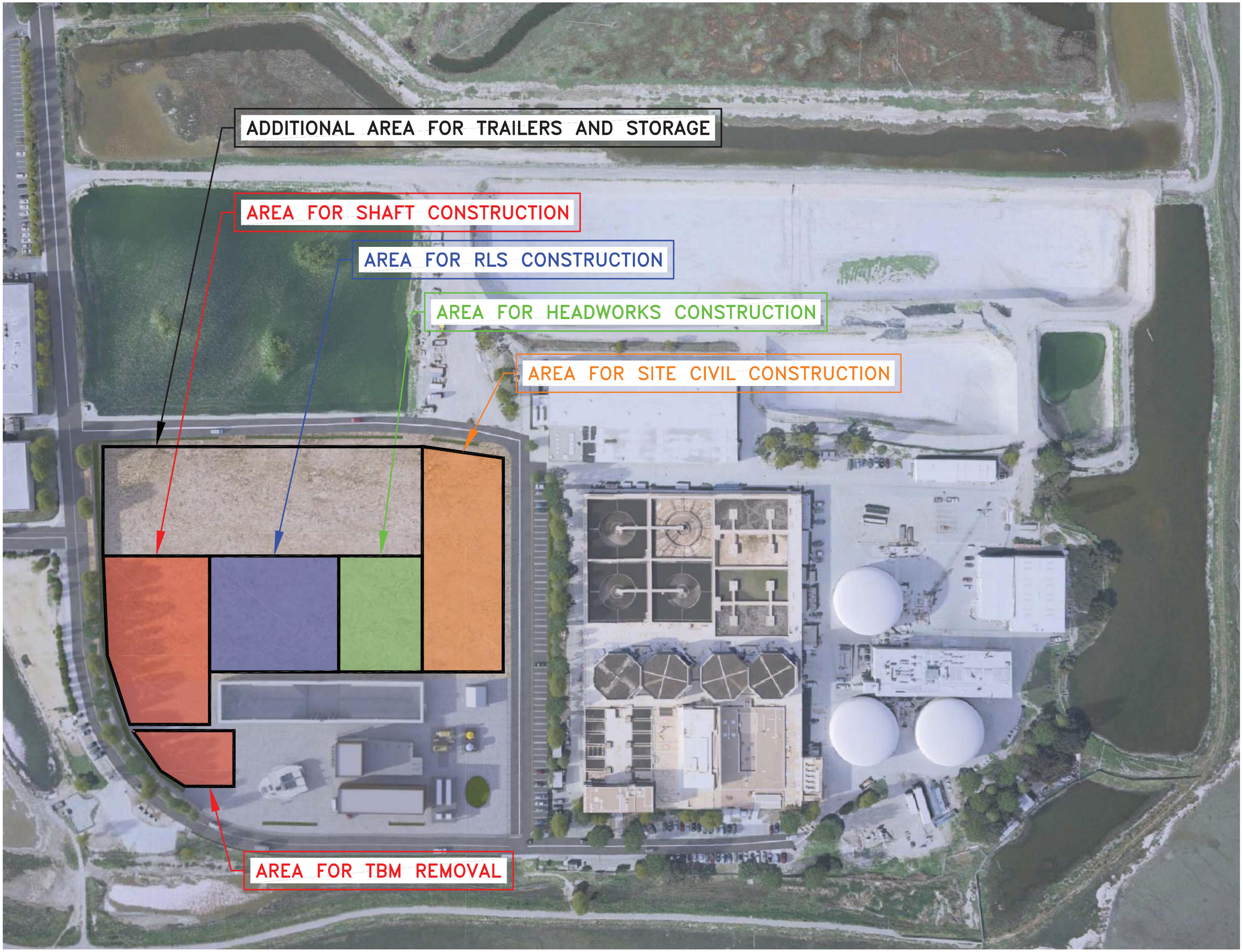
Receiving Lift Station, Headworks Facility, and Flow Diversion Facilities Staging Areas

The construction staging areas for the RLS, the Headworks and the Flow Diversion Facilities would be located to the northwest of the FDS, as shown on Figure 3.2-6. The RLS requires 38,000 square feet, and the Headworks and the Flow Diversion Facilities each require 102,400 square feet of staging area. Each facility would have designated areas for storage/staging and designated trailers to operate from and designated parking spaces for workers. As individual facilities are completed, these areas may be reassigned and/or re-designated as necessary to accommodate increases/decreases in activity.

Driveways entrances with security gates would be installed to enhance the safety of the public and prevent unauthorized access. Equipment activity would include a range of trucks and excavators necessary to: remove and transport waste from the site clearing and preparation operation; haul-in and spreading gravel; install construction trailers; provide sewer, water and drainage facilities; and construct site fencing.

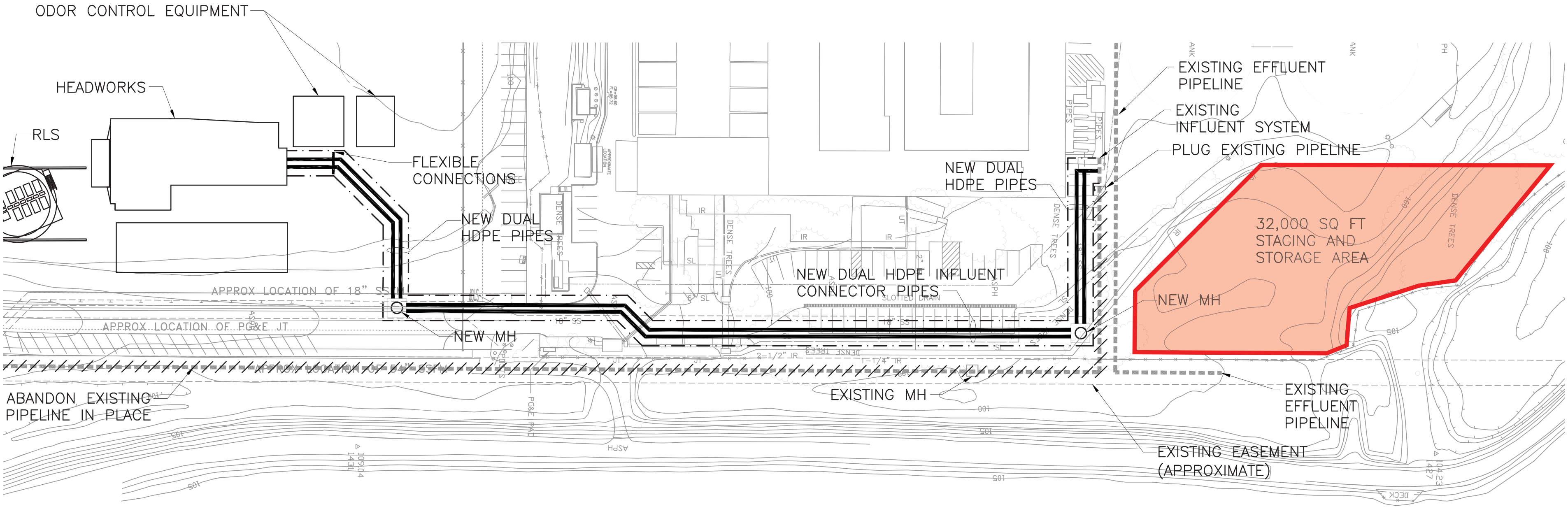
Influent Connector Pipes Staging Areas

The construction staging area for the influent connector pipes would be located adjacent to the west side of the current WWTP facilities and southern parking lot. The influent connector pipes alignment, and the main construction staging area would require 32,000 square feet, as shown in Figure 3.2-7. This main staging area would provide a location for a field office, storage of necessary excavation and construction equipment, as well as storage of all pipe needed to connect the Headworks to the existing influent connector pipeline.



GENERAL LOCATION OF STAGING AREA FOR WWTP PROJECTS

FIGURE 3.2-6



PIPING			
PIPE	LENGTH (FT)	INSIDE DIAMETER	TRENCH WIDTH (FT)
NEW HDPE	1800	44" DRY, 72" WET	20
MANHOLES			
2 NEW MANHOLES			

LEGEND

- NEW PIPELINE
- EXISTING PIPELINE
- TRENCH/EXCAVATION LIMITS
- WWTP PERIMETER FENCE
- EXISTING EASEMENT
- STAGING AREA

1" = 80'
40 0 80

NOT FOR CONSTRUCTION PURPOSES

SOURCE: CDM Smith, June 2016.

INFLUENT CONNECTOR PIPELINE STAGING AREA

FIGURE 3.2-7

3.2.2.3 *Belmont Conveyance System Staging Areas*

The Belmont Conveyance System component may include five staging areas, as shown on Figure 3.2-8 and listed in Table 3.2-2. Construction staging may include construction trailers, storage of pump station equipment, laydown for pipe segments, storage of construction equipment and similar activities. The staging areas described below may also be utilized for the Belmont Pump Station and San Carlos Pump Station component projects. The decision as to which of these staging areas would be used and the exact extent of use will be determined during predesign and following negotiations with the respective property owners.

Table 3.2-2:
BPS and SCPS Proposed Construction Staging Locations

Location	Size (SF)
Northeast end of Sem Lane ROW, Belmont	10,330
Belmont Pump Station property and adjacent ROW	11,220
Southeast end property near of Shoreway Road and Cormorant Drive (Springfield Suite Property), San Carlos	24,350
Belmont Tee (Connection of 24-inch FM to 54-in FM)	3,870
ROW Between Shoreway Road and the U.S. 101/Holly Street interchange, San Carlos	16,200
San Carlos Pump Station property and adjacent ROW	36,500

Notes:
ROW = right-of-way, SF = square feet, FM = force main, BPS = Belmont Pump Station, SCPS = San Carlos Pump Station

3.2.2.4 *Redwood City Pump Station Staging Areas*

The Redwood City Pump Station may include three staging areas, as shown on Figure 3.2-9 and listed in Table 3.2-3. Construction staging would include construction trailers, storage of pump station equipment, laydown for pipe segments, storage of construction equipment and similar activities. The decision as to which of these staging areas would be used and the exact extent of use will be determined during predesign and following negotiations with the respective property owners.

Table 3.2-3:
RCPS Proposed Construction Staging Locations

Location	Size (SF)
Docktown property located to the northwest of the RCPS	27,900
City owned property located to the west of the RCPS.	7,200
City Owned property used by a private Car Dealership located north of RCPS.	77,000

Notes:
RCPS = Redwood City Pump Station, SF = square feet

OVERVIEW PLAN
NOT TO SCALE

PLAN-SEM LN CONSTRUCTION STAGING AREA

LEGEND

— · —	EXISTING SAN CARLOS 36-INCH SEWER
——	SLIPLINE 54-INCH FM
——	CIPP 24-INCH FM
——	OPEN CUT
······	EXISTING 54-INCH FM- TO BE ABANDONED
▭	CONSTRUCTION STAGING AND STORAGE AREA

NOTE: DIMENSIONS ARE APPROXIMATE

BELMONT CONVEYANCE SYSTEM STAGING AREAS

FIGURE 3.2-8

REDWOOD CITY PUMP STATION STAGING AREAS FIGURE 3.2-9

MENLO PARK PUMP STATION STAGING AREAS

FIGURE 3.2-10

3.2.2.6 *Menlo Park Pump Station Staging Areas*

The Menlo Park Pump Station would include two staging areas, as shown on Figure 3.2-10 and listed in Table 3.2-4. Construction staging would include construction trailers, storage of pump station equipment, laydown for pipe segments, storage of construction equipment and similar activities. The decision as to which of these staging areas would be used and the exact extent of use will be determined during predesign and following negotiations with the respective property owners.

Table 3.2-4:
MPPS Proposed Construction Staging Locations

Location	Size (SF)
Leslie Salt Company property located on the north side of the MPPS.	8,380
Bayfront Park located across the street from the MPPS on the east side of Marsh Road.	9,560

Notes:
MPPS = Menlo Park Pump Station, SF = square feet

3.2.2.7 *Front of the Plant Civil Improvements Staging Area*

The construction staging area for the Front of the Plant Civil Improvements would be located in the northwest corner of the 10-acre pond. The construction staging area would require approximately one (1) acre, as shown in Figure 3.2-6. This staging area would provide a location for storage of necessary excavation and construction equipment, as well as storage of all pipe needed for conduit and drainage.

3.2.3 <u>Construction Trips</u>

During construction, soil would be excavated from and imported to the Project components sites. Some of the soil would be reused for backfill and some soil would be hauled off-site. Construction activities would generate vehicle and truck trips to and from the construction site related to soil excavation, soil import and off-haul, equipment transport and delivery, debris removal, building material transport, and construction worker trips.

3.2.3.1 *Gravity Pipeline*

The construction truck trips for different phases of Gravity Pipeline Project component are provided below in Table 3.2-5. Average trips per day for the construction phase is provided in Table 3.2-6.

Table 3.2-5:
Gravity Pipeline Excavated Soil Summary and Construction Truck Trips

Phase Description	Total Excavated Soil (cy)	Total Off-Haul Soil (cy)	Total Reused Soil (cy)	Total Imported Soil (cy)	Total Truck Trips
RLS- Treatment Plant Flow Splitter Shaft	3,420	3,420	0	8,760	3,660
RLS – Treatment Plant Pump Site-Shaft Construction	7,700	7,700	0		
Airport Access Shaft – Shaft Construction	3,000	3,000	0	N/A	2,702
Airport Access Shaft -Tunnel Construction	150,000	150,000	0	N/A	30,200
Pipe Install*	N/A	N/A	N/A	N/A	2,180
Bair Island Inlet Structure	1,470	1,470	0	N/A	1,880
San Carlos Drop Shaft	720	720	0	N/A	1,980
Total	166,000	166,000	0	8,760	42,600

Note: * Material delivery and grout truck trips for pipe install are included in the tunnel construction numbers. Total truck trip number for pipe install is for worker trips.
RLS = Receiving Lift Station, cy = cubic yards, N/A = Not Applicable

Table 3.2-6:
Average Trips per Day for Gravity Pipeline

Trip Type	Truck Trips/day
Soil Hauling	30
Delivery of Equipment	
Delivery of Material (including carrier pipe, vent pipe and rail)	
Concrete	
Cellular Grout	
Delivery Of Tunnel Ring Segments	
Worker Trips (total)	15

3.2.3.2 *WWTP Improvements*

Construction within the 10-acre ornamental pond would involve an overlapping and multiple phase construction approach. Due to soil conditions, most of the excavated soil would not be suitable for reuse without conditioning and may need to be removed from the site. The amounts of excavated and imported soil anticipated to be required for the proposed WWTP improvements are described in the following paragraphs.

Receiving Lift Station

During construction, soil would be excavated for the RLS piping (or galleries), and connection to the Headworks, electrical conduits, and odor control air ducting. The total excavated volume would be approximately 2,200 cubic yards. The amount to be hauled off-site could be as high as 4,600 cubic yards. Due to the soil conditions, approximately 3,200 cubic yards of imported soil from off-site sources (backfill or controlled low strength material) would be required for the RLS. The excavated soils may be used for other areas of the WWTP, if conditioned properly.

The construction truck trips include the trips necessary for off-hauling soil, equipment delivery, building equipment, and piles; and other related construction trips. Total construction worker trips and haul truck trips for the Project would be approximately 24,300 based on an average of 50 truck trips per day over the course of two years, with construction and hauling completed only during the weekdays.

Headworks Facility

The earthwork required for construction of the Headworks and the number of truck trips required to perform the earthwork is included in Table 3.2-7.

Table 3.2-7:
Headworks– Earthwork Quantities and Truck Trips

Total Excavated Soil (cy)	Total Off-Haul Soil (cy)	Total Reused Soil (cy)	Total Imported Soil (cy)	Total Truck Trips
9,600	9,600	0	10,600	1,700

<u>Other Construction Related Trips</u>

In addition to the trucks required for earthwork, trucks will also be required for the following activities during the construction of the Headworks: delivery of process equipment and piping, delivery of concrete, delivery of piles and other building materials, delivery and removal of construction equipment, disposal of debris, worker commuting/transportation. The average number of truck trips per day associated with each of these activities is summarized in Table 3.2-8.

Delivery of Process Equipment and Piping
The estimated number of trucks required for this activity include:

- 4 trucks for delivery of screens (1 per truck)
- 4 trucks for delivery of the conical tray vortex separators (1 per truck)
- 2 trucks for delivery of grit washers (2 per truck)

- 1 truck for delivery of washer compactors (1 per truck)
- 2 trucks for delivery of generators (1 per truck)
- 1 truck for delivery of transformers (2 per truck)
- 2 trucks for delivery of gates
- 2 trucks for delivery of miscellaneous metals
- 2 truck for delivery of odor control scrubbers (1 per truck)
- 1 truck for delivery of chemical tank
- 4 trucks for delivery of other miscellaneous items

Delivery of Concrete

Construction of the Headworks will require approximately 5,300 cubic yards of concrete. The concrete will be delivered in trucks with a capacity of 9 cubic yards. Therefore, approximately 590 trucks will be required to deliver the concrete.

Delivery of Reinforcing Steel

Using an estimate of 150 pounds of reinforcing steel per cubic yard, 400 tons would be required. Assuming 14 tons per truck load, approximately 28 truck trips would be needed.

Delivery of Piles

Approximately 190 piles will be required for construction of the Headworks. The piles will be approximately 14” x 14” square and 100 feet long. Two piles will be delivered on each truck. Therefore, approximately 95 trucks will be required to deliver the piles.

Miscellaneous Building Materials

Over the course of 25 months of construction (110 weeks), 1-2 truck deliveries are anticipated per week. Approximately 220 truck trips will be needed during construction for such deliveries.

Delivery of Sheet Piles

If 400 tons of sheet piles are used and assuming 20 tons per truck, an additional 20 truck trips are estimated for sheet pile delivery.

Delivery and Removal of Construction Equipment

Construction of the Headworks will require the equipment listed below. Each piece of equipment will require its own truck to deliver it to the site at the beginning of construction and removed it from the site once construction is complete, see Table 3.2-8 below.

Table 3.2-8: Headworks Facility- Delivery and Removal of Construction Equipment	
Equipment	**Amount Needed**
Cranes	2
Backhoe	2
Grader	2
Scraper	2
Loader	2
Dump Truck	2
Fork Lift	2
Medium Trucks	2
Light Trucks	2
Water Trucks	2
Concrete Pump	1
Paver	1
Roller	1
Pile Driving Equipment	1

Worker Commuting/Transportation
It is estimated that, on an average, approximately 24 personnel will need to commute to and from the site each day during construction of the Headworks. The number of truck trips associated with the activities described above is summarized in Table 3.2-9.

Table 3.2-9: Headworks Facility – Other Construction Related Truck Trips	
Activity	**Total Truck Trips**
Process Equipment & Pipe Delivery	25
Concrete Delivery	590
Delivery of Reinforcing Steel	28
Pile Delivery	95
Miscellaneous Building Materials	220
Delivery of Sheet Piles	20
Construction Equipment Delivery	70
Worker Vehicles	24 per day (13,200 total)
Total Trips	14,227

Flow Diversion Facilities

During construction, soil would be excavated for the Flow Diversion Facilities. The total excavated volume would be approximately 17,200 cubic yards. It is anticipated that excavated materials could be conditioned and potentially used for the other proposed Projects within the 10-acre ornamental pond.

The number of daily vehicle trips to and from the work site would vary depending on the work being completed at the Project site. During periods of major earthwork, truck hauling would likely peak at approximately 30 vehicle trips to the site on a given day. It is assumed that worker vehicles would be parked within a defined contractor staging area at the WWTP. Worker vehicles are anticipated to be 15,600 trips over the course of construction of Flow Diversion Facilities.

Flow Diversion Structure and Truck Trips

It is anticipated that the structure would be pile supported. The piles are anticipated to be 14-inch square and 104 feet long, for 565 total piles. The reinforced concrete volume anticipated for the tank base, external walls, and interior wall would be 6,100 cubic yards.

The 565 piles would each be shipped by truck typically two per truck trip. A total of 680 concrete truck trips would be required to deliver the concrete volume to the plant. Ten (10) truck trips are anticipated over a one-week period for the interconnection piping from the FDS.

An estimated 110 trucks trips over a three month period are anticipated for the delivery of backfill material and for removal of and disposal of soils excavated for pipeline construction (see Table 3.2-10 and 3.2-11).

Table 3.2-10:
Construction Information for Flow Diversion Structure

Description	Total Excavated Soil (cy)	Total Off-Haul Soil (cy)	Total Reused Soil (cy)	Total Imported Soil (cy)	Total Truck Trips
Excavation for Tank	22,000	N/A	22,000	N/A	N/A
Excavation/Backfill for overflow pipeline	1,200	1,200		1,100	192
Excavation/Backfill for Pipelines	800	800		520	110 (off haul)

Table 3.2-11: Additional Total Truck Trips for Flow Diversion Structure		
Trip Type	**Quantity**	**Truck Trips/wk/total weeks**
Delivery of Equipment	N/A	5 trucks/wk/78 weeks
Piles, other building materials	565	283 truck trips over 4 weeks
Disposal of debris, etc.	N/A	2 trucks/wk/78 weeks
Concrete	6,100 cy	680 trucks over 6 months
Rebar	460 tons	33 trucks total
Pipeline	720’	10 trucks/wk/1 week
Total Truck Trips	N/A	100 trucks/wk/78 weeks
Bulldozer	N/A	2 machines over 24 weeks
Backhoe	N/A	2 machines over 17 weeks
Loader	N/A	2 machines over 18 weeks
Dozer	N/A	2 machines over 9 weeks
Excavator	N/A	1 machine over 8 weeks
Pile Driver	N/A	1 machine over 18 weeks
Crane	N/A	12 machine over 40 weeks
Dewatering Equipment	N/A	2 machine over 9 weeks
Concrete Pump Truck	N/A	1 machine over 16 weeks

Influent Connector Pipelines

The Influent Connector Pipelines construction would require soil excavation. The total amount of excavated soil would be approximately 11,933 cubic yards of soil, as shown in Table 3.2-12 below. All excavated material would be removed from the site. Due to the soil conditions, the Project would require approximately 9,943 cubic yards of imported soil from off-site sources.

Table 3.2-12: Influent Connector Pipelines- Estimated Soil Excavated and Total Truck Trips					
Total Excavated Soil (cy)	**Total Off-Haul Soil (cy)**	**Total Reused Soil (cy)**	**Total Imported Soil (cy)**	**Off-Haul Truck Trips**	**Import Fill Truck Trips**
11,933	11,933	0	9,943	918	621

5-Acre Pond Enhancements

Type and Number of Equipment to be used

A small quantity of construction equipment will be needed on the Project site. The following list is an assessment of the construction equipment that will be used at some point in the construction within the pond

- One small tracked backhoe or excavator to place fill for islands

- One front end loader for placing fill for parking lot
- 10 wheel end dumps for import of fill, if needed
- Paving equipment for parking lot

The maximum construction activity is anticipated to be during construction of the parking lot.

Anticipated Workforce

This project is very small compared to the improvements planned with the adjacent 10-acre pond. A total number of daily personnel working on this pond site would be a maximum of 5 people.

Construction management/inspection personnel will typically be no more than two on site. Occasional site visits by SVCW personnel, design engineer, and biologist will take place at different points during the construction.

3.2.3.3 *San Carlos Odor Control Facility*

The earthwork required for construction of the San Carlos Odor Control Facility and the number of truck trips required to perform the earthwork is included in Table 3.2-13 below.

In addition to the trucks required for earthwork, trucks will also be required for the following activities during the construction of the San Carlos Odor Control Facility: delivery of process equipment and piping, delivery of paving materials, delivery and removal of construction equipment, disposal of demolition debris, miscellaneous deliveries, and worker commuting. The approximate numbet of truck trips associated with each of these activities is summarized in Table 3.2-14.

Table 3.2-13:
San Carlos Odor Control Facility –Earthwork Quantities

Total Excavated Soil (cy)	Total Off-Haul Soil (cy)	Total Reused Soil (cy)	Total Imported Soil (cy)	Total Truck Trips
191	20	171	50	7

Table 3.2-14:
San Carlos Odor Control Facility –
Other Construction Related Truck Trips

Activity	Total Truck Trips
Process Equipment & Pipe Delivery	6
Paving Materials	4
Construction Equipment	26
Demolition	21
Miscellaneous Deliveries	31
Worker Vehicles	520
Total Trips	608

3.2.3.4 *Belmont Conveyance System*

During construction, soil would be excavated and exported from the site. Depending on the soil conditions, some of the soil would be reused for backfill and some soil would be hauled off-site. The following sections describe the estimated amount of soil to be excavated for construction and estimated total truck trips to the site during construction. The construction truck trips include trips necessary for off-hauling soil and other related construction trips.

Table 3.2-15: Belmont Conveyance System- Estimated Soil Excavated and Total Truck Trips

Component	Soil Excavated (Cubic Yards)			Imported Soil (CY)
	Total	Reused	Off-haul	
Belmont Pump Station area	217	183	149	34
Open Cut Option	454	342	80	32
Belmont Tee area	345	258	2	85
HWY 101/Holly Street (Pull Pit)	208	175	14	19
San Carlos Pump Station area	1,501	495	697	309
Total Haul Truck Trips	325	108	18	200

An additional 45 truck trips are expected for delivering pipe and materials to the site, and an additional 1,680 truck trips are expected for workers and other equipment. Other material that would require disposal, such as concrete rubble, old pumps, motors, electrical equipment, etc. would require an additional 30 truck trips.

3.2.3.5 *Redwood City Pump Station*

The total excavated soil would be approximately 9,500 cubic yards with the entire amount of soil to be hauled off-site. The Project would require approximately 3,500 cubic yards of imported soil from off-site sources. Total construction worker trips and haul truck trips for the Project would be approximately 20,800, given an average of 40 trips a day over the course of two years with construction completed only during the weekdays.

Other material that would require disposal, such as concrete rubble, old pumps, motors, electrical equipment, etc. would require an additional 30 truck trips.

3.2.3.6 *Menlo Park Pump Station*

The total excavated soil would be approximately 765 cubic yards with the entire amount of soil to be hauled off-site. Due to the soil conditions, the Project would require approximately 450 cubic yards of imported soil from off-site sources. Total construction worker trips and haul truck trips for the Project would be approximately 10,400, given an average of 20 trips a day over the course of two years with construction completed only during the weekdays.

Other material that would require disposal, such as concrete rubble, old pumps, motors, electrical equipment, etc. would require an additional 30 truck trips.

3.2.3.7 *Front of the Plant Civil Improvements*

The earthwork required for construction of the Front of the Plant Improvements and the number of truck trips required to perform the earthwork is included in Table 3.2-16 below.

Table 3.2-16: Construction Information for Civil Improvements

Description	Total Excavated Soil (cy)	Total Off-Haul Soil (cy)	Total Reused Soil (cy)	Total Imported Soil (cy)	Total Truck Trips
Excavation for Storm Drain Pump Station	1,400	1,400			100
Excavation/Backfill for pipelines collecting water from inlets and connecting to the pump station. Assumed 2200 Linear Feet pipe.	2,000		2,000	2,500	208

<u>Import Soil and Truck Trips</u>

During construction, soil would be imported to the Front of the Plant during grading operations. The total fill volume would be approximately 24,000 cubic yards.

The number of daily vehicle trips to and from the work site related to just the site work would vary depending on the work being completed at the Project site. During periods of major earthwork, truck hauling would likely peak at approximately 30 vehicle trips to the site on a given day. It is assumed that worker vehicles would be parked within a defined contractor staging area at the Front of the Plant.

<u>Pavements/Roadways and Truck Trips</u>

Approximately 7,900 cubic yards of asphalt concrete/aggregate base (AC/AB) will be required for paving. During heavy paving operations, approximately 20 truck trips are anticipated on any given day.

Table 3.2-17: Additional Total Truck Trips for Civil Improvements		
Trip Type	**Quantity**	**Truck Trips and Duration**
Delivery of Equipment	N/A	5 trucks/wk/50 weeks
Miscellaneous Concrete	100 cy	11 trucks over 6 months
Storm Drain Pipe	2200’	20 trucks over 1 week
Frontage Wall	650’	10 trucks over 2 weeks
Pavement Section (6” AC over 9”AB)	7,900 cy	560 trucks over 3 months
Fill for subgrade beneath AC Section	23,600 cy	1967 trucks total
6” of Class II AB to fill North of FDS	2,300 cy	192 trucks total
Bulldozers	N/A	1 machine over 12 weeks
Backhoe	N/A	1 machine over 50 weeks
Loaders	N/A	1 machine over 35 weeks
Compactor	N/A	1 machine over 50 weeks
Asphalt Paver	N/A	1 machine over 12 weeks
Roller	N/A	2 machines over 20 weeks
Grader	N/A	1 machine over 12 weeks
Excavator	N/A	1 machine over 67 weeks
Concrete Pump Truck	N/A	1 machine over 5 weeks
Total Truck Trips	N/A	100 trucks/wk/104 weeks

Approximately 100 cubic yards concrete is anticipated for rolled and standard curb work. This concrete work should be completed within two weeks, which would be a maximum of five trucks per day.

Walls and Truck Trips

650 feet of wall is anticipated to be constructed (7,800 square feet). This wall is anticipated to be constructed within two months, with a maximum of five trips per day for material delivery.

3.3 OPERATION AND MAINTENANCE

Operations and Maintenace (O&M) can be divided into three parts: Plant facilities, Pipelines and Remote Pump Stations.

3.3.1 Plant Facilities

The RLS, Headworks and other Project facilities will be maintained in a similar fashion as the current SVCW WWTP site. The systems would be automated, allowing for most operations to occur automatically and controlled remotely, from the SVCW control room. The plant facilities would require attention from Operations Staff on a daily basis, to assure that the operation is running smoothly or to troubleshoot problems. The operation of the Headworks would require operator attention to coordinate off-hauling of grit and rags and other debris removed from the flowstream by the Headworks. However, the Headworks should significantly reduce rags and sediment that cause O&M problems throughout the current treatment process.

Maintenance activities will include performance of preventative maintenance on mechanical and electrical equipment and troubleshooting and fixing equipment that has failed or is not in proper working order. The maintenance department would also be responsible for coordinating with outside contractors to perform large maintenance activities, such as pulling the pumps from the RLS and sending them off-site for preventative maintenance and repair.

3.3.2 Pipelines

The pipelines are being designed for 100 years of life and should require very little beyond inspections during the first 50 years of their life. Operations activities would include assuring that air relief valves installed on force main pipelines are operational.

3.3.3 Remote Pump Stations

The current pump stations require substantial O&M efforts to keep them functioning and avoiding spills, most notably during wet wether. The new and rehabilitated pump stations will require less O&M effort.

The pump stations would be automated and can therefore be operated automatically and controlled remotely from the WWTP control room. Operations staff would access the facilities a couple of times a week to assure that the operation is running smoothly or to troubleshoot problems, or to coordinate delivery of chemicals or diesel for the emergency generators.

Maintenance activities would include performance of preventative maintenance on mechanical and electrical equipment and troubleshooting and fixing equipment that has failed or is not in proper working order.

3.4 PROJECT OBJECTIVES

The primary objectives of the Project are to:

- Replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions.
- Reduce the likelihood of spills and discharges of untreated sewage to the surrounding environment, which has occurred numerous times with the existing 45 year old concrete sewer force main that operates above its design pressure.
- Implement a Project that minimizes adverse environmental effects, adverse impacts to public health and private property owners, utility interference and disruption during construction, and short- and long-term cost.
- Improve plant process reliability, and increase operational readiness.
- Meet future regulatory requirements imposed by the RWQCB for nutrients discharged into the San Francisco Bay.

3.5 USES OF THE EIR

SVCW is the Lead Agency under CEQA. This EIR is intended to provide the cities of Redwood City, San Carlos, Belmont and Menlo Park, WBSD, other public agencies, and the general public with the relevant environmental information needed in considering the proposed Project.

SVCW anticipates that discretionary approvals by the respective public agencies, including but not limited to the following, will be required to implement the proposed Project addressed in this EIR:

Table 3.5-1: Project-Related Approvals

AGENCY	APPROVAL/PERMIT(s)
Federal Agencies	
Federal Aviation Administration (FAA)	FAA Determination Letter/Form 7460-I
State and Regional Agencies	
California Department of Transportation (Caltrans)	Encroachment Permit, Easement
San Francisco Bay Conservation and Development Commission	Permit for work at WWTP, BPS, MPPS, Bair Island
California Departement of Fish and Wildlife	Streambed Alteration permit
PG&E	Utility Relocation Agreement, Easement
Local Agencies	
City of Belmont	Street Excavation & Encroachment Permit
City of San Carlos	Street Excavation and Encroachment Permit
City of Redwood City	Street Excavation and Encroachment Permit
	Permanent and Temporary Easements
City of Menlo Park	Street Excavation and Encroachment Permit
	Permanent and Temporary Easements

Notes:
WWTP = Wastewater Treatment Plant, BPS = Belmont Pump Station, MPPS = Menlo Park Pump Station

The actions of SVCW, as Lead Agency, taken in support of the Project would require the review, approval, or permitting by other public agencies prior to implementation, and this EIR will serve as the basis under CEQA for each of those activities, whether specifically identified herein or identified following certification of this EIR. These responsible or trustee agencies are defined by Sections 15381 and 15383 of the CEQA Guidelines as follows:

Responsible agencies are public agencies that propose to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR. Under CEQA, a responsible agency is a public agency, other than the Lead Agency, that has discretionary approval power over a project.[8] Each of the member cities of the SVCW JPA are examples of responsible agencies for the Project.

[8] SVCW, as a Joint Powers Authority, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its member agencies, under the doctrine of intergovernmental immunity. Nevertheless, in the exercise of its discretion and in the interest in working

Trustee agencies are State agencies that have jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California. The California Department of Fish and Wildlife is an example of a state trustee agency for the Project.

cooperatively with local jurisdictions, this EIR references, describes, and addresses local land-use plans, policies, and regulations. This EIR takes this approach in recognition that such plans, policies, and regulations reflect the local community's policy decisions with respect to appropriate uses of land in the area. Consideration of these plans, policies, and regulations assists in determining whether the proposed Project and Project components may conflict with nearby land uses, which could affect the analysis of whether the proposed Project would result in potentially significant environmental impacts.

4.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

In accordance with Section 15143 of the CEQA Guidelines, the discussion in this EIR is focused on the significant effects on the environment resulting from the proposed Project. Implementation of the proposed Project would consist of specific improvements and upgrades to portions of the conveyance system and the wastewater treatment plant. The proposed Project is made of up 17 components; each of which has a separate yet interrelated schedule and timing for implementation.

In accordance with Appendix F and G of the CEQA Guidelines, the environmental effects of the Wastewater Conveyance System and Treatment Plant Reliability Improvement Project are analyzed for significant impacts in the following environmental issue areas:

4.1	Aesthetics	4.9	Hazards and Hazardous Materials
4.2	Agricultural and Forestry Resources	4.10	Hydrology and Water Quality
4.3	Air Quality	4.11	Land Use and Planning
4.4	Biological Resources	4.12	Mineral Resources
4.5	Cultural Resources	4.13	Noise and Vibration
4.6	Energy	4.14	Public Services and Recreation
4.7	Geology and Soils	4.15	Transportation
4.8	Greenhouse Gas Emissions	4.16	Utilities and Service Systems

The discussion for each environmental subject includes the following subsections:

REGULATORY AND ENVIRONMENTAL SETTING

This subsections: 1) provide a brief overview of relevant plans, policies, and regulations that compose the regulatory framework for the project and 2) describe the existing, physical environmental conditions at the project site and in the surrounding area, as relevant.

Environmental setting or baseline for the EIR: CEQA requires that a project's effects are to be judged against the baseline environmental conditions that exist or would exist without the project. Per CEQA Guidelines Section 15125(a), the baseline is normally represented by the physical environmental conditions as they exist at the time the Notice of Preparation (NOP) is published, or if there is no NOP, at the time the environmental review commenced. CEQA provides discretion, under limited circumstances and based on substantial evidence, to set an alternate baseline other than existing conditions (see *Neighbors for Smart Rail v. LA Metro*). In this instance, the NOP for the SVCW Wastewater Conveyance System Improvement Project was released on February 19, 2016, and the physical environmental conditions included ornamental ponds at the WWTP that were full of water. Since the release of the NOP, while the EIR was being prepared, SVCW decided to drain the ornamental ponds in order to complete geotechnical investigation work and maintain them in a dry state until a decision is made by the SVCW Commission whether to implement the proposed Project, anticipated in the spring of 2017. As documented in *Section 4.4 Biological Resources*, the ponds are the result of discharging recycled treated wastewater, and the ponds have been alternately full and dry at various times since they were created and first filled in 2002 including as recently as 2015 (See Figures 4.0-1 and 4.0-2).

DRY ORNAMENTAL PONDS (JANUARY 13, 2014)

FIGURE 4.0-1

FULL ORNAMENTAL PONDS (APRIL 5, 2016)

FIGURE 4.0-2

The decision to drain the ponds in the fall of 2016 is **not** a decision to commit to implement the proposed Project in advance of the certification of the EIR and action by the SVCW Commission, as the ponds were drained to perform geotechnical work, and the decision to drain them is temporary and reversible, should the Commission decide to not commit to implement the Project that is the subject of this EIR, i.e. the ponds will be refilled with recycled water should the proposed Project not be approved. Accordingly, the decision to remove the ponds (as opposed to keeping them temporarily dry) and develop that area of the WWTP with the proposed Conveyance System improvements identified in *Section 2.0 Project Information and Overview* remains pending, and will be considered by the Commission following certification of this EIR. Therefore, for purposes of establishing an environmental baseline for the analysis of Project impacts in this EIR, the ponds are considered to be full of water (as they were at the time of the NOP publication), and not reflecting their current drained condition, as it is reasonable to assume the ponds will be refilled should the proposed Project not be implemented.

IMPACTS

This subsection: 1) includes thresholds of significance for determining impacts, 2) discusses the Project's consistency with those thresholds, and 3) discusses the Project's consistency with applicable plans. For significant impacts, feasible mitigation measures are identified. "Mitigation measures" are measures that will minimize, avoid, or eliminate a significant impact (CEQA Guidelines Section 15370). Each impact is numbered using an alphanumeric system that identifies the environmental issue. For example, **Impact HAZ-1** denotes the first potentially significant impact discussed in the Hazards and Hazardous Materials section. Mitigation measures are also numbered to correspond to the impact they address. For example, **MM NOI-2.3** refers to the third mitigation measure for the second impact in the Noise section.

CONCLUSION

This subsection provides a summary of the project's impacts on the resource.

<u>Important Note to the Reader</u>

The California Supreme Court in a December 2015 opinion [*California Building Industry Association v. Bay Area Air Quality Management District,* 62 Cal. 4th 369 (No. S 213478)] confirmed that CEQA, with several specific exceptions, is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project. Therefore, the evaluation of the significance of project impacts under CEQA in the following sections focuses on impacts of the project on the environment, including whether a project may exacerbate existing environmental hazards.

SVCW and member agencies in which the Project components will be constructed and operated currently have policies that address existing conditions (e.g., air quality, noise, and hazards) affecting a proposed Project, which are also addressed in this section. This is consistent with one of the primary objectives of CEQA and this document, which is to provide objective information to decision-makers and the public regarding a project as a whole. The CEQA Guidelines and the courts are clear that a CEQA document (e.g., EIR or Initial Study) can include information of interest even if such information is not an "environmental impact" as defined by CEQA.

Therefore, where applicable, in addition to describing the impacts of the Project on the environment, this chapter will discuss Planning Considerations that relate to policies pertaining to existing conditions. Such examples include, but are not limited to, locating a project near sources of air emissions that can pose a health risk, in a floodplain, in a geologic hazard zone, in a high noise environment, or on/adjacent to sites involving hazardous substances.

4.1 AESTHETICS

This section describes the aesthetic and visual qualities of the Project area and addresses potential aesthetic and visual impacts of the Project along the proposed Project components and in the vicinity of the proposed Project. Where a potential impact is deemed significant, mitigation measures for reducing the significance of the impact are identified, where feasible.

4.1.1 Regulatory Setting

4.1.1.1 *Federal*

There are no applicable federal regulations related to aesthetic resources that would apply to this Project.

4.1.1.2 *State and Regional*

State Scenic Highways Program

The State Scenic Highways Program was created by the California State Legislature in 1963 and is under the jurisdiction of Caltrans. The program is intended to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. The state laws governing the Scenic Highway Program are found in the Streets and Highway Code, Sections 260 through 263. A highway may be designated as a scenic highway by Caltrans depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view.

Title 24 Outdoor Lighting Zones

In 2001, the California Legislature passed a bill requiring the California Energy Commission (CEC) to adopt energy efficient standards for outdoor lighting for both the public and private sector. In November 2003, the CEC adopted changes to the Building Energy Efficient Standards within Title 24. These standards became effective on October 1, 2005, and specify outdoor lighting requirements for residential and non-residential development. The intent of the new standards is to improve the quality of outdoor lighting and help reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics, such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population figures in the 2003 Census and the areas can be designated as LZ1 (dark), LZ2 (low), LZ3 (medium), or LZ4 (high). The proposed Project components, particularly the buildings in the Front of the Plant area and the pump station buildings, would be required to comply with lighting standards that are applicable to the respective lighting zone, as determined by Title 24.

San Francisco Bay Plan

The San Francisco Bay Plan (Bay Plan) is a policy tool that allows the San Francisco Bay Conservation and Development District (BCDC) to “exercise its authority to issue or deny permit applications for placing fill, extracting materials, or changing the use of any land, water, or structures within the area of its jurisdiction,” which includes the San Francisco Bay and lands within 100 feet of its shoreline.

The Bay Plan serves as the guide for BCDC and includes policies applicable to visual and aesthetic resources within the portions of each City where the conveyance system improvements are planned. The Bay Plan recommends that urban development be clustered, so as to maximize views of the San Francisco Bay and to conserve natural landscape features and maximize shoreline access.

The Appearance, Design and Scenic Views Chapter of the Bay Plan contain several policies pertaining to visual quality and aesthetic character, including:

Policy 1: To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides the shore of the Bay should be developed in accordance with the Public Access Design Guidelines.

Policy 2: All Bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. Maximum efforts should be made to provide, enhance, or preserve views of the Bay and shoreline, especially from public areas, from the Bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are knowledgeable of the Commissions' concerns, such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.

Policy 4: Structures and facilities that do not take advantage of or visually complement the Bay should be located and designed so as not to impact visually on the Bay and shoreline.

Policy 8: Shoreline developments should be built in clusters, leaving open area around them to permit more frequent views of the Bay. Developments along the shores of tributary waters should be Bay-related and should be designed to preserve and enhance views along the waterway, so as to provide maximum visual contact with the Bay.

Policy 14: Views of the Bay from vista points and from roads should be maintained by appropriate arrangements of heights of all development and landscaping between the view areas and the water. In this regard, particular attention should be given to all waterfront locations, areas below vista points, and areas along roads that provide good views of the Bay for travelers, particularly areas below roads coming over ridges and providing a "first view" of the Bay.

4.1.1.3 *Local*

SVCW is a Joint Powers Authority (JPA) that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the WBSD (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its member agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

Redwood City General Plan

The Redwood City General Plan (Redwood City 2010) lists several "gateway" corridors that provide a visual sense of entry into parts of the City. There are also seven street corridors that provide visual entrances into the City including Jefferson Avenue, Whipple Avenue, Woodside Road, El Camino Real, Broadway, Veterans Boulevard, and Middlefield Road. Specifically, Broadway, Middlefield Road, and Whipple Avenue provide gateways into Downtown. Gateways into the Redwood Shores area include Marine Parkway and Redwood Shores Parkway. No officially designated or any eligible state scenic highways are located within Redwood City.

Scenic vistas are located in the southern and western portions of the City within the elevated hillside neighborhoods. The San Francisco Bay, and its associated baylands, sloughs, and marshes, and the urbanized San Francisco Bay Peninsula are the scenic resources visible from the elevated hillsides. None of the gateway or visual entrance street corridors, or scenic resources are within or near the Redwood City Pump Station site and the WWTP site.

The following policies, as found in the Redwood City General Plan, are applicable to the Project:

Policy BE-44.1: Reduce the visual impact of aboveground and overhead utilities, including electric lines, by working with PG&E to maximize opportunities to place utilities underground.

Policy BE-44.2: Continue to require the placement of utilities underground with new development.

Policy BE-44.4: Strengthen requirements for underground utilities in older sections of the city as part of redevelopment projects to address public safety issues and to improve the aesthetic quality of streets and neighborhoods.

Redwood Shores Bayfront Specific Plan

Policies contained within the Redwood Shores Bayfront Specific Plan are intended to shape the visual character of the area around the SVCW WWTP. Policies related to the SVCW facility in Redwood Shores include:

Objective 6.1.2: Screen the biosolids drying beds, the recycled water storage reservoirs and the South Bayside System Authity (SBSA, now referred to as SVCW) treatment plant itself from view from surrounding areas to the maximum degree feasible.

Objective 6.1.3: Assure a sufficient level of landscape foreground and buffering for development within and adjacent to the Site.

Objective 6.2.1: Preserve, to the maximum extent feasible, the present dark nighttime conditions of the site to reinforce its character as open space and to maintain compatibility with nearby residential neighborhoods.

Objective 6.4.1: Assure that all properties provide an adequate buffering landscape zone at their boundaries that they present an appropriate appearance to adjoining or other nearby properties.

Redwood City Zoning Ordinance

The Redwood City Zoning Ordinance provides standards that direct the visual character and quality of development associated with related land uses (Article 45.8, Architectural Standards). Height and architectural standards are defined for the various zoning districts throughout the City to "protect and enhance the natural beauty of the environment, provide for the orderly and harmonious appearance of structures and grounds."

City of Belmont General Plan

The Belmont Pump Station and a portion of the proposed force main rehabilitated or sliplined sewer are located within the City of Belmont. The Circulation Element of the Belmont General Plan (Belmont 1982) specifies highways and streets within the vicinity of Belmont with significant scenic value. The City of Belmont designates Interstate 280, State Route 92, Alameda de las Pulgas, and Ralston Avenue as scenic. None of these facilities are within or near the Belmont Pump Station site or near areas of disturbance related to the rehabilitated force main sewer pipeline.

The following policies, as found in the City of Belmont General Plan, are applicable to the Project:

2042 Policy 3: All utility installations should be sited, designed, developed and landscaped so as to blend with the natural scenery of the area.

San Carlos General Plan

The San Carlos Pump Station site and a portion of the proposed Gravity Pipeline are located within the City of San Carlos. The Scenic Highways Element of the San Carlos General Plan (San Carlos 2009) specifies roads within the State Master Plan in the vicinity of San Carlos and City roads with significant scenic value. The City of San Carlos has seven City scenic roads which include Alameda de las Pulgas, San Carlos Avenue, Brittan Avenue, Club Drive, Crestview Drive, El Camino Real, and Holly Street. Holly Street is the only scenic roadway within the Project area; a portion of the Gravity Pipeline crosses under the Holly Street and U.S. 101 interchange.

Menlo Park General Plan

The General Plan, last updated in 1994, guides development and use of land in the City. The central purpose of the General Plan, as stated in the document, "is to maintain Menlo Park's special character as a residential community that includes a broad range of residential, business, and employment opportunities and to provide for the change necessary to maintain a vital community." The City General Plan (Land Use and Circulation Elements) and M-2 Area Zoning Update, also known as ConnectMenlo, is under way. Although not yet adopted, the following draft goals and policies in ConnectMenlo pertain to the Project and are identified for informational purposes:

Policy LU-1.1: Land Use Patterns. Cooperate with the appropriate agencies to help assure a coordinated land use pattern in Menlo Park and the surrounding area.

Menlo Park Municipal Code

Other than the existing General Plan, the City of Menlo Park Municipal Code is the primary tool that shapes the form and character of physical development in the City. Standards and regulation established in the Municipal Code are used to implement the goals, objectives, and policies of the General Plan and to regulate all land use within the City.

i) Title 16 of the Municipal Code sets forth the City's Zoning Ordinance, which, amongst other purposes, is intended to preserve and extend the charm and beauty inherent to the residential character of the City and encourage building construction of pleasing design.
ii) The Municipal Code Title 15 includes Subdivision regulations that are established to ensure the orderly development of subdivisions. The ordinance provides standards for surveying, design and construction, and installation of relevant infrastructure.
iii) Street, sidewalk, and utilities regulations are included in Title 13 of the Municipal Code. The ordinance provides development standards related to aesthetics such as landscaping, lighting, street trees, heritage trees and screening and undergrounding utilities.

4.1.2 Environmental Setting

Visual and aesthetic impacts are based primarily on the visual character of an area and views of designated scenic resources from public view points. The following discussion identifies the visual character of the Project site and surrounding land uses.

4.1.2.1 *Visual Environment*

The Project area is located northeast of U.S. 101 and southwest of the San Francisco Bay in San Mateo County, within the cities of Redwood City, Belmont, San Carlos and Menlo Park. The Project area is generally level and at low lying elevations near the bayside. The Project area is a mostly developed urban area, with paved roadways and buildings with the exception of the Inner Bair Island and Airport Access Shaft undeveloped areas in the central portion of the Project area.

Front of the Plant Setting

The Front of the Plant Project component is characterized as expansive, given the flat topography and limited number of structures on the site. The area is created and maintained by SVCW through pumping water from SVCW's Recycled Water facility and this use is consistent with recycled water regulations in Title 22, of the CCR, describing appropriate use of recycled water for "an aesthetic landscape impoundment". In addition to the open views, the site is frequented by a variety of birds that also contribute to the aesthetic experience of the area. The radio transmission towers are a prominent visual feature in the landscape of the site. The north, south and west sides of the pond area are bordered by low-lying vegetation and the east side is bordered by planted eucalyptus trees and demarcates the ornamental pond from the WWTP. Except for the safety lighting on the exterior of the SVCW facility, the existing general night time character of the site is dark, with little or no artificial lighting.

The primary viewers of the Project area are employees and visitors of the SVCW treatment plant, recreationalists who use the existing trails in the Project vicinity and the Shore Dogs Park, and the tenants and users at The Pointe Office complex. The views of the SVCW plant are also visible from the Prescadero Apartments and the single-family homes southwest of the Project site. The east side of Radio Road is distinctly different than the west side of Radio Road. On the west, the land is developed with urban uses (housing and office complex with parking lot). On the east, the land can be described as underdeveloped and visually open.

Photo 1: View west from Radio Road near SVCW plant entrance. Low-lying vegetation bordering the site and birds can be seen in this picture.

Photo 2: View northwest from Radio Road near SVCW entrance showing the radio transmission towers

Belmont Pump Station

The Belmont Pump Station site is located on a developed site on the east side of Shoreway Road in the City of Belmont. The 0.06-acre site consists of a single-story industrial-style concrete and cinderblock building that contains pumps and other equipment, small paved areas on the north and south sides of the building, one concrete and two metal utility boxes, two overhead light poles, and trees and shrubs. To the north of the Belmont Pump Station is surface parking, landscaping, a single-story concrete and stucco office building and overhead PG&E power lines. To the east of the Belmont Pump Station is a paved trail along the Belmont Creek channel. There is also another trail on the southeast side of the creek channel, an office building with surface parking lot and industrial buildings beyond. Shoreway Road and U.S. 101 are located to the west and south of the site.

The Belmont Pump Station site is visible from Shoreway Road and U.S. 101. The existing trees and shrubs on the site visually obscure the pump station from the office building to the north and south of the site.

Photo 3: Belmont Pump Station

San Carlos Pump Station

The San Carlos Pump Station property is located on a developed site on the northwest end of Monte Vista Drive in the City of San Carlos, adjacent to the San Carlos Airport. The 0.92-acre site is owned by the City of San Carlos, and includes the existing 5,625 square foot building and a 0.44-acre paved parking lot adjacent to the Izzy's restaurant. The San Carlos Pump Station site consists of an industrial-style concrete and cinderblock building, two paved driveways, two metal utility boxes, two overhead light poles, overhead electrical lines and pole, an aboveground diesel tank, chain-link fence, and trees and shrubs. The facility fronts on and is accessed by Monte Vista Drive. Monte Vista Drive has a sidewalk on the north side and landscaping on both sides of the roadway. The paved parking lot portion of the site includes two light poles and a few landscape strips and islands. The two portions of the site are separated by a chain-link fence.

Buildings on Monte Vista Drive include a three-story stucco and wood clad Fairfield Inn and Suites hotel and a single large concrete building, utilized for the Hiller Aviation Museum. The San Carlos Airport runway and related airport facilities are visible from Monte Vista Drive. The two adjacent restaurants are single-story modern buildings with stucco and wood-frame construction.

The visibility of the San Carlos Pump Station site is limited to portions of Skyway Road and Monte Vista Drive that are visible from U.S. 101 and adjacent businesses. It is also visible from the airport. The existing trees and shrubs on the site partially visually obscure the pump station from the Fairfield Inn and Suites hotel.

Photo 4: San Carlos Pump Station

Redwood City Pump Station

The Redwood City Pump Station facility is located on a developed site on the south side of Maple Street in the City of Redwood City. The 0.55-acre site consists of an industrial-style concrete and cinderblock building, a PG&E transformer, electrical equipment, a standby engine generator, two paved driveways, two metal utility boxes, aboveground diesel tank, a biofilter with organic media (i.e., odor control beds), trees and shrubs, all of which are surrounded by a chain-link fence. The facility fronts on and is accessed by Maple Street. Maple Street is a loop roadway that dead-ends in front of the pump station site; it loops around to the south and continues on an overpass over U.S. 101 to the south. In this location, Maple Street has no sidewalks and minimal landscaping on both sides of the roadway.

Development around the Redwood City Pump Station site includes older one-story wood frame buildings, a modern two-story stucco and glass-clad police building (Redwood City Police Department) which is 55 feet east of the Redwood City Pump Station, Maple Street Shelter which is approximately 150 feet northwest of the property line and approximately 230 feet northwest from the Redwood City Pump Station building, and the San Mateo County Women's Jail which is located approximately 80 feet from the property line and 180 feet northwest of the pump station building. U.S. 101 is immediately south of the Redwood City Pump Station site. The visibility of the site is limited to this portion of Maple Street, U.S. 101 and adjacent businesses and public facilities. The existing trees and shrubs on the site partially visually obscure the pump station from U.S. 101 and the police building.

Photo 5: Redwood City Pump Station

Menlo Park Pump Station

The existing Menlo Park Pump Station is located on a 0.5-acre property that is owned by the WBSD. The property is located at the northwest corner of Haven Avenue and Marsh Road intersection within the City of Menlo Park. The Project site currently consists of the existing pump station building and related ancillary equipment. Part of the property is surrounded by a chain-link fence as shown in photo 6. Vehicle access to the site is from an existing gate on the entrance road leading to Bedwell Bayfront Park.

A FedEx Shipping Center is located approximately 65 feet southwest of the Menlo Park Pump Station. Other commercial office buildings are located approximately 250 to 315 feet south/southwest of the Menlo Park Pump Station, opposite Bayfront Expressway. Menlo-Atherton Storage is located on the west side of the property and an upland grass area owned by the Leslie Salt Company is located on the north side of the property as shown in Figure 3.1-16. Primary viewers of the site include drivers on Haven Avenue and Marsh Road, employees of WBSD, recreationalists who use the Bedwell Bayfront Park and walking trails to the north of the building, and tenants/users of Menlo Atherton Self Storage business and the commercial building across Haven Avenue. The existing trees, shrubs and fences on the site partially obscure the pump station visually from the adjacent roads and commercial buildings.

Photo 6: Menlo Park Pump Station

Airport Access Shaft Site

The Airport Access shaft is situated north of the Shoreway Road and Redwood Shores Parkway (Holly Street) intersection (as shown in Figure 3.2-5a). This is an open space area with trees and vegetation surrounding the site. A chain-link fence borders the site and the existing entrance to the site is through a gate at Shoreway Road as shown in Photo 7. This property is owned by San Carlos Airport and falls within the protection zone of the Airport (See Figure 4.11-1 in *Section 4.11 Land Use* section).

Development around the shaft site includes commercial offices and buildings towards the north, east and west sides of the site and San Carlos Airport towards the south of the construction shaft area. Primary viewers of the site include tenants and users of adjacent businesses and public facilities and the traffic on Twin Dolphin Drive, Holly Street and Shoreway Road. Existing shrubs along the fence that surrounds the site partially obscures the site from roadway users.

Photo 7 – Open space views of the Airport Access Shaft site looking north

Bair Island Inlet Structure

The Bair Island Inlet Structure staging area would be comprised of approximately 1.5-acres and located along the levee road of Inner Bair Island, north of Whipple Avenue and south of the San Carlos Airport. The site is characterized by clear and unobstructed views and open land. An elevated 12-foot wide public access trail with observation platforms at each end of the trail is located on Inner Bair Island generally following the levee alignment. The Inner Bair Island shaft site is visible from a number of vantage points including U.S. 101, the residential and commercial buildings near Redwood Shores Parkway, Bair Island Road, and from Redwood City hillsides and Edgewood Park.

Photo 8: View of Inner Bair Island (across Pulgas Creek), looking southeast.

Gravity Pipeline

The tunnel would be situated roughly 20 to 52 feet below the ground surface between the SVCW WWTP and the north end of Inner Bair Island and would be constructed with a TBM. The tunnel would be constructed in two separate sections with the first tunnel section located mostly within the Redwood Shores Parkway right-of-way and the second tunnel section located under Redwood Shores Parkway (Holly Street), Skyway Road, the San Carlos Airport property and Pulgas Creek, where it would connect to the recently completed 48-inch diameter force main pipe on Inner Bair Island (refer to Figure 3.1-1). The visibility of the Gravity Pipeline is limited to the construction shaft areas.

4.1.2.2 *Scenic Vistas and Resources*

According to a review of a Caltrans-maintained list of eligible and officially designated scenic highways, the closest officially designated state scenic highway to the Project area is Interstate 280, approximately three miles west of the Project area. No officially designated or any eligible state scenic highways traverse the Project area. There are two San Mateo County scenic roads located in the regional area including Edgewood Road and Cañada Road. The City of Belmont has four scenic roadways. The City of San Carlos has seven City scenic roads. Redwood City has seven street corridors that provide visual entrances into the City. None of the scenic resources are within or near the Project area. Redwood Shores Parkway (Holly Street) is the only City scenic roadway within the Project area; much of the tunnel alignment is located below the Redwood Shores Parkway right-of-way. There are limited scenic vistas and resources within the City of Menlo Park. The open space and bay views provided by Bair Island provide a scenic resource within an urban area.

4.1.2.3 *Existing Lighting and Glare Conditions*

Currently there is no lighting in the Front of the Plant area. Any lighting in the Front of the Plant area is indirect spill lighting from adjacent street or existing plant down-lighting, which provides very minimal lighting in the area of less than 0.05 foot-candles.[9] Existing pump station exterior lighting levels typically range from 0.25 to 2.0 foot-candles around the building perimeter. At areas directly below light fixtures mounted to the pump station, lighting levels can be as high as 10 foot-candles. The Airport Access Shaft site and the Bair Island Inlet Staging Area do not currently have any lighting.[10]

4.1.3 <u>Aesthetic Impacts</u>

4.1.3.1 *Thresholds of Significance*

For the purposes of this EIR, an aesthetic impact is considered significant if the Project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.
-

4.1.3.2 *Methodology*

Aesthetic values are, by their nature, subjective and cannot be evaluated on a quantitative basis. Opinions as to what constitutes a degradation of visual character will differ among individuals. Therefore, a qualitative assessment of visual impacts was prepared by evaluating the existing visual character and setting and comparing it to visual conditions anticipated to occur under the proposed Project.

The visual impact analysis is based on field observations conducted on April 6, 2016 and photo simulations/photo renderings prepared for the different components of the Project from on-site and off-site vantage points. The visual analysis used computer-generated photo simulations compared to existing photos to show how development under the proposed Project would affect scenic vistas, scenic views, or existing visual conditions from particular public viewpoints.

4.1.3.3 *Change in Visual Character*

Potential impacts are discussed below for each Project component.

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[9] A unit of illuminance or illumination, equivalent to the illumination produced by a source of one candle at a distance of one foot and equal to one lumen incident per square foot.

[10] Bryan, William. SVCW. *Email Communication*. April 22, 2016.

WWTP Improvements and Front of the Plant Civil Improvements

Construction phase

The 10-acre ornamental pond area would be utilized for the RLS, the Headworks, Front of the Plant Civil Improvements, Odor Control Facility, Stormwater Pump Station and the FDS. In the longer term, the site would also house the Nutrient Removal Facilities and the Secondary Clarifier improvement components. In addition, the WWTP Flow Splitter Shaft and the RLS shaft, as well as the construction staging areas for most of the components listed above, would also be located on the drained 10-acre ornamental pond area. Another drained 5-acre northern ornamental pond area would be used as a temporary construction staging and equipment storage area for the Nutrient Removal and the Clarification Improvements components, however a portion of this ornamental pond would continue to be dedicated for stormwater storage, and shall always have a maintained area for stormwater drainage throughout construction and staging in that area. The Influent Connector Piping would be located adjacent to the west side of the current WWTP facilities and along the southern parking lot and terminate at the southeast corner of the existing WWTP. The Influent Connector Pipes would be below-grade and would transport raw sewage flow from the Headworks to the WWTP's existing influent connection. The new pipelines combined would be up to 1,800 linear feet in length.

The ornamental pond area would be maintained in a dry condition prior to construction of the proposed Project elements in this area. The pond, when full, is a visual resource for the immediate surrounding area, though it is only visible from the immediate surrounding area, and is not part of a public viewshed. In addition, the pond is a man-made feature and has been drained on multiple occasions over the past several decades for a variety of reasons. As noted previously, SVCW has drained the pond in Fall 2016 during the EIR process for the Wastewater Conveyance System Improvement Project (to perform geotechnical evaluation work), but the baseline condition for the purposes of this EIR is a full pond, and so therefore the impact of implementing the Project would be the loss of the 10-acre pond as a visual resource for the area. The pond was created by SVCW initially as a means of dust control, not as a visual amenity. Removing the pond would replace an open water body (when full) with a developed expanded area of the WWTP, but the pond is not considered an important visual resource by SVCW, as it was created for functional not aesthetic reasons, nor by the City of Redwood City, as evidenced by the 2010 Redwood City General Plan which does not identify it as an important visual resource, unlike the nearby sloughs and baylands. Because the pond area is not considered a valuable aesthetic resource, is not part of a public viewshed, and is only visible from the immediate surrounding area, loss of the pond as a visual resource would not result in a significant visual impact. Moreover, SVCW plans to enhance the 5-acre pond area to serve as a viewing area for the birding public.

During the construction phase, the current main entrance road to the Front of the Plant area would be closed to non-construction traffic. A new roadway would be constructed along the northern and eastern perimeter of the 10-acre ornamental pond within the Front of the Plant, to provide vehicular access away from heavy contractor equipment which is anticipated along the existing Radio Road. The staging area would be cleared of vegetation, raised in elevation, fenced and base rock placed, as needed. During shaft construction, materials needed for the shafts (primarily steel and concrete) would be brought to the staging area and stored until needed. The Flow Splitter shaft would be up to 40 feet in diameter and approximately 65 feet below ground surface. The RLS shaft would be approximately 49 feet in diameter and 93 feet below ground surface. The construction staging areas for the RLS, the Headworks and the Flow Diversion Facilities would be located to the northwest of the FDS, as shown on Figures 3.1-10 and 3.2-6. The RLS requires 38,000 square feet, and the Headworks and the Flow Diversion Facilities each require 102,400 square feet of staging area. Each facility would have designated areas for storage/staging, operations trailers, and designated parking spaces for workers. The construction staging area for the Influent Connector Piping would be approximately 32,000 square feet and located adjacent to the west side of the current WWTP facilities and southern parking lot (See Figure 3.2-7). As individual facilities are completed, these areas may be reassigned and/or re-designated as necessary to accommodate increases/decreases in activity. Driveway entrances with security gates would be installed to enhance the safety of the public and prevent unauthorized access.

Equipment activity would include a range of trucks and excavators necessary to: remove and transport waste from the site; clearing and preparation; haul-in and spreading gravel; install construction trailers; provide sewer, water and drainage facilities; and construct site fencing. Construction activities in general create unsightly views to surrounding viewers, from construction equipment and debris, obstruction of views by machinery, reduced or hazardous pedestrian and vehicle access, and other visually negative impacts. These impacts could occur during construction of the above mentioned proposed Project elements, which would involve multiple phases with overlapping schedules and would be estimated to occur over multiple years. However, this will be temporary and will last only for the construction period. Upon completion of work all construction equipment, materials, and personnel no longer essential to the Project will be demobilized.

Operation Phase

An overview of these facilities, once constructed, and their visual impact from different vantage points are shown in Photos 9 through 11. As shown in photo 10, the structure housing the RLS would extend approximately 10 feet above grade and approximately 88 feet below grade, resulting in a low profile. The footprint of the RLS structure would occupy approximately 2,800 square feet with a width of 44 to 50 feet and length of 65 to 75 feet. Piping from the RLS to the Headworks would be located underground and not visible until it enters the Headworks. The Flow Splitter Shaft and the RLS Shaft could be adjacent to each other forming a figure eight or they could be separate shafts with a connection made near the bottom to connect the Flow Splitter Shaft to the pumping shaft. It is anticipated that the design of the final configuration will be determined after EIR certification and SVCW begins to implement the Project. The Headworks structure would extend approximately 10 feet below grade and 38 feet above grade, and its height would not exceed the height of the existing FFRs at the main treatment plant. Associated odor control and electrical facilities, including fans, generators and other similar infrastructure, would be housed immediately adjacent to the Headworks facility. The FDS would be an uncovered cast-in-place rectangular concrete tank. The FDS is anticipated to be approximately 11 feet above the ground surface, and the invert of the structure is anticipated to be an average of 15 feet below the ground surface.

Actual improvements are currently being defined, but one potential solution, evaluated in the EIR at a ‘programmatic’ or conceptual level, to comply with upcoming nutrient removal requirements would be to construct two, 125-foot diameter Secondary Clarifiers in the existing 10-acre ornamental pond. Areas south of the FDS and around the RLS, and Headworks would be paved with AC pavement and approximately 170,000 square feet of AC paving is anticipated. Recycled water would not be pumped into the 10-acre pond following construction of the WWTP improvements. Improvements for nutrient removal and secondary clarification will be subject to future supplemental project-level environmental review, as discussed in *Section 1.0 Introduction*, at the time detailed plans are available.

The new structures at the Front of the Plant area would be accompanied by various civil improvements such as setting the site elevations to allow access to new facilities and for proper drainage; storm drainage improvements to prevent site flooding; driveway and roadway improvements to create safe vehicle routing; walls and fencing for site securing and screening; and tree planting for further site screening and visual improvements. Some of these design features consistent with Redwood Shores Bayfront Specific Plan Objectives 6.1.2 and 6.4.1 that would reduce the visual impact include the following:

a) A screen wall, 12-feet in height and composed of either CMU block or architectural pre-cast concrete panels would be constructed along the western perimeter of the 10-acre ornamental pond as seen photo 11. The approximate limits of the wall are between the new roadway to be constructed for WWTP and construction trailer access to a new security gate near the RLS. The wall is approximately 650 feet in length and would be grey, brown or tan in color.
b) A rolled curb and adjacent new sidewalk may be constructed from the new security gate to the existing gate to provide both a pedestrian pathway and a visual barrier to better define vehicular travel routing.
c) Approximately 35 trees, 25-30 feet in height are planned adjacent to the screen wall to provide further screening. The trees are anticipated to be spaced every 20 feet (on center) and would be species suitable for the local environment. It is anticipated, however, that the landscape planting will take 5-10 years to establish to the simulation shown in photo 11, depending on the size of the trees at planting and the particular species selected. The artist rendering show views with the initial planting of these tress and how it would look once the trees are grown and mature (Photos 11 through 14).
d) <u>Photos 14A and 14B are photo-simulations depicting potential improvements to the 5-acre pond. Photo 14A includes potential pipe outfall locations, islands, and parking/viewing areas. The islands shown are placeholders at this time, with actual location to be coordinated with a biologist. Photo 14B shows potential bird viewing areas.</u>

These improvements will result in a new permanent change to the configuration of the entrance to the SVCW treatment plant. The existing parking area and access drive would be replaced by the road constructed between the two ornamental ponds, and a new parking area would ultimately be constructed along the northern portion of the larger of the two ornamental ponds. Although the visual quality of the site would change with the proposed Project, and facilities would be visible from certain vantage points, proposed structures would be screened to integrate with the existing landscape (as discussed above). The facility would be surrounded by vegetation, fencing, and walls to screen views of the site and to integrate it with the existing landscape. The Project design features listed above will reduce the impact to a less than significant level.

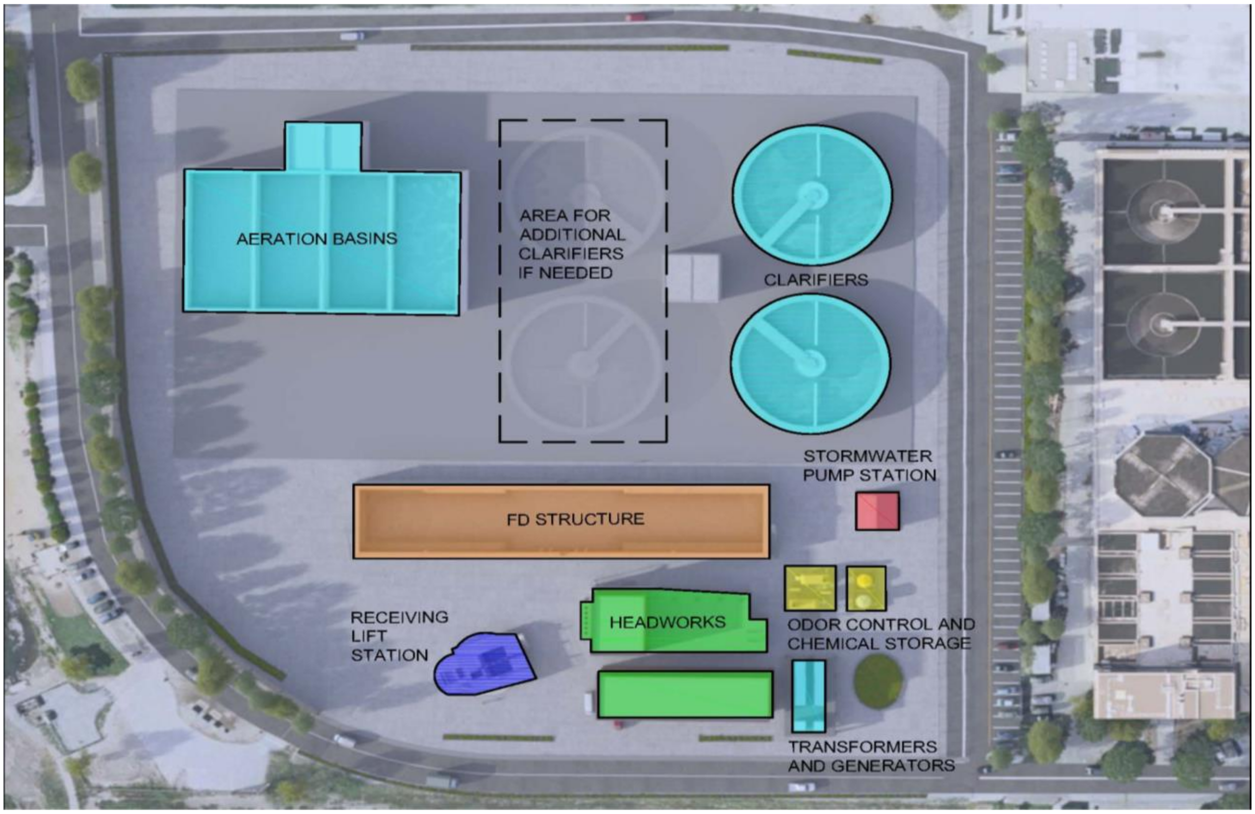


Photo 9 – Conceptual site plan of the proposed WWTP facilities (artist rendering)

Photo 10 – Artist rendering view of the proposed WWTP facilities from the air (southerly direction) (artist rendering)

Photo 11: Initial View of the WWTP facilities from Dog Park Parking Lot (artist rendering)

Photo 12: View of the WWTP facilities from Dog Park Parking Lot –with future mature trees (artist rendering)

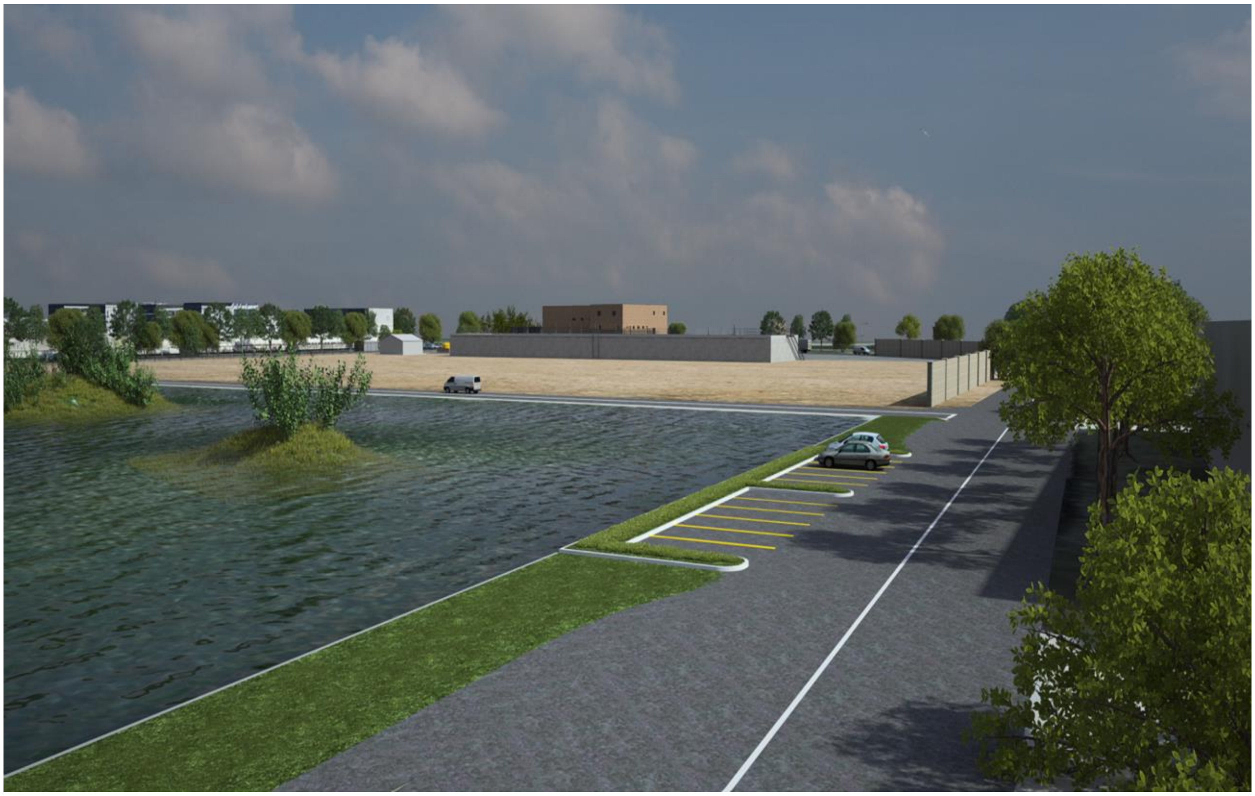


Photo 13: Initial View of the WWTP facilities from Office Building (artist rendering)

Photo 14: View of the WWTP facilities from Office Building – with future mature trees (artist rendering)

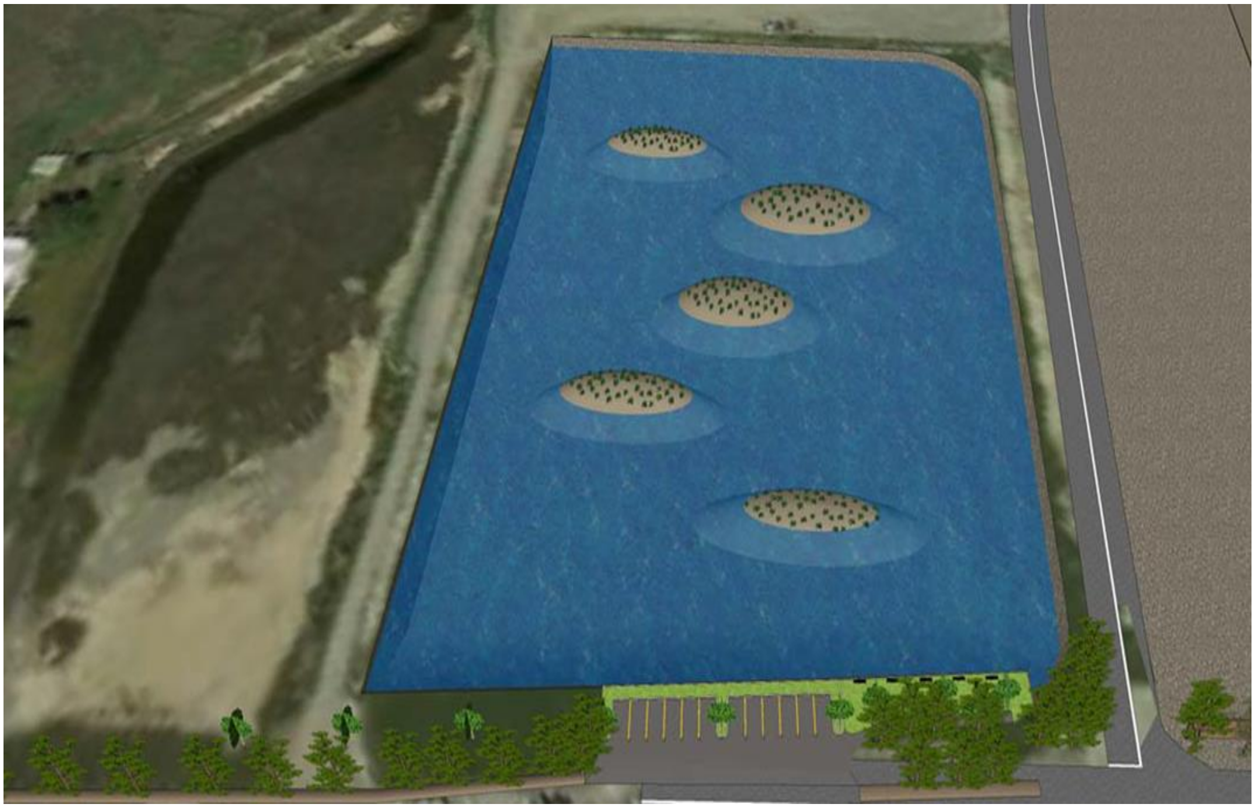


Photo 14A: Photo-simulation of potential 5 acre pond enhancements

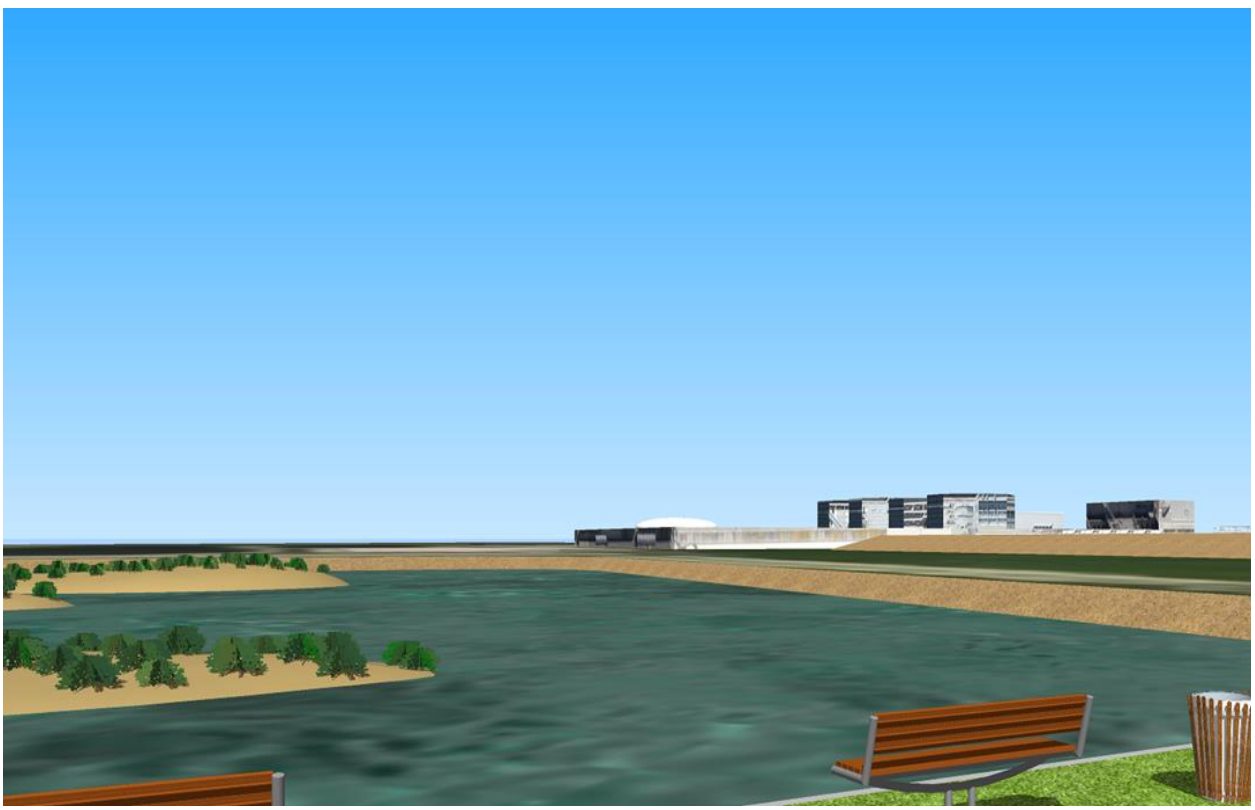


Photo 14B: Photo-simulation of potential public Bird Viewing Area

Belmont Conveyance System Improvements

The main activities taking place at the Belmont Pump Station site are rehabilitation of the force mains and the pump station building, replacement of the three existing pumps at the site and upgrading all internal piping, all electrical and controls components, and updating site security within the Belmont Pump Station to current SVCW standards at the time of construction. The rehabilitation of the 24-inch diameter force main and sliplining 54-inch diameter force main is mostly occurring underground with surface disturbance limited to the three access pits (each approximately 15 feet wide by 15 feet long) and two slipline insertion pits (40 feet long by 15 feet wide) and one slipline pull pit (20 feet long by 20 feet wide). Excavation at the access pits and slipline pit sites, including the open cut portion between a CIPP pit and slipline insertion pit, would create noticeable but temporary physical changes to those areas during construction. Furthermore, approximately 1,000 square feet of space at the surface would be needed around each access pit to support the CIPP installation and curing process, but this area would not require any ground disturbance. Six construction staging areas are included for the pump station rehabilitation and force mains rehabilitation; two of which are at the existing Belmont Pump Station and San Carlos Pump Station sites. Four other construction staging areas are proposed at: 1) a rectangular parcel on the Springfield Suite property in San Carlos, 2) at the Belmont 'tee' area, 3) at the northeast end of Sem Lane right-of-way in Belmont, and 4) within Caltrans right-of-way between Shoreway Road and the U.S. 101/Holly street interchange in San Carlos (Figure 3.2-8). Construction staging would include construction trailers, storage of pump station equipment, laydown areas for pipe segments, storage of construction equipment and similar activities. These changes would be temporary and the construction crews and equipment would be demobilized as soon as the work is completed and the sites would be restored to their preconstruction condition.

Most of the rehabilitation and replacement at the Belmont Pump Station is expected to occur within the existing Project site or immediate Project vicinity and these changes would be consistent with the existing materials and visual character of the building. As a result, the proposed improvements or upgrades at the Belmont Pump Station would not adversely degrade the existing visual character or quality of the sites and the surroundings during the operations phase.

San Carlos Pump Station Repurposing

Activities taking place at the San Carlos Pump Station include improvements at the pump station to allow Belmont and San Carlos flows to connect to the proposed Gravity Pipeline and house a new Odor Control Facility at the site. External improvements at the San Carlos Pump Station include installation of pipe to connect the existing force main to the new Gravity Pipeline using open trench construction, as well as construction of several structures in developed areas to combine pipeline flows and house flowmeters and sampling structures. A 20-foot diameter shaft would be constructed at the front of the existing San Carlos Pump Station which would house the drop structure shaft. An access lid would be installed at the top of the drop structure, flushed with the finished surface. The staging areas for the Belmont Conveyance System Improvements would be utilized for the San Carlos Pump Station component as well, with the exception of the US 101/Holly St Area. Part of the Airport Access Shaft staging area would be available for staging as well. The San Carlos Pump Station staging area used for the shaft construction would use a portion of the San Carlos Pump Station property and adjacent parking lot, and would cover a total of 0.7-acres, which includes the

0.5-acre San Carlos Pump Station property and 0.2-acre in the adjacent Monte Vista Street right-of-way.

As the San Carlos Pump Station is no longer needed for pumping, the building would re-purposed to house the odor control equipment. The equipment will be installed on the ground level floor of the pump station. Prior to installing the new odor control equipment, the existing equipment would need to be removed, including large wastewater pumps, small chemical metering pumps, chemical storage tanks, air handling fans, electrical MCCs, and other miscellaneous equipment, piping and conduit. In addition, interior walls would need to be removed, new walls erected, floor openings sealed, the roof modified to accommodate odor scrubber vent stacks, and new doors installed to provide access to the equipment. Renovations to the building may also include updates to meet the latest codes and cosmetic updates to the building exterior, which would be addressed during detailed design. All of these improvements and activities are taking place within the pump station site and would be similar in character to the existing visual environment at the site. Therefore, impacts to visual or aesthetic character would be less than significant.

Redwood City Pump Station Replacement

Activities taking place at the Redwood City Pump Station include a new pump station that would be constructed adjacent to and to the west of the existing Redwood City Pump Station building and some above grade improvements including installation of surge control tanks, screening building, chemical storage facility, fuel tank, security lighting and fencing, and seismic upgrades and other improvements. The existing Redwood City Pump Station building would remain on the site and be repurposed to house new equipment needed for the long-term operation of the new pump station. A second access to the building through the Redwood City Police Station would be provided as part of the Project. The Redwood City Pump Station would include three staging areas as listed in Table 3.2-3. Construction staging would include construction trailers, storage of pump station equipment, laydown for pipe segments, storage of construction equipment and similar activities. These changes would be temporary and the construction crews and equipment would be demobilized as soon as the work is completed, and the sites would be restored to their preconstruction condition. The proposed upgrades or improvements would occur substantially within the existing boundaries of or immediately adjacent to the existing facilities. Moreover, the new improvements would be substantially similar in appearance and character to the existing structures and are thus not likely to detract from existing visual resource values. No direct modifications to the exterior of the building are planned unless required to do so for seismic upgrades. Therefore, the impacts to the visual character of the area would be less than significant.

Menlo Park Pump Station Rehabilitation

Activities taking place at the Menlo Park Pump Station include above-grade improvements which include seismic upgrades, a new 18-inch perimeter wall and access ramps for flood protection, onsite stormwater management, new security fencing and lighting, landscaping, new vacuum relief valves, a new odor control system, and an upgraded HVAC system. In addition, five new pumps and their ancillary equipment would be installed below grade. The proposed improvements, with the exception of the flow meter and flood protection wall, would be located within the existing Menlo Park Pump Station building. The Menlo Park Pump Station would include two staging areas (see Table 3.2-4). Construction staging would include construction trailers, storage of pump station equipment, laydown areas for pipe segments, storage of construction equipment and similar activities. These changes would be temporary, and the construction crews and equipment would be demobilized as soon as the work is completed and the sites would be restored to their preconstruction condition. The proposed improvements would be visually consistent with the character of the existing site and surrounding areas, and would not block existing viewsheds. Therefore, impacts to the visual character of the area would be less than significant.

Launch-Shaft Sites and Gravity Pipeline

Launch Shaft Sites – The shaft sites would undergo noticeable physical changes during construction. Initially, the staging area would be cleared of vegetation, fenced and covered with a surface layer of base rock to provide a working surface for construction activities. There would be equipment activity during the construction phase, which may include a range of trucks and excavators and materials needed for the construction of the shaft. These would be stored on the respective sites until needed.

The Airport Access Shaft, depending on the construction method, would be approximately 35 feet in diameter and the bottom of the shaft would be approximately 47 feet below the ground surface. The Flow Splitter Shaft and the RLS Shaft could be adjacent to each other forming a figure eight or they could be separate shafts with a connection made near the bottom. The San Carlos Drop Shaft would be a 20-foot diameter shaft constructed within the existing San Carlos Pump Station property and located in front of the existing San Carlos Pump Station building which would house the drop structure. The Bair Island Inlet Structure would be a rectangular shaft with horizontal dimensions of approximately 20 feet by 60 feet. It is anticipated that up to four air handling pipes with diameters up to 18 inches each may be needed at the Bair Island Inlet Structure. Each would emerge up to six feet out of the ground, and would be enclosed on all sides by a six-foot-tall fence, possibly chain link. All air handling piping would be located in a locked secure area and designed for minimal aesthetic disruption. .

Once installation of the Gravity Pipeline is complete, the construction crews and equipment would be demobilized and the sites would be restored to their preconstruction condition. The only permanent features that would remain above-grade during operations are the at-grade shaft covers and the Bair Island Inlet Structure air handling piping and associated fencing. Visibility of this above-grade structures at the respective shaft locations would be limited to the immediate area and would not degrade the visual character of the Project area.

Gravity Pipeline - The Gravity Pipeline component would be located primarily below ground and therefore, will have limited to no impact on the visual character of the area during operations phase. Therefore, the physical changes associated with construction phase would be temporary and thus would not have a significant impact on the visual quality of the surroundings. No impact is anticipated during the operational phase.

4.1.3.4 *Impacts to Scenic Vistas/ Resources*

The Project area is relatively flat and prominent viewpoints, other than buildings and distant hillsides, are limited from adjacent areas onto the site. The Project sites, in particular, have minimal scenic views due to the existing built environment, and no designated scenic vistas or resources are located in the Project vicinity.

Based on site assessments, the tree removal required for the Project would be minimal and consist primarily of non-native vegetation. Up to eight trees are anticipated to be removed for the Gravity Pipeline, up to 22 trees are anticipated to be removed for the WWTP Improvements Project, and one tree would be removed for the Redwood City Pump Station Project, all of which are covered by the City of Redwood City Tree Ordinance. The Belmont Pump Station Project is anticipated to require removal of up to six trees, all of which meet the thresholds established by the City of Belmont Tree Ordinance. The San Carlos Pump Station Project would require the removal of up to 21 trees, seven of which meet the thresholds established by the City Tree Ordinance. The Menlo Park Pump station Project would require removal of up to 29 trees, 17 of which meet the thresholds established by the City's Tree Ordinance, and would require substantial pruning of three trees also meeting the thresholds established by the City's Tree Ordinance. Table 4.1-1 below provides a summary of tree removal by Project component. Since most of these trees are invasive and because they are not scenic resources or part of a scenic view, they would not constitute a scenic resource.

Table 4.1-1:
Summary of Tree Removal by Project Component

City	Number of trees suveyed	Number of trees meeting Tree Ordinance Thresholds	Number of trees to be removed not meeting Tree Ordinance Thresholds	Number of trees trimmed meeting Tree Ordinance Thresholds
Belmont Force Main Improvements	10	6	0	0
San Carlos Pump Station Repurposing	32	7	14	0
Redwood City Pump Station	1	1	0	0
Airport Access Shaft	11	8	0	0
WWTP Improvements	101	22	0	0
Menlo Park Pump Station	34	17	12	3

Source: WRA, October 2016

Tree removal is not expected as part of the remaining components of the proposed Project. Implementation of the Project would not significantly diminish any scenic vistas in the Project area or damage any designated scenic resources, because there are limited views and no scenic resources in the Project area that would be affected by the Project, such as undeveloped baylands and open water sloughs. Impacts to the scenic vistas or resources will be minimized to a less than significant level by the low profile of planned Project facilities, screening structures, and coverage provided by trees proposed between the proposed Project improvements and scenic resources.

The Gravity Pipeline infrastructure would mostly be below-grade and therefore, will have limited to no impact on scenic viewplanes and resources.

4.1.3.5 *Light and Glare Impacts*

<u>Construction Phase</u>

The proposed Project proposes the installation of outdoor, temporary lighting during construction. Night lighting during construction, if needed, will average 25-foot-candles. The amount of lighting needed at the Airport Access Shaft will be the greatest since there will be two 10-hour shifts Monday through Saturday working for more than a year. The lighting needs at the San Carlos Drop Shaft and Bair Island Inlet Structure would be limited to specific construction activities that would require a night time shut down of airport operations (for example - limited nights of large crane work for shaft construction). Since night-time lighting could adversely affect motorists on U.S. 101 or adjacent roadways and distract pilots (as some of the Project components are within runway protection zones), lighting used for the night work shall be of the "down" style similar to PowerMoon as shown in Photo 15 below.[11] SVCW will coordinate closely with the airport staff and get all the necessary Airport Land Use Committee (ALUC) and/or FAA approvals to minimize lighting impacts. Furthermore, since night-time lighting would be temporary and limited to active construction areas during the night hours, the proposed Project would not create a substantial new source of light or glare that could adversely affect nighttime view in the area.

The pump stations would be fitted with LED light and illuminate to a level equivalent to existing lighting. These lights would be directed downward and oriented so that lights would not directly be visible from nearby residences, or located on the sides of the buildings away from nearby residents, to minimize light and glare effects.

Given the design features, potential impacts related to light and glare are expected to be less than significant. In summary, the construction phase of the Project is temporary; while in the short-term it would alter the visual environment, it would not substantially degrade the overall visual character or quality of the Project area.

[11] Burnworth Bruce, SVCW. *Email Communication*. May 5, 2016.

Photo 15: PowerMoon Lighting. Lighting similar to this would be used for nighttime lighting in airport safety zones.

<u>Operational Phase</u>

Following construction, there would be no lighting on the staging areas. Lighting at the WWTP and the pump stations would not be significantly different that the existing lighting at these Project components. Consistent with Redwood Shores Bayfront Specific Plan Objective 6.2.1, general lighting for the Front of the Plant area for parking and driveways/drive aisles and security lighting would consist of LED lighting and will vary between 0.5 to 2.0 foot-candles. The RLS and Headworks working decks would be provided with diffused LED down-lighting, averaging 25-foot-candles.[12] All the lighting used would be down-lighting as shown in Photo 15 above and would not add a new source of light or glare to the nearby residences. Therefore, the impact would be less than significant.

4.1.4 <u>Conclusion</u>

With implementation of the identified Project design features, the Project would not result in any significant visual or aesthetic impacts. **[Less Than Significant Impact]**

[12] Bryan, William. SVCW. *Email Communication*. April 22, 2016

4.2 AGRICULTURE AND FORESTRY RESOURCES

4.2.1 Regulatory Setting

4.2.1.1 *Federal*

Farmland Protection Act

The Farmland Protection and Policy Act seeks to minimize impacts on farmland and maximize compatibility with state and local farmland programs and policies. The Natural Resources Conservation Service of the U.S. Department of Agriculture oversees this act.

4.2.1.2 *State and Regional*

California Department of Conservation

The California Department of Conservation (DOC), under the Division of Land Resource Protection, has set up the Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the state's farmlands to and from agricultural uses. The map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The FMMP also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The FMMP sets standards and relies upon information from National Resource Conservation Service (NRCS) soil surveys, NRCS land inventory and monitoring criteria, and land use and water availability. While the FMMP provides an informational service, it does not constitute state regulation of local land use decisions.

The DOC also has certain responsibilities regarding the Williamson Act, especially when the use of land subject to a Williamson Act contract is changed or a contract is to be cancelled.[13] If the land is proposed to be transferred to a public agency, or if the land is to be used for public improvements, the DOC reviews the proposal to determine its consistency with the purposes of the Williamson Act and its effect on agricultural land.

Board of Forestry and Fire Protection

The Board of Forestry and Fire Protection is a government-appointed body within the Department of Forestry and Fire Protection (CAL FIRE). It is responsible for developing the general forest policy of the state, for determining the guidance policies of CAL FIRE, and for representing the state's interest in federal forestland in California. Together, the Board and CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the state's unique forest and wildland resources.

The Board is charged with protecting the forest resources of all the wildland areas of California that are not under federal jurisdiction. These resources include major commercial and non-commercial stands of timber, areas reserved for parks and recreation, the woodland, brush-range watersheds, and all such lands in private and state ownership that contribute to California's forest resource wealth.

13 The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use in exchange for property tax benefits.

4.2.1.3 *Local*

The cities of Redwood City, San Carlos, Belmont, and Menlo Park General Plans do not identify any agriculture and forest resources within their jurisdictions; therefore, there are no local applicable plans or policies relating to agriculture and forest resources for the proposed Project.

4.2.2 Existing Conditions

According to the San Mateo County Important Farmland 2010 Map, the pump station locations and the Gravity Pipeline alignment are not classified as farmland, are not currently being farmed, and are not located near any current agricultural resources. Similarly, none of the pump station sites or the Gravity Pipeline alignment are subject to a Williamson Act contract. The Project area is not classified as Timberland Production, is not being used for timberland, and is not located near any forest land.

4.2.3 Agricultural and Forestry Resource Impacts

4.2.3.1 *Thresholds of Significance*

For the purposes of this EIR, a mineral resource impact is considered significant if the Project would:

- 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;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- Result in a loss of forest land or conversion of forest land to non-forest use; or
- 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.

4.2.3.2 *Agricultural and Forestry Impacts*

As described above, there is no active or designated farmland or forest land on or adjacent to the Project area. The proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract. The Project area is not adjacent to other farmland and would not interfere with other agricultural operations. The Project area is not a forest resource, nor is there forest land in the vicinity. For these reasons, the proposed Project would not result in any impact to agricultural or forest resources.

4.2.3.3 *Consistency with Plans*

The General Plans of Redwood City, San Carlos, Belmont, and Menlo Park do not identify agricultural or forestry lands in each City and do not contain policies related to agricultural and forestry resources. Additionally, the federal and state policies related to agricultural and forestry resources are not applicable to the proposed Project. For these reasons, the proposed Project would not result in any impact to agricultural or forest resources.

4.2.4 Conclusion

Implementation of the proposed Project would not result in adverse impacts to agricultural or forest resources. **[No Impact]**

4.3 AIR QUALITY

The following discussion is based, in part, on an air quality analysis prepared by *Illingworth & Rodkin* in November 2016. The report is provided in Appendix B of this report.

4.3.1 Regulatory Setting

Federal, state, and regional agencies regulate air quality in the Bay Area Air Basin. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the Federal CAA. The California Air Resources Board (CARB) is the state agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California CAA. The primary agency that regulates air quality in the Project area is the Bay Area Air Quality Management District (BAAQMD). The BAAQMD has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and develops regulations that must be consistent with, or more stringent than, federal and state air quality laws and regulations.

4.3.1.1 *Federal*

Federal Clean Air Act

The Federal CAA was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971 the United States Environmental Protection Agency (USEPA) developed primary and secondary National Ambient Air Quality Standards (NAAQS). The primary NAAQS must "protect the public health with an adequate margin of safety" and the secondary standards must "protect the public welfare from known or anticipated adverse effects (aesthetics, crops, architecture, etc.)". The primary standards were established, with a margin of safety, considering long-term exposures to the most sensitive groups in the general population. The EPA allows states the option to develop different (stricter) standards. California elected this option and adopted standards that are more stringent.

The Federal CAA requires CARB, based on air quality monitoring data, to designate portions of the state where the NAAQS are not met as "nonattainment areas." Because of the differences between the national and state ambient air quality standards, the designation of nonattainment areas is different under the federal and state legislation. Areas that meet the air quality standards are considered to be in attainment of the standards. Areas where there is no monitoring data available or insufficient data to classify them are considered unclassified, which for regulatory purposes are treated as attainment areas.

The Bay Area as a whole does not meet NAAQS for ozone. The EPA has classified the region as marginal nonattainment for 2008 8-hour ozone NAAQS. New designations for the 2015 standard will not be made until 2017. On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key State Implementation Plan (SIP) requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA through CARB, and EPA approves the proposed redesignation. The EPA requires states that have areas that are not in compliance with the national standards to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the SIPs.

4.3.1.2 *Federal General Conformity*

Because SVCW plans to seek SWRCB State Revolving Funds (SRF), which include federal monies, a federal action will be required to approve the Project, and the Federal CAA conformity requirements will apply to the Project. As part of the SIP, California has incorporated the federal General Conformity Rule. The EPA's Conformity Rule, as promulgated in 40 CFR Part 93 Subpart B, and 40 CFR Part 51, Subpart W, implements the conformity requirements of Section 176(c) of the 1990 Amendments to the Federal CAA. Conformity to the SIP is defined in the CAA as requiring all federal agencies to ensure that any agency activity conforms to an approved SIP in nonattainment or maintenance areas. Compliance with the SIP assists in eliminating or reducing the number of violations of the NAAQS, which expedites attainment of the standards. The General Conformity Rule requires that the total of direct and indirect emissions of nonattainment or maintenance area criteria pollutants, including ozone precursors (reactive organic gases and nitrogen oxides) and $PM_{2.5}$ precursors (sulfur dioxide, nitrogen dioxide, and reactive organic compounds or ammonia) be considered in determining conformity.

If a federal action is to take place in a nonattainment or maintenance area, it is subject to a General Conformity evaluation. This determination can take one of three forms: (1) If the action meets certain criteria, it may be specifically exempted, regardless of whether the action would emit pollutants of concern; (2) if the action is determined to emit pollutants below specified de minimis thresholds and the potential emission levels are not regionally significant (less than 10 percent of the region's emissions for a particular pollutant), the action can be assumed to conform with the SIP; and (3) for actions that do not fall under either of these two categories, a complete conformity determination must be made. Specifics of this process are listed in 40 CFR 93, Subpart B.

The General Conformity analysis applies only to projects in a federal nonattainment area or an attainment area subject to a maintenance plan and applies to those pollutants that the area has been designated as nonattainment or maintenance. As described above, the Bay Area has been designated nonattainment for ozone and $PM_{2.5}$. The area is also considered as maintenance for carbon monoxide, so the General Conformity requirements also apply to that pollutant.

4.3.1.3 *State and Regional*

California Clean Air Act

The California CAA outlines a program for areas in the state to attain the California ambient air quality standards by the earliest practical date. The California CAA sets more stringent air quality standards for most of the pollutants covered under national standards, and additionally regulates other pollutants. If an area does not meet the California ambient air quality standards, the CARB designates the area as a nonattainment area. With respect to the state air quality standards, the Bay Area is a nonattainment area for ozone and particulate matter (PM_{10} and $PM_{2.5}$), and either attainment or unclassified for other pollutants. The California CAA requires local air pollution control districts to prepare air quality attainment plans for pollutants, except for particulate matter, that are not in attainment with the state standards. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of "all feasible measures on an expeditious schedule." Air quality plans are not required for particulate matter.

Bay Area Air Quality Management District

The BAAQMD is primarily responsible for ensuring that the national and State ambient air quality standards are attained and maintained in the Bay Area. Air quality in the Project region is regulated by the BAAQMD. The BAAQMD regulates stationary sources (with respect to federal, state, and local regulations), monitors regional air pollutant levels (including measurement of toxic air contaminants), develops air quality control strategies, and conducts public awareness programs.

Regional Clean Air Plans

To protect public health, the BAAQMD has adopted plans to achieve ambient air quality standards. The BAAQMD must continuously monitor its progress in implementing attainment plans and must periodically report to CARB and the U.S. EPA. It must also periodically revise its attainment plans to reflect new conditions and requirements.

The plans are meant to demonstrate progress toward meeting the more stringent 1-hour ozone California ambient air quality standards. In 2010, the BAAQMD adopted the Bay Area 2010 Clean Air Plan. Unlike previous Bay Area Clean Air Plans, the 2010 Clean Air Plan is a multi-pollutant air quality plan addressing four categories of air pollutants:

- Ground-level ozone and the key ozone precursor pollutants (reactive organic gases and NOx), as required by state law.
- Particulate matter, primarily PM2.5, as well as the precursors to secondary PM2.5.
- Toxic air contaminants.
- Greenhouse gases (GHGs).

The BAAQMD has also developed CEQA Air Quality Guidelines that establish significance thresholds for evaluating new projects and plans and provide guidance for evaluating air quality impacts of projects and plans (BAAQMD, 2011). The Air Quality Guidelines provide procedures and significance thresholds for evaluating potential construction-related impacts during the environmental review process consistent with CEQA requirements. The Air Quality Guidelines also address operation-related impacts.

4.3.1.4 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the WBSD (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

Redwood City General Plan

The Public Safety (PS) Element of the Redwood City General Plan (October 2010) includes the following goals, policies, and programs related to air quality and the Project:

Goal PS-1. Maintain good local air quality, and reduce the local contributions of airborne pollutants to the air basin.

> Policy PS-1.5. Require projects that generate potentially significant levels of air pollutants to incorporate the most effective air quality mitigation into project design, as feasible.

Program PS-2. Adopt and enforce dust and emission abatement measures for construction activities based on the BAAQMD's guidelines and other appropriate regulations.

Belmont General Plan

The City of Belmont is currently updating the General Plan. The current General Plan is dated 1982. At the time of EIR preparation, the update to the General Plan had not been adopted, so the 1982 General Plan is the most relevant plan. This General Plan does not include policies that apply to the Project.

San Carlos General Plan

The Environmental Management (EM) Element of the City of San Carlos 2030 General Plan (October 2009) includes the following goals, policies, and actions related to air quality and the Project:

Goal EM-6. Support atmospheric conditions that are clean, healthful, provide maximum visibility and meet air quality standards.

> Policy EM-6.1. Support and comply with the BAAQMD, state and federal standards and policies that improve air quality in the Bay Area.
>
> Policy EM-6.3. Support the reduction of emissions of particulates from wood burning appliances, construction activity, automobiles, trucks and other sources.
>
> Policy EM-6.6. BAAQMD recommended measures to reduce PM_{10} and exhaust emissions associated with construction shall be applied to new development in San Carlos.

Menlo Park General Plan

The City of Menlo Park Open Space, Conservation, Noise and Safety Elements (May 2013) contains goals to reduce air pollutant emissions.

> Goal OSC5. Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.

4.3.2 Environmental Setting

4.3.2.1 *Local Climate and Air Quality*

The air quality in a given area depends on the sources of air pollution in the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of a pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population.

The Project is located in Redwood City, Belmont, San Carlos, and Menlo Park in the peninsula region of the Bay Area. The peninsula region of the Bay Area extends from the area northwest of San Jose to the Golden Gate.

Air pollution potential is highest along the southeastern portion of the peninsula because this area is most protected from the high winds and fog of the marine layer, the emission density is relatively high, and pollutant transport from upwind sites is possible. In San Francisco, to the north, pollutant emissions are high, but winds are generally fast enough to carry the pollutants away before they can accumulate.

4.3.2.2 *Criteria Air Pollutants*

The Federal and California CAAs have established ambient air quality standards for common pollutants. The ambient air quality standards are intended to protect human health and welfare. At the federal level, NAAQS have been established for criteria pollutants. These criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter with a diameter less than 10 microns (PM_{10}), fine particulate matter with a diameter less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), and lead.

California has adopted ambient air quality standards which are, in general, more stringent than NAAQS, and include other pollutants not regulated at the federal level (sulfates, hydrogen sulfide, and vinyl chloride). National and state ambient air quality standards are shown in Table 4.3-1. Both the national and state ambient air quality standards have been adopted by BAAQMD.

Ambient concentrations of criteria pollutants are monitored in the Bay Area Air Basin by the BAAQMD. The closest BAAQMD monitoring station to the Project area is located in Redwood City. Table 4.3-1 includes a summary of the historical occurrences of pollutant concentrations measured above the ambient air quality standards in Bay Area for the three-year period from 2013 through 2015. Both the state 1-hour and 8-hour and national 8-hour standards were exceeded for ozone, and the national 24-hr standard was exceeded once for $PM_{2.5}$ over the last three years as shown in Table 4.3-1.

Table 4.3-1:
State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Bay Area (2013 – 2015)

Pollutant	Averaging Period	Standard	Days Exceeding Standard[1]		
			2013	**2014**	**2015**
Ozone	State 1-hour	0.09 ppm	3	3	**7**
	National 8-hour	0.070 ppm	3	5	**12**
	State 8-hour	0.070 ppm	3	10	**12**
Carbon Monoxide	State 1-hour	20 ppm	0	0	0
	National 1-hour	35 ppm	0	0	0
	State 8-hour	9 ppm	0	0	0
	Federal 8-hour	9.0 ppm	0	0	0
Nitrogen Dioxide	State 1-hour	0.18 ppm	0	0	0
	National 1-hour	0.100 ppm	0	0	0
	State Annual	0.03 ppm	0	0	0
	National Annual	0.053 ppm	0	0	0
Sulfur Dioxide	State 1-hour	0.25 ppm	0	0	0
	National 1-hour	0.75 ppm	0	0	0
	State 24-hour	0.04 ppm	0	0	0
	National 24-hour	0.14 ppm	0	0	0
	National Annual	0.030 ppm	0	0	0
Respirable Particulate Matter (PM_{10})	State 24-hr	50 µg/m^3	6	2	1
	National 24-hr	150 µg/m^3	0	0	0
	State Annual	20 µg/m^3	1 station	0	1 station
Fine Particulate Matter ($PM_{2.5}$)	National 24-hr	35 µg/m^3	0	3	**9**
	State Annual	12.0 µg/m^3	2 Station	0	0
	National Annual	12 µg/m3	2 Station	0	0

Notes:
[1] Number of measurement days per year. PM10 and PM2.5 are measured every 6th day.
ppm = parts per million, µg/m^3 = micrograms per cubic meter

Source: BAAQMD. *Air Pollutant Summaries*. Available at http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed on June 29, 2016

4.3.2.3 *Toxic Air Contaminants*

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, criteria air pollutants. TACs are commonly found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway).

Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants Program.

CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of diesel particulate matter (DPM). Several of these regulatory programs affect medium and heavy duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles. The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

4.3.2.4 *Sensitive Receptors*

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as "sensitive receptors." Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. Residences are especially sensitive, since they are assumed to include all sensitive receptor types including infants and small children. Land uses surrounding the Project component sites are described below.

Wastewater Treatment Plant

The WWTP facility, located in Redwood Shores is surrounded by residential uses to the west, office and commercial buildings to the northwest, and the Steinberger Slough to the south. The San Francisco Bay forms the site's northeastern and eastern border.

Belmont Pump Station

The Belmont Pump Station is located on a 0.1-acre developed site on the east side of Shoreway Road in the city of Belmont. Land uses surrounding the Belmont Pump Station include commercial/office buildings to the north and a paved trail along the Belmont Creek channel to the east. There is also another trail on the southeast side of the creek channel, an office building with surface parking and industrial buildings beyond. Shoreway Road and U.S. 101 are located to the west and south of the site.

San Carlos Pump Station

The 0.92-acre site is located on the north side of Monte Vista Drive in the city of San Carlos. The site includes the existing 0.48-acre pump station site and a 0.44-acre paved parking lot adjacent to a restaurant building (Izzy's). The San Carlos Pump Station fronts on Monte Vista Drive. Land uses along Monte Vista Drive include commercial buildings that house a hotel (Fairfield Inn & Suites) and the Hiller Aviation Museum.

Redwood City Pump Station

The 0.55-acre developed site is located on the south side of Maple Street in the city of Redwood City. Land uses surrounding the site include commercial, public facility (Redwood City Police Department building and San Mateo County's Women's Jail), and southbound U.S. 101.

Menlo Park Pump Station

The 0.5-acre developed site is located on the north of the intersection of Marsh Road and the Bayfront Expressway in the City of Menlo Park. The building is adjacent to the Menlo Atherton Self Storage Facility to the west and adjacent to the Bedwell Bayfront Park to the north. Haven Avenue forms the southern border and the road leading to Bedwell Bayfront Park forms the eastern border of the site.

Gravity Pipeline Alignment

The 17,600-foot Gravity Pipeline would be aligned between the SVCW WWTP and the north end of Inner Bair Island. The pipeline alignment would primarily be under existing rights-of-way through Redwood Shores and under airport property. The Redwood Shores area surrounding land uses are primarily residential with some commercial uses. Uses surrounding the airport property are primarily commercial uses and the San Carlos Airport.

Inner Bair Island

Inner Bair Island is within the tidal plain of Redwood City, adjacent to the Steinberger Slough. Surrounding land uses include U.S. 101 to the west, and commercial land uses to the south. Portions of Inner Bair Island contain trails used by the public. Part of Inner Bair Island is owned by the San Carlos Airport and is maintained as a safety area for emergency landings.

Airport Access Shaft

The Airport Access Shaft site is currently undeveloped and vacant. The site is bordered by Shoreway Road to the south, a public storage facility, laboratory, gardening supply facility, the Shoreway Environment Center, and the Recology San Mateo County facility to the west. Parking lots associated with commercial uses are to the site's northern and eastern boundaries.

4.3.3 Air Quality Impacts

4.3.3.1 *Thresholds of Significance*

For the purposes of this EIR, an air quality impact is considered significant if the Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- 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);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

BAAQMD CEQA Guidelines provide the following definitions of a significant air quality impact:

- A cumulatively considerable net increase of any criteria pollutant or a precursor to that pollutant for which the Project region is non-attainment under an applicable national or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors). This is judged by comparing direct and indirect Project emissions to the BAAQMD significance thresholds of 54 pounds per day for ROG, NOx, or $PM_{2.5}$, and 82 pounds per day for PM_{10}. Annual significance thresholds are 10 tons per year for ROG, NOx, or $PM_{2.5}$, and 15 tons per year for PM_{10}. Average daily emissions are computed by dividing the amount of emissions per year by the anticipated number of working days. Each year is considered to have 260 working days. For fugitive dust emissions of PM_{10} and $PM_{2.5}$ the BAAQMD requires the use of Best Management Practices to minimize dust emissions.
- A substantial contribution to an existing or projected violation of an ambient air quality standard would result if the Project would cause an exceedance of an ambient air quality standard.
- Expose sensitive receptors or the general public to substantial pollutant concentrations. This is evaluated by assessing the health risk in terms of cancer risk or hazards posed by the placement of new sources of air pollutant emissions near existing sensitive receptors or placement of new sensitive receptors near existing sources.
- Create or expose a substantial number of people to objectionable odors. This is evaluated based on the potential for the Project to generate odors that could affect nearby sensitive receptors in a manner that would cause frequent complaints.
- Conflict with or obstruct implementation of the applicable air quality plan. This is evaluated by comparing the Project effects on projections used in the latest Bay Area Clean Air Plan and evaluating the plan features that would implement Clean Air Plan Transportation Control Measures.

Additionally, in accordance with General Conformity Rule 40 CFR 93.152 of the CAA, the Proposed Project would be considered to have a significant effect if all of the following are applicable:

- The Project is in a nonattainment area for criteria pollutants
- The Project emits criteria pollutants

- The Project's construction or operational emissions are above 50 tons per year for ROG or NOx

4.3.3.2 *Methodology*

CalEEMod

There are several models available for predicting emissions from construction projects. The BAAQMD CEQA Air Quality Guidelines recommend use of California Emissions Estimator Model (CalEEMod), the Roadway Construction Model or computations using CARB's Off-Road Emissions Inventory model for construction equipment and CARB's EMFAC2014 on-road motor vehicle emissions model.

The CalEEMod Version 2013.2.2 was used to predict emissions from construction of the Project. The Project land use types and size, construction schedule, assumptions of construction equipment usage and truck trips, and operational trip generation rate were input to CalEEMod. The modeling effort to predict annual criteria air pollutant emissions was comprised of 12 different model runs. These are listed in Table 4.3-2. The corresponding model outputs along with lists of construction equipment, disturbed ground surface area, duration, and soil hauling volumes for each Project component are included as *Attachment 1* of Appendix B.

Table 4.3-2:
CalEEMod Construction Model Scenarios

Begin Year	Project
2018	Gravity Pipeline - RLS & Flow Splitter Shaft
2018	WWTP Improvements- Headworks Facility[1]
2018	WWTP Improvements - Flow Diversion Facility
2019	Gravity Pipeline - San Carlos Drop Shaft
2019	Gravity Pipeline - Bair Island Inlet Structure
2019	Gravity Pipeline -WWTP and RLS Shaft
2019	San Carlos Pump Station Repurposing (Vault and Pipeline)
2021	Redwood City Pump Station
2021	Menlo Park Pump Station
2022	Belmont Conveyance System (Force Main Rehabilitation)
2022	San Carlos Pump Station Repurposing (Odor Control Facility)
2023	Belmont Conveyance System (Pump Station Rehabilitation)

Notes:

[1] Includes construction of the Influent Connector Pipes Project
WWTP = Wastewater Treatment Plant, RLS = Receiving Lift Station

Source – Illingworth and Rodkin, November 2016

Emissions from the Project would mainly result from on-site off-road equipment and from trucks hauling soil or materials. Exhaust emissions from on-highway trucks (e.g., pickup trucks, dump trucks) are accounted for in the model through the input of soil material to be hauled or the input of actual traffic projections. CalEEMod handles worker trips, vendor trips and haul truck trips with set travel distances. In addition, the model computed emissions from worker trips based on default values.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at existing sensitive receptors (residences) in the vicinity of the Project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects (BAAQMD, 2012). Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources. Construction emissions were modeled as occurring daily between 7:00 AM to 7:00 PM, when the majority of construction activity would occur.

The modeling used a five-year data set (2009 - 2013) of hourly meteorological data from the San Carlos Airport that was prepared for use with the AERMOD model by CARB for use in health risk assessments. Annual DPM and $PM_{2.5}$ concentrations from construction activities between 2017 and 2023 were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 1.5 meters (4.9 feet) were used.

4.3.3.3 *Regional and Localized Air Quality Impacts*

Project-related emissions of pollutants that cause or contribute to exceedances of non-attainment pollutants or their precursors during construction and operation are addressed below.

Construction Emissions

Localized Air Pollutants

Carbon monoxide emissions from construction-related traffic generated by the Project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below state and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. There is an ambient air quality monitoring station in Redwood City that measures carbon monoxide concentrations. The highest measured level over any 8-hour averaging period during the last three years is less than two ppm, compared to the ambient air quality standard of nine ppm. The Project would generate traffic during construction that would emit carbon monoxide. However, BAAQMD screening guidance indicates that projects would have a less than significant impact to carbon monoxide levels if Project traffic projections indicate traffic levels would not increase at any affected intersection to more than 44,000 vehicles per hour. A traffic study for the Project (see Appendix G) indicates that the Project would generate a total daily average of about 91 construction truck trips (assuming 300 days per year) dispersed between four (4) cities: Belmont, Menlo Park, Redwood City, and San Carlos. The busiest years would have an average of up to 286 truck and other construction-related trips per day. Construction traffic at any of the affected intersections is not anticipated to reach 44,000 vehicles per hour, based on existing average daily traffic levels on the surface streets to be used by construction traffic.

Project Emissions

The proposed Project would involve construction and associated activities that would result in temporary increases in air pollutant emissions. These emissions would be generated primarily from construction equipment exhaust, earth disturbance, truck traffic, and construction worker and other construction-related vehicle trips to and from the site. According to the Project implementation schedule, these activities are anticipated to occur between 2017 through 2023.

Emissions for each Project component were computed annually along with total emissions for the entire construction period. In order to compute average daily emissions, the annual emissions were divided by the number of work days per year (96 days in 2017, 260 days in 2018, 260 days in 2019 through 2022, and 140 days in 2023), assuming five-day work weeks. Average daily emissions for the entire construction period were also computed. Average daily emissions are then compared against BAAQMD thresholds. Table 4.3-3 provides a summary of the total, annual, and average daily criteria pollutant emissions from Project construction activities, along with a comparison to the BAAQMD significance thresholds. During the first year of construction, NOx emissions would be *significant*, as they would exceed the average daily threshold of 54 pounds per day during that calendar year. Emissions of all other pollutants are below the BAAQMD and would be below the SIP conformity significance thresholds. Thus, the impact would be potentially significant for construction emissions.

Table 4.3-3:
Annual (tons) and Average Daily Emissions from Construction

Year	Project Description	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2017	FOP Civil Improvements	0.21	2.26	2.20	3.88E-03	0.09	0.08
	Average Daily Pounds (96 days)	4lbs/day	47 lbs/day	46 lbs/day	0lbs/day	2lbs/day	2lbs/day
2018	Gravity Pipeline – RLS & Flow Splitter Shaft	0.14	1.42	1.15	0.00	0.20	0.12
	WWTP Improvements- Headworks Facility*	0.24	2.60	1.90	3.56E-03	0.11	0.10
	WWTP- Flow Diversion Facility	0.32	3.48	2.48	0.00	0.47	0.30
	FOP Civil Improvements	0.01	0.11	0.13	2.30E-04	5.00E-03	4.60E-03
	Sum	0.71 tons	7.61 tons	5.65 tons	0.01 tons	0.79 tons	0.53 tons
	Average Daily pounds (260 days)	5 lbs/day	**59 lbs/day**	43 lbs/day	0 lbs/day	6 lbs/day	4 lbs/day
2019	Gravity Pipeline – RLS & Flow Splitter Shaft	0.13	1.23	1.22	0.00	0.09	0.06
	Gravity Pipeline – San Carlos Drop Shaft	0.04	0.38	0.32	0.00	0.07	0.02
	Gravity Pipeline – Bair Island Inlet Structure	0.11	1.13	0.74	0.00	0.11	0.07
	WWTP Improvements– Headworks Facility*	0.12	1.26	0.84	1.59E-03	0.06	0.06
	WWTP Improvements– Flow Diversion Facility	0.08	0.80	0.79	0.00	0.06	0.04
	WWTP Improvements– RLS Shaft	0.12	0.91	1.41	0.00	0.08	0.04
	FOP Civil Improvements	0.04	0.43	0.50	8.70E-04	0.02	0.02
	San Carlos Pump Station Site Improvements	0.07	0.66	0.78	0.00	0.06	0.03
	Sum	0.71 tons	6.82 tons	6.61 tons	0.01 tons	0.54 tons	0.34 tons

Table 4.3-3: Annual (tons) and Average Daily Emissions from Construction							
Year	**Project Description**	**ROG**	**NOx**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
	Average Daily pounds (260 days)	5 lbs/day	52 lbs/day	51 lbs/day	0 lbs/day	4 lbs/day	3 lbs/day
2020	Gravity Pipeline – San Carlos Drop Shaft	0.04	0.41	0.97	0.00	0.06	0.02
	Gravity Pipeline – Bair Island Inlet Structure	0.05	0.45	0.33	0.00	0.02	0.02
	WWTP Improvements–Headworks Facility*	5.72E-03	0.06	0.04	8.00E-05	2.77E-03	2.56E-03
	WWTP Improvements–RLS Shaft	0.30	2.23	3.94	0.01	0.24	0.12
	Sum	0.39 tons	3.15 tons	5.28 tons	0.01 tons	0.33 tons	0.16 tons
	Average Daily pounds (260 days)	3 lbs/day	24 lbs/day	41 lbs/day	0 lbs/day	3 lbs/day	1 lbs/day
2021	Gravity Pipeline – San Carlos Drop Shaft	0.01	0.06	0.04	0.00	0.01	0.00
	Gravity Pipeline – Bair Island Inlet Structure	0.03	0.33	0.30	0.00	0.03	0.02
	FOP Civil Improvements	0.04	0.38	0.47	7.80E-04	0.02	0.02
	Redwood City Pump Station Replacement	0.57	4.97	6.26	0.01	0.37	0.26
	Menlo Park Pump Station Rehabilitation	0.14	1.18	1.81	0.00	0.12	0.06
	Sum	0.79 tons	6.92 tons	8.88 tons	0.02 tons	0.55 tons	0.36 tons
	Average Daily pounds (260 days)	6 lbs/day	53 lbs/day	68 lbs/day	0 lbs/day	4 lbs/day	3 lbs/day
2022	Redwood City Pump Station Replacement	0.38	3.04	4.37	0.01	0.32	0.18
	Menlo Park Pump Station Rehabilitation	0.21	1.54	2.31	0.00	0.11	0.08
	Belmont Force Main Rehabilitation	0.05	0.47	0.64	0.00	0.07	0.03
	San Carlos Odor Control Facility	0.02	0.18	0.20	0.00	0.04	0.01
	Sum	0.67 tons	5.23 tons	7.53 tons	0.01 tons	0.53 tons	0.30 tons
	Average Daily pounds (260 days)	5 lbs/day	40 lbs/day	58 lbs//day	0 lbs/day	4 lbs/day	2 lbs/day
2023	Redwood City Pump Station Replacement	0.19	1.22	2.00	0.00	0.18	0.10
	Menlo Park Pump Station Rehabilitation	0.04	0.24	0.39	0.00	0.06	0.03
	Belmont Pump Station Rehabilitation	0.03	0.25	0.35	0.00	0.02	0.01
	Sum	0.26 tons	1.70 tons	2.74 tons	0.01 tons	0.26 tons	0.14 tons
	Average Daily pounds (140 days)	4 lbs/day	24 lbs/day	39 lbs/day	0 lbs/day	4 lbs/day	2 lbs/day
	Maximum Annual in tons	0.79	7.61	8.88	0.02	0.79	0.53

Table 4.3-3:
Annual (tons) and Average Daily Emissions from Construction

Year	Project Description	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
	Federal Conformity Threshold	100	100	100			100
	Maximum Annual Average Daily in lbs	6.11	**58.51**	68.27	0.14	6.10	4.06
	BAAQMD Significance Threshold	54	54	--	--	--	54
	Significant?	No	**Yes**	No	No	No	No
	Total in tons	3.54 tons	31.43 tons	36.70 tons	0.07 tons	3.01 tons	1.83 tons
	Average Daily pounds	5 lbs/day	41 lbs/day	47 lbs/day	0 lbs/day	4 lbs/day	2 lbs/day

Notes:
Based on 5-day/week construction from Jan 2018 through Dec 2023 = 1,550 days
PM10 and PM2.5 are exhaust emissions
* Includes construction of the Influent Connector Pipes Project
FOP = Front of the Plant, BAAQMD = Bay Area Air Quality Management District, lbs = pounds, ROG = Reactive Organic Gases, NOx = Nitrogen Oxides, CO = Carbon Monoxide, SO_2 = Sulfur Dioxide, PM_{10} = respirable particulate matter with a diameter less than 10 microns, $PM_{2.5}$ = fine respirable particulate matter with a diameter less than 2.5 microns
Source: Illingworth and Rodkin, November 2016

Impact AIR-1: The proposed Project emissions would exceed the average daily threshold of 54 pounds per day for NOx for calendar year 2018 which is a significant impact.

MM AIR-1: The construction contractor shall implement the following measures at the Project sites:

- Ensure that all construction equipment (including generators) larger than 25 HP and used at the Project site for more than two work days meet, at a minimum, U.S. EPA Tier 2 engine emission standards;
- Ensure that all stationary equipment larger than 25 HP (e.g., generators and hydraulic power packs) meet CARB's most recent certification standard for off-road heavy duty diesel engines;
- Portable diesel-powered equipment (including generators) larger than 25 HP and used at the Project site for more than two work days meet, at a minimum, U.S. EPA Tier 3 engine emission standards for NOx;
- Portable diesel-powered equipment used at the Redwood City Pump Station construction sites for more than two days shall include diesel particulate matter control devices in the form of CARB currently Verified Diesel Emission Control Strategies (VDECS). Available online at http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm;
- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, or as necessary to control dust;
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered;
- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping shall be prohibited;

- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour;
- All paving shall be completed as soon as possible after pipeline replacement work is finished;
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five (5) minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points;
- All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; and
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure MM AIR-1 requires a number of measures that reduce emissions of NOx and exhaust particulates that include PM10 and PM2.5. A subset of these measures was modeled in CalEEMod and those model runs were included in the Appendix of the DEIR (Appendix B). Those model runs only included the effect of requiring the use of Tier 2 equipment. The model results show that the Tier 2 measure alone would reduce the significant NOx emissions from 58.5 pounds per average day to 48.2 pounds per day, which is below the significance threshold of 54 pounds per average day. Additional measures not included in that modeling, such as use of portable equipment that meets U.S. EPA Tier 3 engine emission standards for NOx would reduce these emissions further. Therefore, implementation of these measures would reduce the impact to a less than significant level.

Operational Emissions

The Project, once built and in operation, could include new standby generators and a minor increase in traffic to service the Project sites that would result in operational emissions.

Once installed, many of the new components of the conveyance system are passive (gravity flow) and would not require regularly scheduled equipment operation or generate substantial new vehicle trips that would emit criteria pollutants. Other components would require no new trips or very few new trips. Under full operation of the Project, there would be an increase of 10 truck trips and 12 auto or pickup trips per week – or three to four vehicle trips per day. These trips would result in negligible emission increases; and therefore, those emissions were not computed.

Standby generators are assumed to be powered by diesel engines and operated for up to 50 hours annually for testing and maintenance purposes. As most testing isdone at >50 percent load, it is assumed to be at 100 percent load for this analysis. Emissions associated with diesel generator testing were computed. The engines would be required to meet CARB and U.S. EPA emission standards and consume commercially available California low-sulfur diesel fuel. Emissions from the testing and maintenance of the generators were calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 HP. Results of generator modeling indicate that annual emissions would be less than 0. 1 tons for ROG, PM10, and PM2.5 and less than 0.5 tons for NOx.

Emissions of criteria air pollutants shown in Table 4.3-4 will be below the significance thresholds; and therefore, will have a less-than-significant operational air emissions impact.

Table 4.3-4: Emissions from Generator Operation (50 hours per year)

Generator and Qty.	**Criteria Air Pollutant**			
	ROG	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
	Emissions – tons per year			
Nutrient Removal – Two 1-megawatt generators	0.008	0.331	0.003	0.002
Belmont Pump Station Rehabilitation – One 0.5- megawatt generators	New generators are a smaller replacement of existing generator			
Redwood City Pump Station Replacement One 1.5-megawatt generators	0.006	0.250	0.002	0.002
Menlo Park Pump Station Improvements One 0.5- megawatt generators	New generators are a smaller replacement of existing generator			
Total Project	0.015 tons	0.581 tons	0.005 tons	0.004 tons
BAAQMD Threshold	*10 tons*	*10 tons*	*15 tons*	*10 tons*
	Emissions – average daily in pounds/day			
Total Project	0.08 lb/day	3.18 lb/day	0.02 lb/day	0.02 lb/day
BAAQMD Threshold	*54*	*54*	*82*	*54*
Exceed Threshold?	***No***	***No***	***No***	***No***

Notes:
BAAQMD = Bay Area Air Quality Management District, ROG = Reactive Organic Gases, NOx = Nitrogen Oxides, PM_{10} = respirable particulate matter with a diameter less than 10 microns, $PM_{2.5}$ = fine respirable particulate matter with a diameter less than 2.5 microns.

Source: Illingworth and Rodkin, November 2016

4.3.3.4 *Human Health-Risk Assessment*

The Project would emit air pollutants and TACs during construction and intermittent operation of generators during the operational phase. Sensitive receptors are locations where an identifiable subset of the general population (children, asthmatics, the elderly, and the chronically ill) that is at greater risk than the general population to the effects of air pollutants are likely to be exposed. These locations include residences, schools, playgrounds, childcare centers, retirement homes, hospitals, and medical clinics. Based on the type of emissions from the Project, the types of sensitive receptors that could be affected by the Project would be those where extended periods of TAC exposure could occur. These would include residences, schools, or daycare facilities. Sensitive receptors within 1,000 feet of construction areas were identified as follows:

- SVCW Wastewater Treatment Plant: Residences at Redwood Shores that are 500 feet or further to the west;
- Redwood City Pump Station: Residential boats that are 600 feet or further to the northwest; and

- Belmont Pump Station: Mobile homes that are over 500 feet to the northwest.

All other construction areas were more than 1,000 feet away from sensitive receptors. Staging areas were not considered to have substantial construction emissions that would create significant health risk issues.

Construction Health Risk Assessment

Construction activities occurring for prolonged periods of time that are within 1,000 feet of sensitive receptors (see construction areas identified above) were assessed for community risk impacts in terms of excess cancer risk, annual $PM_{2.5}$ concentrations and hazard index. The primary concern for nearby sensitive receptors would be exposure to diesel emissions from diesel-powered construction equipment and diesel trucks associated with Project construction activities. Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known TAC. Construction exhaust emissions may still pose community risks for sensitive receptors such as nearby residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A description of the methodology used for this analysis is contained in *Attachment 2* of Appendix B.

Single-Source Risk Impacts

Figure 4.3-1 shows the Project construction site for construction activities that would occur at the Front of the Plant expansion area of the SVCW WWTP. Also shown are sensitive receptor (residences) locations used in the air quality dispersion modeling analysis where potential health risk and annual $PM_{2.5}$ impacts were evaluated. MEI, which is the maximally exposed individual receptor, is the location where the maximum Project impact, as used in the model, could occur. Also labeled in the legend of the figure are the predicted modeled cancer risk, annual $PM_{2.5}$ concentration and hazard index associated with Project construction. Health risk impacts are below the significance thresholds, i.e., less than significant, for temporary exposure of nearby residents from construction activities.

Figure 4.3-2 shows the Project construction site for construction activities that would occur at the Redwood City Pump Station. Also shown are sensitive receptor locations used in the air quality dispersion modeling analysis where potential health risk and annual $PM_{2.5}$ impacts were evaluated. Also shown in the figure are the modeled cancer risk, annual $PM_{2.5}$ concentration and hazard index associated with Project construction. Modeled cancer risk, assuming almost continuous infant exposure, would be 12.6 per million. This would exceed the significance threshold of 10 cases per million and would be considered a significant impact unless mitigated. Increased annual concentrations of $PM_{2.5}$ and the resulting hazard index would be below the significance thresholds.

Figure 4.3-3 shows the Project construction site for construction activities that would occur at the Belmont Pump Station. Also shown are sensitive receptor locations used in the air quality dispersion modeling analysis where potential health risk and annual $PM_{2.5}$ impacts were evaluated. Also shown in the figure are the modeled cancer risk, annual $PM_{2.5}$ concentration and hazard index associated with Project construction. Health risk impacts are below the significance thresholds, i.e., less than significant, for temporary exposure of nearby residents from construction activities.

Figure 4.3-1 SVCW Wastewater Treatment Plant Health Risk Modeling Results

MEI = maximum exposed individual, Cancer risk = 3.4 per million, Annual $PM_{2.5}$ = 0.03 µg/m^3, Hazard Index = <0.01

Figure 4.3-2 Redwood City Pump Station Health Risk Modeling Results

MEI = maximum exposed individual, Cancer risk = 12.6 per million, Annual $PM_{2.5}$ = 0.05 µg/m^3, Hazard Index = 0.01

Figure 4.3-3 Belmont Pump Station Health Risk Modeling Results

MEI = maximum exposed individual
Cancer risk = 0.2 per million, Annual $PM_{2.5}$ = <0.01 µg/m^3, Hazard Index = <0.01

<u>Cumulative-Source Risk Impacts</u>

The maximum impact would occur at a sensitive receptor near the Redwood City Pump Station construction site, where uncontrolled construction cancer risk would be 12.6 per million, assuming almost continuous infant exposure. Cumulative risks are shown in Table 4.3-5. The cumulative cancer risk at this location would be 53.5 per million. Cumulative annual $PM_{2.5}$ concentrations would be 0.2µg/m^3 and the cumulative hazard index would be less than 0.1. While uncontrolled construction activities would exceed the single-source community risk thresholds, they would not exceed the cumulative thresholds.

Table 4.3-5: Single and Cumulative Source Health Risk from Project Construction at MEI			
Generator and Qty.	**Excess Cancer Risk***	**Annual PM2.5**	**Hazard Index**
Maximum Uncontrolled Construction Impact - Redwood City Pump Station (see Figure 2)	**12.6**	0.05 µg/m^3	0.01
U.S. 101 traffic at 400 feet, using BAAQMD Google Earth Highway Screening Tool, Link 175, 6ft elevation, 400ft north	22.8	0.14 µg/m^3	0.02
Plant 14874 County of San MateoGenerator at 300 feet located at 1590 Maple Street, using BAAQMD Stationary Source Screening Tool and Diesel IC Engine Distance Multiplier	12.6	<0.01 µg/m^3	<0.01
Plant 14879 County of San Mateo Generator at 300 feet located at 1580 Maple Street, Redwood City, using BAAQMD Stationary Source Screening Tool and Diesel IC Engine Distance Multiplier	0.8	<0.01 µg/m^3	<0.01
Plant 14036 South Bayside System Authority Generator at 300 feet located at 1580 Maple Street, Redwood City, using BAAQMD Stationary Source Screening Tool and Diesel IC Engine Distance Multiplier	4.7	<0.01 µg/m^3	<0.01
BAAQMD Single-Source Threshold	10.0	0.3	1.0
Exceed Threshold?	***Yes***	*No*	*No*
Cumulative at MEI	53.5	0.20 µg/m^3	0.05
BAAQMD Cumulative-Source Threshold	100.0	0.8	10.0
Exceed Threshold?	*No*	*No*	*No*

Notes:
* Includes application of 2015 Office of Environmental Health Hazard Assessment (OEHHA) methods
$PM_{2.5}$ = fine respirable particulate matter with a diameter less than 2.5 microns; µg/m^3=,micro grams per cubic meter; BAAQMD = Bay Area Air Quality Management District, MEI = Maximum Exposed Individual.

Source: Illingworth and Rodkin, November 2016

Impact AIR-2: Construction activities at the Redwood City Pump Station would result in significant cancer risk (greater than 10.0 chances per million) at the maximally affected sensitive receptor. Construction activities at other portions of the Project would not have significant impacts.

MM AIR-2: Implementation of Mitigation Measure AIR-1 described above would reduce construction health risk impacts to a less than significant level. Specific measures would include:

- Ensure that all construction equipment (including generators) larger than 25 HP and used at the Project site for more than two work days meet, at a minimum, U.S. EPA Tier 2 engine emission standards;

- Ensure that all stationary equipment larger than 25 HP (e.g., generators and hydraulic power packs) meet CARB's most recent certification standard for off-road heavy duty diesel engines;
- Portable diesel-powered equipment (including generators) larger than 25 HP and used at the Project site for more than two work days meet, at a minimum, U.S. EPA Tier 3 engine emission standards for NOx; and
- Portable diesel-powered equipment used at the Redwood City Pump Station construction sites for more than two days shall include diesel particulate matter control devices in the form of CARB currently Verified Diesel Emission Control Strategies (VDECS). Available online at http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm

MM AIR-1 requires a number of measures that reduce emissions exhaust particulates that include PM10 and PM2.5 that are considered TAC emissions, resulting in the significant cancer risk near the Redwood City Pump Station. A subset of these measures was modeled in CalEEMod and those model runs were included in the Appendix of the DEIR (Appendix B). Those model runs not only included the effect of requiring the use of Tier 2 equipment for all construction activities, but also require the use of diesel particulate matter control devices in the form of CARB currently Verified Diesel Emission Control Strategies (VDECS) for portable diesel equipment used at the Redwood City Pump Station. With that measure, total emissions of PM2.5 exhaust (assumed to all be diesel particulate matter) would be reduced from 0.36 tons to 0.08 tons. This would have a directly proportional reduction in cancer risk, such that the lifetime risk of 12.6 cases per million, reported in Table 4.3-5, would be reduced to 3 chances per million. The mitigated cancer risk would be less than the significance threshold of greater than 10.0 chances per million. Therefore, the impact would be less than significant.

Health Risks from Project Operation

As described above, traffic generated by the Project would have negligible emissions. Operation of diesel engines that power emergency generators for routine testing and maintenance purposes would be the only real source of new air pollutant or TAC emissions. These diesel engines would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure and require permits from the BAAQMD, since it will be equipped with an engine larger than 50 HP. As part of the BAAQMD permit requirements for toxics screening analysis, the engine emissions will have to meet Best Available Control Technology for Toxics and pass the toxic risk screening level of less than 10 in a million. The risk assessment would be prepared by BAAQMD. Depending on results, BAAQMD would set limits for DPM emissions (e.g., more restricted engine operation periods). Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality community risk impact.

Emissions from the testing and maintenance of the proposed generator engines were calculated using emission factors from CARB's OFFROAD emissions model for large compression-ignited engines above 25 HP and are reported in Table 4.3-6. DPM emissions are considered as $PM_{2.5}$ exhaust. Average daily emissions for each generator site were then calculated based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)*. Results, presented in Table 4.3-6, indicate that the Project generators would result in maximum excess cancer risk of 2.2 in one million, $PM_{2.5}$ concentrations of less than 0.01 µg/m^3 and hazard index of less than 0.01, all of which would be below BAAQMD thresholds of significance both on-site affecting Project residences and at nearby sensitive receptors. Cumulative impacts were computed at the maximally exposed sensitive receptor, which is near the WWTP. The contribution of cumulative sources is shown in Table 4.3-6 below.

Table 4.3-6: Health Risk from Standby Generators

Generator and Qty.	Excess Cancer Risk	Annual PM2.5	Hazard Index
Nutrient Removal Component – Two 1-megawatt generators at 500 feet	2.2	<0.01 µg/m^3	<0.01
Belmont Pump Station Rehabilitation – One 0.5- megawatt generators at 500 feet	0.4	<0.01 µg/m^3	<0.01
Redwood City Pump Station Replacement One 1.5-megawatt generators at 500 feet	1.7	<0.01 µg/m^3	<0.01
Menlo Park Pump Station Improvements One 0.5- megawatt generators at 1,000 feet	New generators are a smaller replacement of existing generator and over 1,000 feet from sensitive receptors		
Plant 17947 City of Redwood City Public Works Generator at 1,000 feet, using BAAQMD Stationary Source Screening Tool and Diesel IC Engine Distance Multiplier	0.4	<0.01 µg/m^3	<0.01
BAAQMD Single-Source Threshold	10.0	0.3	1.0
Exceeds Threshold?	*No*	*No*	*No*
Cumulative at MEI (near Nutrient Removal Facitliy)	42.6	<0.1 µg/m^3	<0.01
BAAQMD Cumulative-Source Threshold	100.0	0.8	10.0
Exceeds Threshold?	*No*	*No*	*No*
Source: Illingworth and Rodkin, November 2016			

Therefore, routine testing and maintenance of the standby generators would not result in significant health risk impacts. Cumulative risks, annual $PM_{2.5}$ concentrations and hazard index would be below the significance thresholds.

4.3.3.5 *Odors*

Some Project components are near residential areas that may be sensitive to odors. The significance of odors from a project are judged based on the potential to cause frequent odor complaints.

<u>Construction Odors</u>

There may be odors from construction associated with diesel exhaust that could be noticeable at times to residences in close proximity, but these are not anticipated to result in odor complaints. As with construction emissions, the closest sensitive receptors or residences would be near the SVCW WWTP, Belmont Pump Station and the Redwood City Pump Station. These residences are typically located upwind and should not normally notice any construction period odors. Frequent odor complaints from construction activities would not be expected to occur.

Odor Potential for Project Operation

The Project would construct several components that have the potential to generate odors. The Gravity Pipeline component would be underground, so the potential sources of odors from the Gravity Pipeline would be at inlets (San Carlos Drop Shaft and Bair Island Inlet Structure) and the RLS located at the SVCW WWTP. SVCW plans to continue to add a biochemical solution of calcium nitrate to the wastewater at the upstream pump stations to help control odors.

The RLS facilities would be about 900 feet east of residences. There would be odors in the air conveyed through the headspace of the new Gravity Pipeline, similar to odors coming from the existing force main, which would be conveyed into the wet wells of the RLS along with the wastewater. The air within this headspace would be conveyed by exhaust fans into the Odor Control Facilities, which would be located adjacent to the new Headworks Facility. The new Headworks that receive the wastewater flows from the RLS would also be a source of odors, especially the grit removal and screening areas. However, these areas would be covered so the odors would be contained.

New FDS would be constructed at the SVCW WWTP. The FDS would occasionally store wastewater during high flow events and would be an uncovered concrete tank exposed to the air. This has the potential to result in odors, but would be similar to existing odor conditions at the plant. SVCW plans to operate the facility in a manner that would limit odor emissions and proposes to continue using chemicals if necessary according to an odor control plan, which will include procedures for SVCW to respond to odor complaints if received.

The rehabilitation of the Belmont Pump Station would primarily involve improvements/upgrades to the wastewater pump station to the current SVCW standards. The pump station is housed within a structure, so the potential for odors from the facility is low. Moreover, the closest residences are about 500 feet upwind of the facility, which means that the wind does not typically flow from the pump station to the nearly residences. Given the lack of historical complaints in this area, coupled with the fact that the equipment is housed within a building structure and is far upwind from residential uses, frequent odor complaints are not anticipated.

The San Carlos Pump Station Repurposing Project would connect the existing San Carlos sanitary sewer and the Belmont Force Main to the proposed Gravity Pipeline. Exhaust fans used to convey odorous air at the SVCW RLS, described above, will not be able to extract all of the air in the headspace when the downstream portion of the Gravity Pipeline is full, so odorous air could be present at the San Carlos Drop Shaft. New Odor Control Facilities are proposed to be installed as part of the repurposing of the existing pump station building. The building would be sealed so that all air is treated with chemical scrubbers or carbon canisters and vented through an exhaust stack that is 25 feet above the ground. For these reasons, odor complaints are not anticipated with the proposed facility.

Replacement of the Redwood City Pump Station would include major upgrades to maintain long-term operation of the pumps and conveyance system. The existing pump station building would remain along with odor control equipment. New facilities within the building would include chemical/odor scrubbers, exhaust fans, electrical equipment and a generator. Operation of the replaced pump station is not anticipated to generate frequent odor complaints, given the nature of the upgrades and lack of downwind sensitive receptors.

Rehabilitation of the Menlo Park Pump Station would primarily include building upgrades, new pumps, grinders and a new odor management system. Since the pump station is housed inside a building with new upgraded odor control features and there are no sensitive receptors nearby, frequent odor complaints are not anticipated.

Except in rare situations during extreme wet weather events, air from the Gravity Pipeline will not escape to the surface at the Bair Island Inlet Structure. The rare situations that air would escape would be during storm events when the wastewater odors are low due to dilution and freshness. No Odor Control Facilities are proposed on Bair Island.

Odor Impact Findings

The detection and perception of odors are subjective and cannot be evaluated on a quantitative basis. The proposed Project includes features to prevent odors, by continuing use of biochemical treatments and using buildings to contain potential odors from wastewater flows or treatments. Those odors will be conveyed to Odor Control Facilities that are designed to scrub odors using chemical treatments before allowing that exhaust to exit into the atmosphere. As with any wastewater treatment facility, the prevention of odors is complicated and upset conditions can result in periods of odors. Since most residences are located well away from these facilities and typical wind conditions would not transport odors toward these receptors, the potential for odor complaints is low. Frequent odor complaints associated with this Project are not anticipated. However, upset conditions are possible, so this impact is considered Potentially Significant.

Impact AIR-3: Odors from the WWTP and pump stations could adversely impact sensitive receptors in the Project area.

MM AIR-3: Each Project component that has the potential to generate odors (i.e., San Carlos Drop Shaft and Bair Island Inlet Structure, RLS, New FDS, Belmont Pump Station, San Carlos Pump Station, Redwood City Pump Station, and Menlo Park Pump Station) shall have an odor control plan or there must be a system-wide odor control plan that addresses each component or facility. The system-wide odor control plan must address actions and measures to promptly respond to odor complaints and include contact information for the public to report odors.

Implementation of Mitigation Measure AIR-3 would reduce potential odor impacts to a less than significant level.

4.3.3.6 *CEQA-Plus Conformity Compliance*

Since the Project is pursuing federal funding, it must not interfere with the implementation of the SIP or Maintenance Plan to meet or maintain NAAQS. Under EPA's General Conformity rule, project emissions are compared to the conformity de minimis emission thresholds for that region to determine if General Conformity applies to a project with federal involvement. Emissions from the Project would be considered significant and require a formal conformity determination if annual emissions exceed the EPA's General Conformity thresholds (40 CFR Part 93 Subpart B, Section 93.153). The conformity de minimis thresholds that are applicable to the Bay Area are emissions of 100 tons per year for NOx, ROG, CO, PM2.5, and SO2. Annual Project emissions from construction and/or operation of the Project would not exceed these thresholds (see Tables 4.3-3 and 4.3-4); therefore, the Project is exempt from the SIP Conformity requirements.

4.3.3.7 *Consistency with Plans and Policies*

The Project is located in the San Francisco Bay Area Air Basin. The Project is in an area currently designated nonattainment for the state 1-hour and 8-hour ozone standards, nonattainment for the state 24-hour and annual PM_{10} standards, and nonattainment for the state annual $PM_{2.5}$ standard. It is also designated as nonattainment for the national 8-hour ozone standard and nonattainment for the national 24-hour $PM_{2.5}$ standard. To meet planning requirements related to these standards, the BAAQMD has developed a regional air quality plan, the Bay Area 2010 Clean Air Plan. A significant impact would occur if a Project conflicted with the Plan by not being consistent with the population-growth and vehicle miles traveled assumptions of the Plan. Construction of the Project would not be considered growth-inducing (see) as it would not in and of itself increase the region's population or provide expanded infrastructure that would remove an existing constraint on growth in the region. Since the construction Project would be short-term and temporary and there would be no long-term operational component to the Project that would generate air emissions, it would not generate substantial new vehicle trips in the Air Basin that would conflict with the Plan. As a result, the Project would not conflict with or obstruct implementation of the Plan, and this impact would be less than significant.

4.3.4 <u>Conclusion</u>

With implementation of the identified mitigation measures, the Project would not result in any significant air quality impacts. **[Less Than Significant Impact with Mitigation]**

4.4 BIOLOGICAL RESOURCES

The following discussion is based, in part, on a Biological Technical Report prepared by *WRA* in October 2016. The report is provided in Appendix C of this report.

4.4.1 <u>Regulatory Setting</u>

4.4.1.1 *Federal*

Federal Endangered Species Act

The Endangered Species Act of 1973, as amended, known as the Federal Endangered Species Act (FESA) (16 USC 1531 et seq.) was enacted to provide a means to identify and protect endangered and threatened species. FESA is implemented by the USFWS and the National Marine Fisheries Service (NMFS).

Pursuant to Section 4 of FESA, the USFWS and NMFS maintain lists of "endangered" and "threatened" plant and animal species (referred to as "listed species"). Listed species are identified in 50 CFR Sections 17.11 and 17.12. Under FESA Section 9, it is unlawful to take any listed species, and “take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Actions that may result in a “take” of a FESA-listed species are subject to USFWS permit issuance and monitoring. "Proposed" or "Candidate" species are not protected until listed as threatened or endangered. Federally listed plant species are only protected when a take occurs on federal land or by federal action.

FESA also provides for designation of critical habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features “essential to the conservation of the species” are found and “which may require special management considerations or protection.” Section 7 of FESA requires federal agencies to ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species. Finally, FESA allows for the issuance of incidental take permits for listed species either through the Section 7 consultation process (which results in a Biological Opinion), or under the Section 10 habitat conservation planning process, which is applicable to private property, where the proposed action has no federal involvement (which results in a Habitat Conservation Plan (HCP)). The USFWS and NMFS regulations pertaining to the Section 7 and Section 10 permitting processes are set forth at 50 CFR Part 402, Sections 402.01 et seq. (joint consultation), 50 CFR 17.22 and 17.32 (USFWS criteria specific to Section 10 permits), and 50 CFR 222 (NMFS criteria specific to Section 10 permits). There are no existing HCPs that cover the Project Site.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 661 et seq.) promotes conservation and rehabilitation of wildlife, which includes birds, fishes, mammals, and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent (16 USC 666b). Whenever the waters of any stream or body of water are proposed to be impounded, diverted, the channel deepened or otherwise controlled or modified, the U.S. Army Corps of Engineers (Corps) is required to consult with USFWS, NMFS as appropriate, and the state wildlife resource administration agency - the California Department of Fish and Wildlife (CDFW; formerly the California Department of Fish and Game, CDFG) (16 USC 662).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703 et seq.) was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The MBTA establishes a federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird" (16 USC 703). Thus, under the MBTA activities such as hunting, taking, capturing, killing, and selling migratory birds, their nests, or their eggs, are unlawful unless authorized by a permit issued by a USFWS Migratory Bird Permit Office (16 USC 703). Migratory bird species protected by the MBTA are listed in 50 CFR 10.13. The MBTA is enforced by USFWS regulations (50 CFR 10) and in California through California Fish and Game Code Section 3513, discussed below.

The Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) (16 USC 1361 et seq.) was enacted in 1972. Under the MMPA, all marine mammals within the territorial boundaries of the United States are protected. The MMPA prohibits the "take" of marine mammals on the high seas by persons or vessels subject to U.S. jurisdiction, subject to limited exceptions. The definition of "take" in the MMPA is the same as that under the FESA. The MMPA also prohibits importation into the U.S. of marine mammals taken in violation of the MMPA, as well as products from marine mammals imported illegally (16 USC 1372). Permits for incidental take and importation of marine mammals may be issued in certain circumstances, such as for display or research (16 USC 1374). The MMPA is enforced by NMFS regulations (50 CFR 216.1 et seq.).

The Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801 et seq.) (Magnuson-Stevens Act) provides for conservation and management of fishery resources in the United States. The law was originally enacted in 1976 and established a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection of essential fish habitats (EFH). The Magnuson-Stevens Act was amended in 1996 by the Sustainable Fisheries Act (PL 104-297), which initiated protection of EFH. EFH are defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC 1802(10)), and are regulated through the NMFS. EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries. EFH can include the water column, certain bottom types, vegetation (e.g. eelgrass), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS (50 CFR 600.920).

Rivers and Harbors Appropriations Act

The Rivers and Harbors Appropriation Act (RHA) of 1899 (33 USC 403) regulates construction in navigable waterways of the U.S., the construction of any bridge, dam, dike or causeway. Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Navigable waters of the United States are defined by Corps regulation as "those waters that are subject to the ebb and flow of the tide and/or are presently used or have been used in the past, or may be susceptible for use to transport interstate of foreign commerce" (33 CFR 329.4). Permit application procedures and requirements relating to RHA Section 10 are set forth in the Corps regulations (33 CFR 322).

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972, commonly referred to as the Clean Water Act (CWA), is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands (33 USC 1251 et seq.). The CWA regulates fill and water quality.

CWA Section 404/401 Related to Fill

Section 404 of the CWA requires a permit for activities that would result in the fill of waters of the United States. Both the USEPA and the Corps regulations address the CWA Section 404 process (33 CFR 323.1 et seq. (Corps); 40 CFR 230.1 et seq. (USEPA)). “Waters of the United States” are defined broadly as waters susceptible to use in commerce, interstate waters and wetlands, and all other waters (including intrastate water bodies and wetlands) and their tributaries (33 CFR 328.3 (Corps); 40 CFR 230.3(s) (USEPA)). Approved Jurisdictional Determinations (Approved JDs) and Preliminary Jurisdictional Determinations (Preliminary JDs) are tools used by the Corps to help implement the CWA Section 404/RHA Section 10 permitting process. Approved JDs provide an official determination that jurisdictional "waters of the United States" or "navigable waters of the United States" are present, or not, on a site. Preliminary JDs are "written indications that there may be waters of the United States" present on site. The Preliminary JD provides identification and location information regarding the approximate location of waters or wetlands on a parcel, and it allows applicants to "waive or set aside questions regarding CWA/RHA jurisdiction over a particular site." The PJD provides documentation suitable for use in the CWA Section 404/RHA Section 10 permitting process (Regulatory Guidance Letter No. 08-02). The Corps issued a Preliminary JD covering the area of the Bair Island Inlet Structure Shaft on May 17, 2013. The Corps made the determination in an email on January 28, 2016, that the ornamental ponds are not jurisdictional under Section 404 of the CWA. Water in the ornamental ponds is maintained by pumping of recycled water, with overflow water from the ponds treated by the SVCW WWTP. The ponds are maintained in this way to create an ornamental buffer between the WWTP and the surrounding community. Fill in the ornamental ponds had been previously authorized with the original construction of the SVCW treatment plant in the late 1970s, water in the ponds is artificially maintained, and the purpose of maintaining the ponds in this state is to create an ornamental water feature.

CWA Sections 303, 304, 401 and 402 Related to Water Quality

Water quality is governed by Sections 303, 304, 401 and 402 of the CWA. Sections 303 and 304 of the CWA identify water quality standards, criteria, and guidelines. Section 303(d) of the CWA requires that each state regularly identify water bodies in which beneficial uses are impaired by pollutants (the 303d list) and adopt a total maximum daily load (TMDL) for each pollutant that impairs a beneficial use. A TMDL identifies the total amount of a constituent that can be discharged to an impaired water body without impairing the water body's designated beneficial uses. Where applicable, a TMDL is typically implemented in the form of a written plan that allocates constituent loads to each discharger to an impaired water body at a level consistent with the protection of beneficial uses. Various sections of the San Francisco Bay are listed on California's 2006 CWA 303(d) list for constituents including: mercury, selenium, exotic species, chlordane, DDT, dieldrin, dioxin compounds, furan compounds, polychlorinated biphenyls (PCBs), pesticides (sediment), lead (sediment), polycyclic aromatic hydrocarbon (PAHs) (sediment) and zinc (sediment).

Section 401 of the CWA requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain from the state a water quality certification for the Project. Section 401 is administered in California by the SWRCB through the RWQCBs. Section 402 of the CWA regulates stormwater discharges to surface waters through the NPDES program, which requires permits for point-source discharges to waters of the United States. The State Water Resources Control Board and the RWQCBs administer the NPDES program in California. Discharge from the SVCW WWTP, including stormwater and overflow water from the ornamental ponds, is regulated by RWQCB Order No. R2-2012-0062 (NPDES No. CA0038369). Construction activities are subject to the Construction General Permit Order No. 2009-00009-DWQ (September 9, 2009, as amended by Order No. 2010-0014, DWQ on November 16, 2010). Development operations are subject to the Municipal Regional Stormwater Permit Order R2-2009-0074 (October 14, 2009). Per the Municipal Regional Stormwater Permit and regulations governing industrial stormwater discharge, industrial facilities where stormwater is covered by a Section 402 (NPDES) permit are exempt from coverage by other stormwater permits. Stormwater at the SVCW WWTP is covered by the facility's Section 402 NPDES permit and thus the provisions of Municipal Regional Stormwater Permit Order R2-2009-0074 (and site-specific industrial stormwater permits) are not applicable to construction or current operations of the WWTP.

4.4.1.2 *State*

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code 2050 *et seq.*) prohibits a "take" of any plant and animal species that the California Fish and Game Commission determines to be an endangered or threatened species in California. CESA regulations differ from the FESA because state regulations include threatened and endangered plants on non-federal lands within the definition of a "take," and the definition of take ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") omits "harm and harassment". In addition, CESA authorizes the take of endangered, threatened, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. These provisions also require CDFW to coordinate consultations with the USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, CESA allows CDFW to adopt a FESA incidental take authorization as satisfactory for CEQA purposes based on findings that the federal permit adequately protects the species and is consistent with state law. A CESA permit may not authorize the take of fully protected species that are protected in other provisions of the Fish and Game Code, discussed further below.

Federal and state lists of threatened and endangered species are generally similar; however, a species present on one list may be absent from the other. CESA defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease" (California Fish and Game Code 2062). CESA defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter (California Fish and Game Code 2067). A candidate species is defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the Commission has published a notice of proposed regulation to add the species to either list" (California Fish and Game Code 2068). CESA does not list invertebrate species.

California Fish and Game Code

The California Fish and Game Code contains additional laws and requirements that relate to biological resources, including lake and streambeds, birds and fully protected species.

Fish and Game Code Sections 1600-1616 Related to Lake and Streambed Alteration Agreements

Streams and lakes are subject to CDFG jurisdiction under sections 1600-1616 of the California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require Lake and Streambed Alteration Agreement, which may include reasonable measures necessary to protect fish and wildlife resources (California Fish and Game Code 1602). The term "stream," which includes creeks and rivers, is defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). "Riparian" is defined as "on, or pertaining to, the banks of a stream"; therefore, riparian vegetation is defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself". Removal of riparian vegetation also requires a Lake and Streambed Alteration Agreement from CDFW.

Fish and Game Code Sections 3503, 3503.5, 3513 and 3800 Related to Birds

The California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird (Section 3503), the take of "birds-of-prey" and take, possession, or destruction of their nest or eggs (Section 3503.5), and the take of "nongame birds", which are birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds

(Section 3800), unless authorized by law or regulation. The California Fish and Game Code also prohibits taking or possessing any migratory nongame bird designated in the MBTA, except as provided by federal law (Section 3513).

Fish and Game Code Sections 3511, 4700, 5050, and 5515 Related to Fully Protected Species

The California Fish and Game Code explicitly designates fully protected birds, mammals, reptiles, amphibians, and fish. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and relocation of fully protected bird species for the protection of livestock. The definition of "take" is the same under the California Fish and Game Code and the CESA. Incidental takes of fully protected species are not authorized by law.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) (California Pub. Res. Code 21000 *et seq*.) requires analysis of a broader group of species than those specifically protected under FESA, CESA or the California Fish and Game Code, including endangered, threatened, rare and special species. CEQA Guideline 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." Threatened or a "rare" animal or plant is defined in Guideline 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the FESA." Additionally, as set forth in CEQA Guideline 15380(c), an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing. With respect to special species, CDFW has developed a list of special species as "a general term that refers to all of the taxa the California Natural Diversity Database is interested in tracking, regardless of their legal or protection status." This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Additionally, CDFW has concluded that plant species included on the California Native Plant Society Lists 1 and 2, and potentially some List 3 plants, are covered by CEQA Guidelines Section 15380. Evaluation of List 4 plant species is recommended by the California Native Plant Society, but not all species on Lists 3 and 4 are required to be evaluated under CEQA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code 13000 *et seq*.) (Porter-Cologne Act) authorizes regulation of water quality in the state. The legislation defines "waters of the state" as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code 13050). SWRCB and the RWQCBs administer the Porter-Cologne Act, including setting of water standards and permitting for placement of fill in wetlands, streams and riparian areas. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to affect "waters of the state," are required to comply with the terms of the CWA Section 401 Water Quality Certification determination. If a proposed Project does not require a federal permit but involves dredge or fill activities that may result in a discharge to "waters of the state," the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements (WDRs) under the Porter-Cologne Act.

San Francisco Basin Plan

The San Francisco Bay Basin (Region 2) Water Quality Control Plan ("Basin Plan"), adopted pursuant to the Porter-Cologne Act (California Water Code 13240), is the master policy document containing descriptions of the legal, technical, and programmatic bases of water quality regulation in the region. The Basin Plan identifies beneficial uses for the state waters within its boundaries, water quality objectives needed to protect designated beneficial water uses, and strategies and time schedules for achieving water quality objectives (Basin Plan 1.4).

Chapter 2 of the Basin Plan describes various beneficial uses of aquatic ecosystems and underground aquifers. Beneficial uses for the Redwood City area are identified as: estuarine habitat (2.1.5); rare and endangered species (2.1.14); water contact recreation (2.1.15); noncontact water recreation (2.1.16); and wild (2.1.20) (Basin Plan Table 2-4). Chapter 2 also contains a figure that labels the Project Site as having both "Wetland areas" and "Salt ponds" (Basin Plan Figure 11).

Chapter 3 of the Basin Plan establishes water quality objectives to protect present and potential beneficial uses described in Chapter 2 and to protect existing high-quality waters. The objectives are achieved through mechanisms including enforcement of WDRs. Objectives for surface waters are set forth in Section 3.3.

Chapter 4 of the Basin Plan sets forth the regulatory programs that comprise the RWQCB conceptual framework for water quality control in the region, including a wetlands protection and management plan as set forth in Section 4.23. The Basin Plan incorporates the federal definition of wetlands (40 CFR 122.2, defining wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions") and outlines RWQCB authority relating to wetland fill, including: independent authority under the California Water Code to regulate discharge of waste to wetlands (waters of the state) that would adversely affect the beneficial uses of those wetlands; regulation of "isolated" waters as regulated by State Water Board Order No. 2004-0004-DWQ (2004 - General WDRs for dredged or fill discharges to waters deemed by the Corps to be outside federal jurisdiction, particularly projects involving impacts to small acreage or linear feet and those involving a small volume of dredged material); and evaluation of projects and proposed mitigation to ensure no net loss of wetland acreage and no net loss of wetland functions. This section also specifies that the USEPA's Section 404(b)(1) "Guidelines for Specification of Disposal Sites for Dredge or Fill Material" (December 24, 1980) apply in determining circumstances under which wetlands filling may be permitted.

McAteer-Petris Act

Enacted in1965, the McAteer-Petris Act (California Government Code Section 66600 *et seq*.) established the BCDC as a state agency charged with preparing a plan for the long-term use of the Bay. The Act was later amended to incorporate the long-term use plan into state law. BCDC has several areas of jurisdiction, including: San Francisco Bay (including sloughs and marshlands lying between mean high tide and five feet above mean sea level) and a shoreline band consisting of all territory located between the shoreline of the Bay and a line 100 feet landward of and parallel with the shoreline (California Government Code 66610).

Any person or governmental agency wishing to place fill, to extract materials, or to make any substantial change in use of any water, land or structure within BCDC jurisdiction must secure a permit from BCDC and, if required by law or ordinance, from any city or county within which any part of the work is to be performed. "Fill" is defined as "earth or any other substance or material, including pilings or structures placed on pilings, and structures floating at some or all times and moored for extended periods, such as houseboats and floating docks." "Materials" is defined as "items exceeding $20 in value." (California Gov't Code 66632(a)). All permits are transmitted to the San Francisco Bay RWQCB, so it can make a report to BCDC indicating the effect of the proposed project on water quality within the Bay (California Government Code 66632(e)). BCDC shall grant a permit if it finds and declares that the project is either (1) necessary to the health, safety or welfare of the public in the entire bay area, or (2) of such a nature that it will be consistent with the provisions of this title and with the provisions of the San Francisco Bay Plan then in effect (California Government Code 66632(f)).

4.4.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and WBSD (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of “intergovernmental immunity” which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

City of Belmont Tree Ordinance (Ord. No. 1060, Municipal Code Chapter 25 – Trees)

City of Belmont Municipal Code provides that it us unlawful for any person to: 1) Damage, or cause to be damaged, any “protected tree”, “City tree”, or required replacement tree; 2) Remove, or cause to be removed, any “protected tree”, “City tree”, or required replacement tree without a permit.

A “protected tree” is defined as: any woody, perennial plant characterized by having a single main stem or trunk of ten (10) inches or more diameter (31-inches circumference) at breast height (“DBH”; measured at 54 inches above natural grade), or multiple secondary stems totaling ten (10) inches or more DBH regardless of species. A single or multi-stemmed shrub or bush is not a protected tree.

A "City tree" is defined as: any woody, perennial plant, regardless of size, located in the city right-of-way, a city park, a designated open space, or on any other city property. A single or multi-stemmed shrub or bush is not a city tree.

As discussed above, SVCW as a public agency is exempt from the City of Belmont Tree Ordinance, however, in evaluating the trees that would be affected by the proposed Project in Belmont, SVCW has used the definitions provided in the City's ordinance to identify what trees are present and what tree replacement would be appropriate according to that jurisdiction's requirements. Therefore, SVCW intends to comply with the substantive requirements of the City's tree ordinance, while not formally obtaining a tree removal permit from the City of Belmont, which is a Member Agency of the SVCW JPA.

City of San Carlos Tree Ordinance (Municipal Code Chapter 12.2 – Maintenance and Removal of Trees on Public and Private Property)

The San Carlos Municipal Code provides that it is unlawful for any person to remove any "protected tree" which is on public or private property within the City of San Carlos without first obtaining a permit pursuant to Chapter 18.18.070.

A "protected tree" is defined as any "heritage tree" or "significant tree" which is defined in Chapter 18.41.020, as: A. A "heritage tree" means any indigenous tree whose size, as measured at 48-inches above natural grade, is defined below:

- Buckeye (*Aesculus californica*), or madrone (*Arbutus menziesii*), or California bay (*Umbellularia californica*) with a single stem or multiple stems touching each other at 48-inches above natural grade and measuring 30-inches in circumference (9.6-inches diameter).
- Coast live oak (*Quercus agrifolia*), or valley oak (*Q. lobata*) of more than 30-inches circumference (9.6-inches diameter).
- Blue oak (*Q. douglasii*) or interior live oak (*Q. wislizenii*) of more than 24-inches diameter (7.6-inches diameter).
- Redwood (*Sequoia sempervirens*) of more than 72-inches circumference (22.9-inches diameter).

B. A "significant tree" means any tree not described above that is 36-inches in circumference (or more) (11.5-inches diameter), outside of bark, measured at 48-inches above natural grade. The following trees shall not be classified as significant or heritage trees:

- Bailey, green or black acacia (Acacia baileyana, A. decurrens, or A. melanoxylon);
- Tree of Heaven (Ailanthus altissima);
- Fruit trees of any kind;
- Monterey pine (Pinus radiata);
- Eucalyptus (Eucalyptus globulus).

As discussed above, SVCW is exempt from the City of San Carlos Tree Ordinance, however, in evaluating the trees that would be affected by the proposed Project in San Carlos, SVCW has used the definitions provided in the City's ordinance to identify what trees are present and what tree replacement would be appropriate according to that jurisdiction's requirements. Therefore, SVCW intends to comply with the substantive requirements of the City's tree ordinance, while not formally obtaining a tree removal permit from the City of San Carlos, which is a Member Agency of the SVCW JPA.

Redwood City Tree Ordinance (Ord. No. 1536, Municipal Code Chapter 35 - Tree Preservation)

The Redwood City Tree Ordinance provides that it is unlawful for any person to cut, move, or remove or cause to be cut, moved or removed any tree, unless such person first obtains a permit from the Parks and Recreation Director (Redwood City Code 35.3). The Ordinance defines a "tree" as:

- Any woody plant characterized by having a single trunk of a circumference of 38-inches (12.1-inches diameter) or more, measured at any point between 6-inches and 36-inches above ground level; or
- Any woody plant characterized by having a single trunk which has been found by the Park and Recreation Commission to have special significance to the community, which plant shall be designated a "heritage tree."

As discuused above, SVCW is exempt from the City of Redwood City Tree Ordinance, however, in evaluating the trees that would be affected by the proposed Project in Redwood City, SVCW has used the definitions provided in the City's ordinance to identify what trees are present and what tree replacement would be appropriate according to that jurisdiction's requirements. Therefore, SVCW intends to comply with the substantive requirements of the City's tree ordinance, while not formally obtaining a tree removal permit from the City of Redwood City, which is a Member Agency of the SVCW JPA.

City of Menlo Park Tree Ordinance (Ord. No. 928, Municipal Code Chapter 13.24 - Heritage Trees)

The City of Menlo Park Tree Ordinance provides that it is unlawful for any person to remove, or cause to be removed any "heritage tree" from any parcel of property in the city, or prune more than one-fourth of the branches or roots within a twelve (12) month period, without obtaining a permit. The Ordinance defines a "heritage tree" as:

- A tree or group of trees of historical significance, special character or community benefit, specifically designated by resolution of the city council;
- An oak tree (*Quercus* spp.) which is native to California and has a trunk with a circumference of 31.4-inches (10-inches diameter) or more, measured at 54-inches above natural grade. Trees with more than one trunk shall be measured at the point where the trunks divide, with the exception of trees that are under twelve (12) feet in height, which will be exempt from "heritage tree" status.
- All trees other than native oaks which have a trunk with a circumference of 47.1-inches (15-inches diameter) or more, measured 54-inches above natural grade. Trees with more than one trunk shall be measured at the point where the trunks divide, with the exception of trees that are under twelve (12) feet in height, which will be exempt from "heritage tree" status.

As discussed above, SVCW is exempt from the City of Menlo Park Tree Ordinance, however, in evaluating the trees that would be affected by the proposed Project in Menlo Park, SVCW has used the definitions provided in the City's ordinance to identify what trees are present and what tree replacement would be appropriate according to that jurisdiction's requirements. Therefore, SVCW intends to comply with the substantive requirements of the City's tree ordinance, while not formally obtaining a tree removal permit from the City of Menlo Park, which is a Member Agency of the SVCW JPA.

4.4.2 Environmental Setting

4.4.2.1 *Existing Conditions Within and Adjacent to the Proposed Project Footprint*

The Study Area is composed of areas within and adjacent to the footprint of construction. The Project construction footprint is defined as all areas subject to surface disturbance, including staging and access areas, for all Project elements in the Project Description. Much of the Project work does not involve surface disturbance, and those areas involving only subsurface activity have not been specifically mapped for this analysis because subsurface work for the Project does not have potential to impact biological resources. A general description of the biological communities located within the construction footprint and adjacent to these areas is provided below. Acreages of biological communities within the proposed Project footprint are provided in Table 4.4-1.

The Project footprint has minimal disturbance to undeveloped vegetation communities and avoids sensitive communities. However, vegetation and aquatic communities surrounding the Project footprint have the potential to support special-status wildlife species and Project construction has the potential to impact these species indirectly through noise and visual disturbance. Boundaries for the Study Area evaluated adjacent to the Project footprint were established by applying standard disturbance buffers for these species (primarily California Ridgeway Rail) cited in resource agency permits.

Biological Communities within the Project Footprint

Biological communities present in the Study Area are described below. *Section 4.4.2.2* describes the distribution of these communities within and adjacent to each Project component.

Developed/Landscaped

Most of the Study Area is characterized by developed urban land with associated landscaped vegetation. Developed lands in the Study Area consist of commercial, residential, and industrial buildings and structures, and hardscape, such as roads and parking lots. Landscaped vegetation in these communities consists of many non-native, ornamental trees and shrubs, including eucalyptus (Eucalyptus sp.), privet (Ligustrum sp.), bottlebrush tree (Callistemon citrinus), firethorn (Pyracantha angustifolia), and oleander (Nerium oleander). Plants found in the understory consist of landscaped shrubs and lawn, and in some areas, non-native weedy species including Bermuda grass (Cynodon dactylon), bristly ox-tongue (Helminthotheca echioides), and yellow star thistle (Centaurea solstitialis) are present. Developed and landscaped areas are not sensitive biological communities.

Ruderal Vegetation

Ruderal vegetation refers to weedy, non-forested areas that have been partially developed or disturbed. There is no published vegetation alliance or classification that accurately describes this community, primarily because it is a human altered community and therefore not considered to be a "natural" community as described in relevant vegetation classification literature. Ruderal areas in the Study Area are dominated by a variety of non-native and invasive grasses and forbs including field mustard (Brassica rapa), Italian thistle (Carduus pycnocephalus), slender oat (Avena barbata), ripgut brome (Bromus diandrus), soft chess (Bromus hordeaceus), seaside barley (Hordeum marinum), fennel (Foeniculum vulgare), bristly ox-tongue, yellow star-thistle, and pampas grass (Cortaderia jubata).

Ruderal communities are present within and adjacent to a large portion of the Study Area, often intermixed with developed areas, salt marsh, and seasonal wetlands. Ruderal areas adjacent to a portion of the developed areas are also occasionally maintained (mowed). Ruderal upland areas are not sensitive biological communities.

Table 4.4-1:
Summary of Biological Communities within the Proposed Project Footprint

Biological Community	Acreage
Developed/Landscaped	16.24
Ruderal	8.43
Levee and Trail	12.9
Ornamental Ponds	13.7
Seasonal Wetlands	0.01
Total	**51.28**

Source: WRA, October 2016

Levee and Trail

Much of the Project footprint that occurs on Inner Bair Island is composed of a levee and existing trail. The majority of this levee and trail area is unvegetated, but some ruderal vegetation is present, primarily at the margins of the trail. The levee was recently completed as part of the Bair Island Restoration Project and houses a portion of the SVCW 48-inch force main pipe. It is anticipated that the margins of the trail will be vegetated at the time of Project construction with species planted as part of the restoration project as well as naturalized species occurring along the margins of San Francisco Bay. The presence of fill soils along the levee and trail imported from non-wetland areas substantially reduces the potential for this area to support special-status plant species. The Levee and Trail is not classified as a sensitive biological community, although it does provide some habitat benefit as refugia for special-status wildlife species during high tides.

Ornamental Ponds

Ornamental ponds are present in the area of the WWTP improvements. These ponds are man-made features containing recycled water that is pumped into the area from the SVCW Recycled Water Project. Water is maintained in the ornamental ponds to provide a buffer between the Treatment Plant and the surrounding residential community. Thus, while the recycled water storage area contains water, that water is present only because it is pumped in from the SVCW recycled water processing plant. Recycled water is pumped from the SVCW treatment plant into the ornamental ponds. Overflow from the ornamental ponds flows back into the treatment plant via the existing SVCW stormwater system. Once in the treatment plant, the overflow recycled water is comingled with untreated plant influent where it is treated again. Some of the treated water is used for further recycled water production, and much is discharged into the Bay through the plant effluent pipeline.

All water discharged to the Bay is first treated by the SVCW WWTP. Thus, all water present in the ornamental ponds is regulated by the State Porter-Cologne Act and Federal CWA via SVCW's NPDES permit.

Past permitted construction activity converted the area of the ornamental ponds from salt ponds to dry land. The initial import of fill was completed by the Mobil Corporation in the early to mid-1970s. Additional fill was imported on to the dry land created by the Mobil Corporation for the construction of the SVCW waste treatment plant, including construction staging areas, as permitted by Corps File Nos. 9585-49 and 11943-49, and supported by communications between SVCW and the Corps during the period of treatment plant construction. Written statements in Corps file No. 13464-49 refer to the recycled water storage area as a "non-aquatic area", further supporting a conclusion that the import of fill converted the area to dry land.

Since the period of construction of the SVCW treatment plant and surrounding mixed use development on Redwood Shores, the ornamental ponds have been filled periodically with water as part of SVCW operations. Beginning in the year 2000, SVCW began to store treated recycled water in the ornamental ponds, in accordance with recycled water programmatic requirements under Title 22, Division 4, Chapter 3 of the CCR and SWRCB Order 96-011. Prior to holding recycled water, the area was barren and unsightly, creating significant dust during times of high winds. To address those aesthetic issues and to provide an aesthetic buffer between the Treatment Plant and the surrounding community, infrastructure was installed into the recycled water storage area to allow for the pumping of recycled water into the area to create an ornamental pond. Since then, the ornamental ponds have been filled with water except when draining the ponds has been necessary to complete maintenance, address avian cholera (see Appendix C), or to complete site investigations.

The recycled water storage area was created on dry land and is maintained with pumped water for aesthetic reasons to serve as an ornamental water body providing a buffer between SVCW and the surrounding residential community. As stated in the Federal Register, "artificial reflecting, swimming pools or other small ornamental bodies of water created on dry land for primarily aesthetic reasons" are generally not considered waters of the U.S. (51 Fed. Reg. 41217). The recycled water storage area meets this description and is an ornamental body of water created on dry land for aesthetic reasons, with hydrology maintained by man-made infrastructure.

Because the recycled water storage area was created on dry land and is maintained as an ornamental water body by the pumping of water in, and re-treatment of water flowing out of the area, the Corps made the determination on January 28, 2016, that the area is not jurisdictional under Section 404 of the CWA. A report of fill and permit history for the area of the ornamental ponds that was submitted to the Corps is enclosed in Appendix C. On June 13, 2016, the RWQCB made the determination that SVCW activities in the ornamental pond are currently and will be permitted via WDRs under the SVCW's NPDES Permit. Additionally, although the ornamental ponds provide resting and nesting habitat for many species of birds, this habitat value is controlled in its entirety by the pumping of recycled water into the ornamental ponds. Based on WRA surveys, bird utilization when water is not present in the ornamental ponds is similar to utilization in surrounding developed and ruderal lands (which native birds may also use for foraging or nesting, but which are not considered sensitive biological communities). Water in the ornamental ponds and the associated use by birds is entirely a result of recycled water pumped into the area by SVCW for the purpose of providing an ornamental buffer to the treatment plant. Bird use of the ornamental ponds when water is present is an unintended result of SVCW's management of the ponds for this purpose. Based on the preceding factors, the ornamental ponds are not classified as a sensitive biological community.

Seasonal Wetlands

Seasonal wetlands include areas that hold water for part of the year, typically during the rainy season (between October and March), which are dominated by hydrophytic vegetative cover. Plant species observed in seasonal wetlands in the Study Area include pickleweed (Salicornia pacifica), salt grass (Distichlis spicata), Australian saltbush (Atriplex semibaccata), Russian thistle (Salsola soda), brass buttons (Cotula coronopifolia) and Jaumea (Jaumea carnosa). These areas are not tidally influenced and occur in drainage ditches and diked basins within the Study Area that are seasonally ponded or saturated. Seasonal wetlands are sensitive biological communities.

Sensitive Biological Communities adjacent to the Project Footprint

Unvegetated Waters

Unvegetated waters include areas which are inundated by natural sources of hydrology either perennially or for a sufficient duration to prevent vegetation growth. Within the Study Area, unvegetated waters consist of slough channels, mudflats, seasonally flooded basins or channels, and portions of flood control channels. Unvegetated waters are classified as sensitive biological communities and are known or presumed to be regulated as jurisdictional areas by CDFW and/or the U.S. Army Corps of Engineers and RWQCB.

Northern Coastal Salt Marsh

Northern coastal salt marsh is usually found along sheltered inland margins of bays, lagoons, and estuaries. These areas can either be influenced by tidal hydrology or exist in areas that are diked and not tidally influenced.

In tidal areas, low-elevation marsh areas support primarily cordgrass (Spartina foliosa) and mid-elevation marsh areas are dominated by pickleweed mixed with saltgrass. High-elevation marsh habitat occurs where tidal waters seldom reach and dominant plants are pickleweed, salt grass, and gumplant (Grindelia stricta). Northern coastal salt marsh in non-tidal areas is typically similar to high marsh habitat in vegetative composition. Northern coastal salt marsh is a sensitive biological community.

Bair Island Restored Wetlands

The majority of Inner Bair Island is composed of recently disturbed lands which are part of the Bair Island Restoration Project. On December 10, 2015, the northern levee to Inner Bair Island was breached to allow for tidal circulation and eventual regrowth of native, tidal salt marsh vegetation. Many years will be necessary before tidal marsh vegetation becomes established within restored wetlands at Inner Bair Island. Some small reaches of marsh vegetation may be present in the upper elevations of the restored wetlands at the time of Project construction, but substantial wetland vegetation is not expected to develop until completion of all construction by SVCW. Tidal salt marsh vegetation is a sensitive biological community.

Freshwater Marsh

Freshwater marshes occur on the fringes of open, fresh water, or near drainage ditches with standing water. Cattail marshes contain greater than 50 percent relative cover of cattail in the herbaceous layer (Sawyer et al. 2009). A freshwater drainage channel choked with cattails is present just north of the proposed Project footprint at the Airport Access Shaft staging area. The ditch appears to be perennially flooded. The flood control channel between Shoreway Road and Holly Street to the southwest of the Airport Access Shaft area also supports freshwater marsh vegetation, a sensitive biological community.

4.4.2.2 *Existing Biological Communities by Project Component*

Gravity Pipeline Project

The following sections describe the existing conditions of the Study Area within and adjacent to the Project footprint for the Gravity Pipeline. Areas of surface disturbance for the Gravity Pipeline include:

- Airport Access Shaft and Staging Area
- Bair Island Inlet Structure
- WWTP RLS Shaft
- San Carlos Drop Shaft

Biological communities present in each of these areas are described below, based on the vegetation community classifications provided in Section 4.4.2.1.

Airport Access Shaft. The Airport Access Shaft Project footprint is made up of three biological community types (See Figure 4.4-2):

- Developed/landscaped,
- Ruderal vegetation, and
- Seasonal wetland

Ruderal vegetation dominates the Project footprint in this area, and a developed, gravel-lined area is present in the central portion near the site entrance along Shoreway Road. A narrow seasonal wetland drainage ditch is located along the northwestern margin of the Airport Access Shaft staging area, at the margins of the site. This area contains characteristic wetland vegetation and conveys water seasonally.

Outside the Project footprint but within the Study Area, community types include (Figure 4.4-2):

- Developed/landscaped,
- Ruderal vegetation,
- Seasonal wetland
- Freshwater marsh

Ruderal vegetation is present immediately southwest of the Project footprint, and further southwest elevation drops and the vegetation transitions into seasonal wetland. Just outside of the Airport Access Shaft Project footprint and to the north is an approximately 20-foot-wide freshwater marsh dominated almost exclusively by cattails. This ditch appears to function as a flood control channel and conveys water under Holly Street and out of the Study Area. Another vegetated drainage ditch with freshwater marsh vegetation is located between Shoreway Road and Holly Street, and it continues under Holly Street to the northeast and out of the Study Area. Beyond these vegetated areas, the Study Area is dominated by developed/landscaped features.

WWTP Receiving Lift Station Shaft. The WWTP RLS Shaft construction and staging area will be located within the existing southeastern ornamental pond adjacent to the WWTP (Figure 4.4-3). As noted above, the ponds can be drained and filled at the discretion of SVCW, and they were drained in fall of 2016 (to conduct geotechnical evaluations), although the baseline condition for purposes of this EIR assumes the full ponds at the time the NOP was issued. Biological communities present in this area include:

- Ornamental ponds
- Developed/landscaped areas
- Ruderal vegetation

Areas of construction for the WWTP RLS Shaft are entirely unvegetated and, as discussed above in *Section 4.4.2.1*, the ornamental ponds are not sensitive biological communities because they are man-made ponds maintained by pumping of recycled water. Some portion of areas proposed for construction staging and access contain ruderal vegetation at the margins of the ornamental ponds.

Outside the Project footprint, the Study Area supports the following biological communities (see Figure 4.4-3):

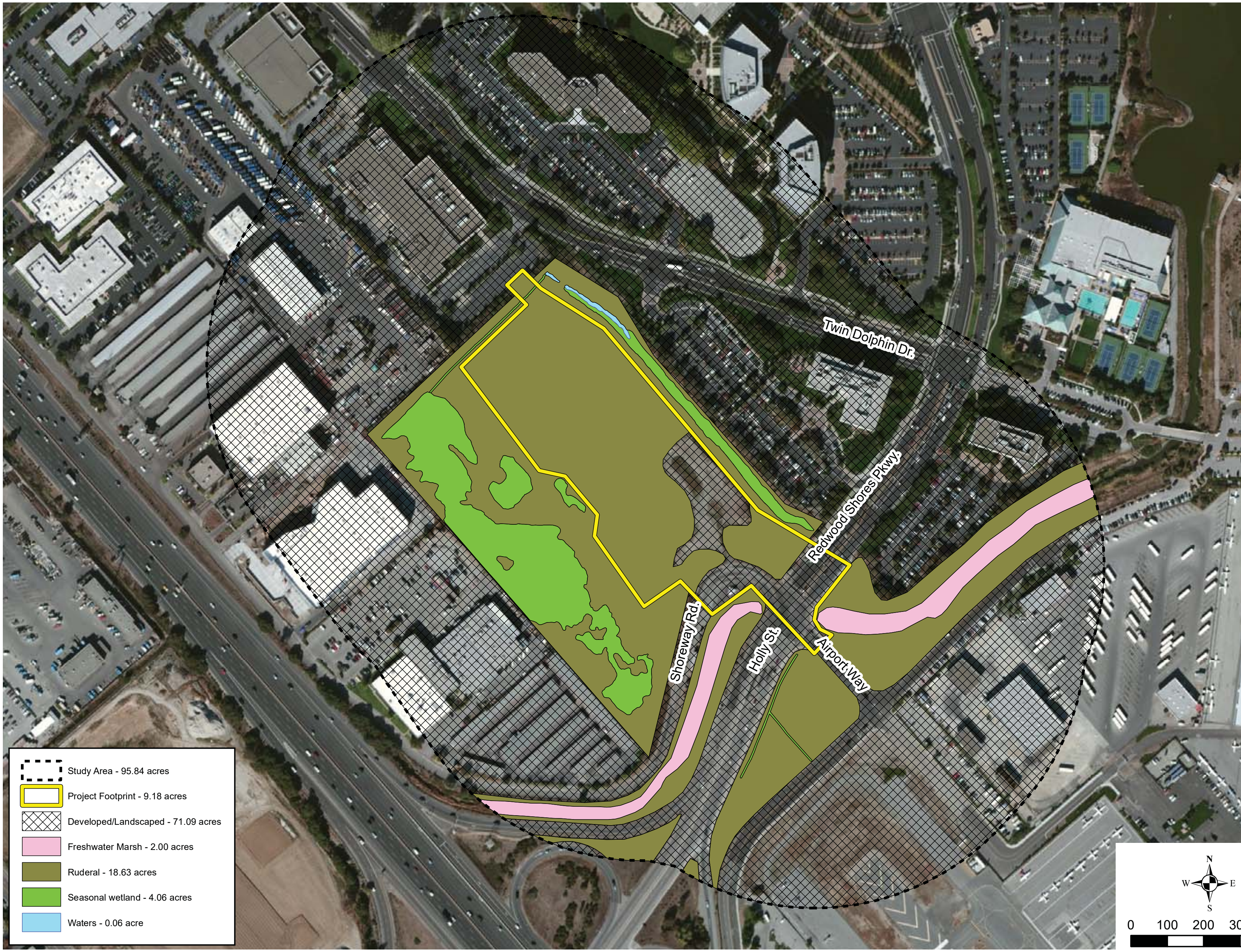
- Northern coastal salt marsh
- Unvegetated waters
- Ruderal vegetation
- Developed/Landscaped areas
- Levee and trail

The areas immediately surrounding the ornamental ponds are all developed and landscaped areas, primarily including Radio Road, but also including the existing dog park to the south of Radio Road and the existing SVCW parking area. The existing SVCW treatment plant, including the drying beds and stormwater treatment pond, are also classified as developed and landscaped areas. Levee and trail is present along the reach of the Redwood Shores levee within the Study Area. Northern coastal salt marsh is present in an existing diked area to the northwest of the WWTP, in the diked area south of the dog park, and in tidal marsh areas outboard of the Redwood Shores Levee. The diked area south of the dog park also contains open water areas including unvegetated areas subject to shallow ponding during the winter and a portion of the Redwood Shores canal system.

Source: WRA Environmental Consultants, 4/27/16.

PROJECT STUDY AREA USED FOR BIOLOGICAL RESOURCES ANALYSIS

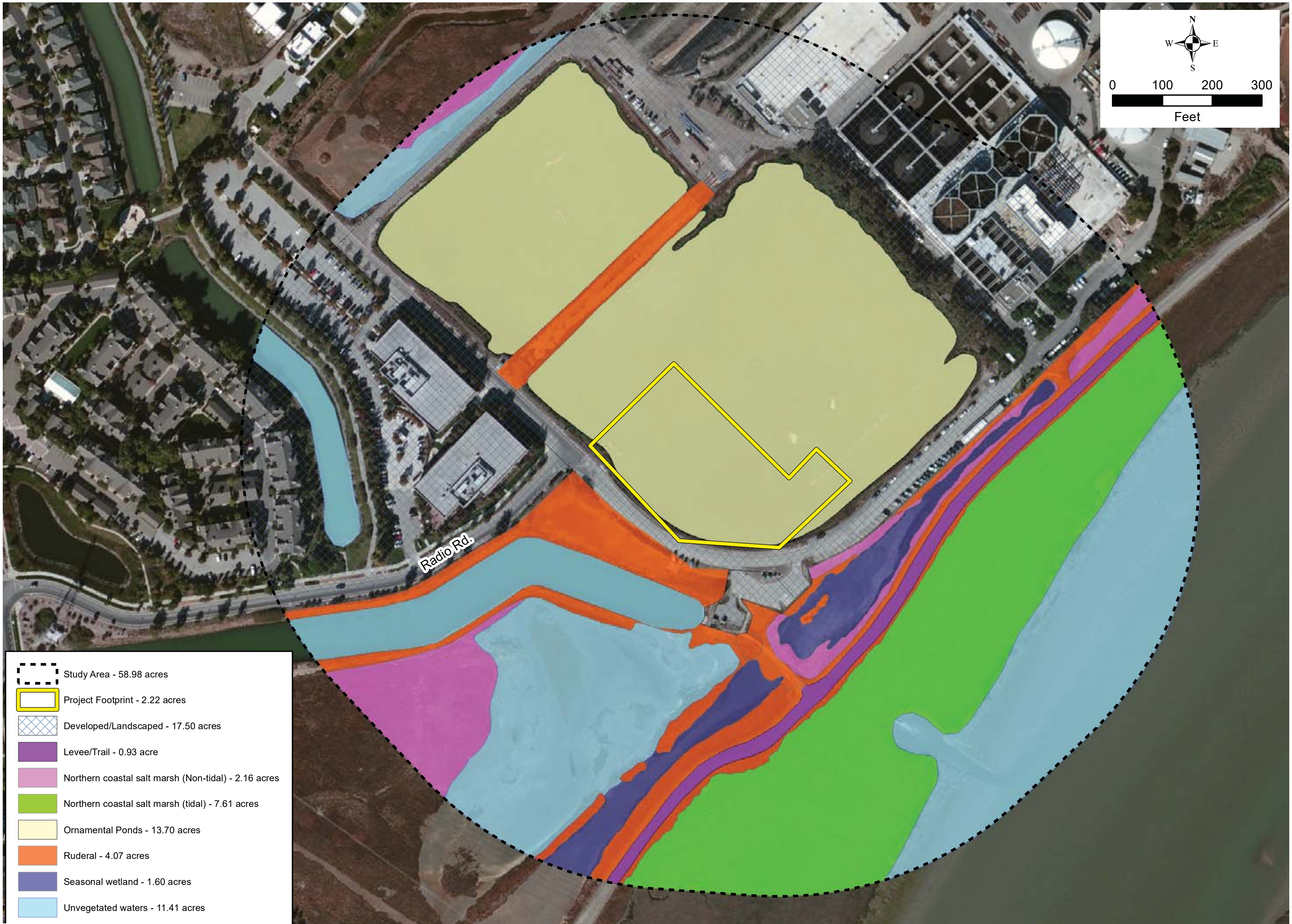
FIGURE 4.4-1



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE AIRPORT ACCESS SHAFT SITE

FIGURE 4.4-2



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE WWTP RECEIVING LIFT STATION SHAFT AREA

FIGURE 4.4-3

Bair Island Inlet Structure. The Project footprint on Inner Bair Island includes the following biological communities (see Figure 4.4-4):

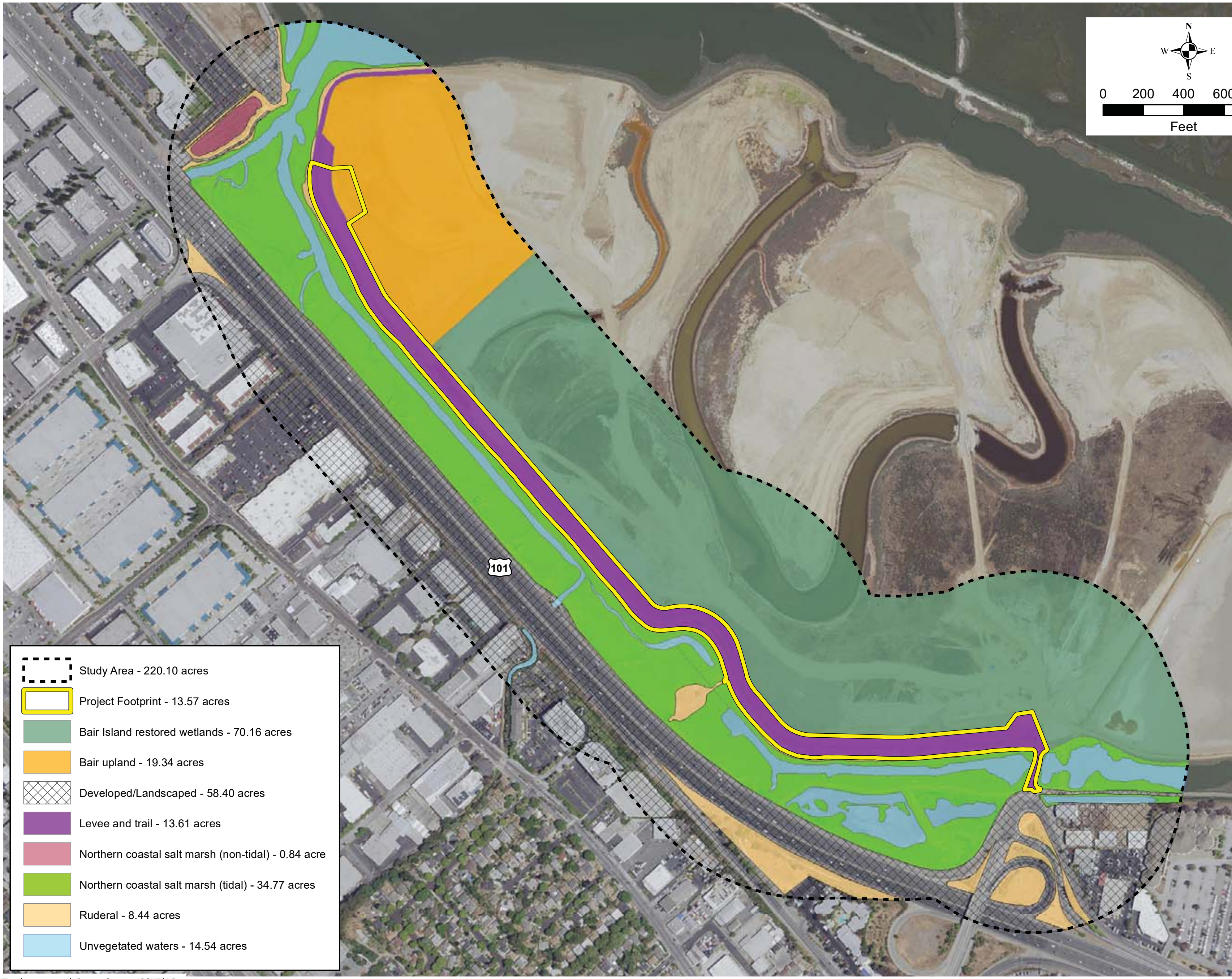
- Levee and trail
- Ruderal vegetation

The upland levee and trail areas are currently primarily unvegetated, and were subject to recent disturbance with the construction of the USFWS Bair Island Restoration Project and SVCW 48-inch force main project. Construction access will occur along the existing levee trail on Inner Bair Island and some staging and excavation will occur within levee and trail area on the northern tip of the island. The majority of retrieval shaft construction work would occur on an elevated upland portion of Inner Bair Island that was created as a crash zone and habitat buffer for the San Carlos Airport. This area currently supports very sparse cover by ruderal vegetation, and is expected to support more abundant cover by ruderal upland vegetation during Project construction. Outside the Project footprint, the Study Area on Inner Bair Island contains the following biological communities (see Figure 4.4-4):

- Ruderal vegetation
- Bair Island restored wetlands,
- Northern coastal salt marsh
- Unvegetated waters

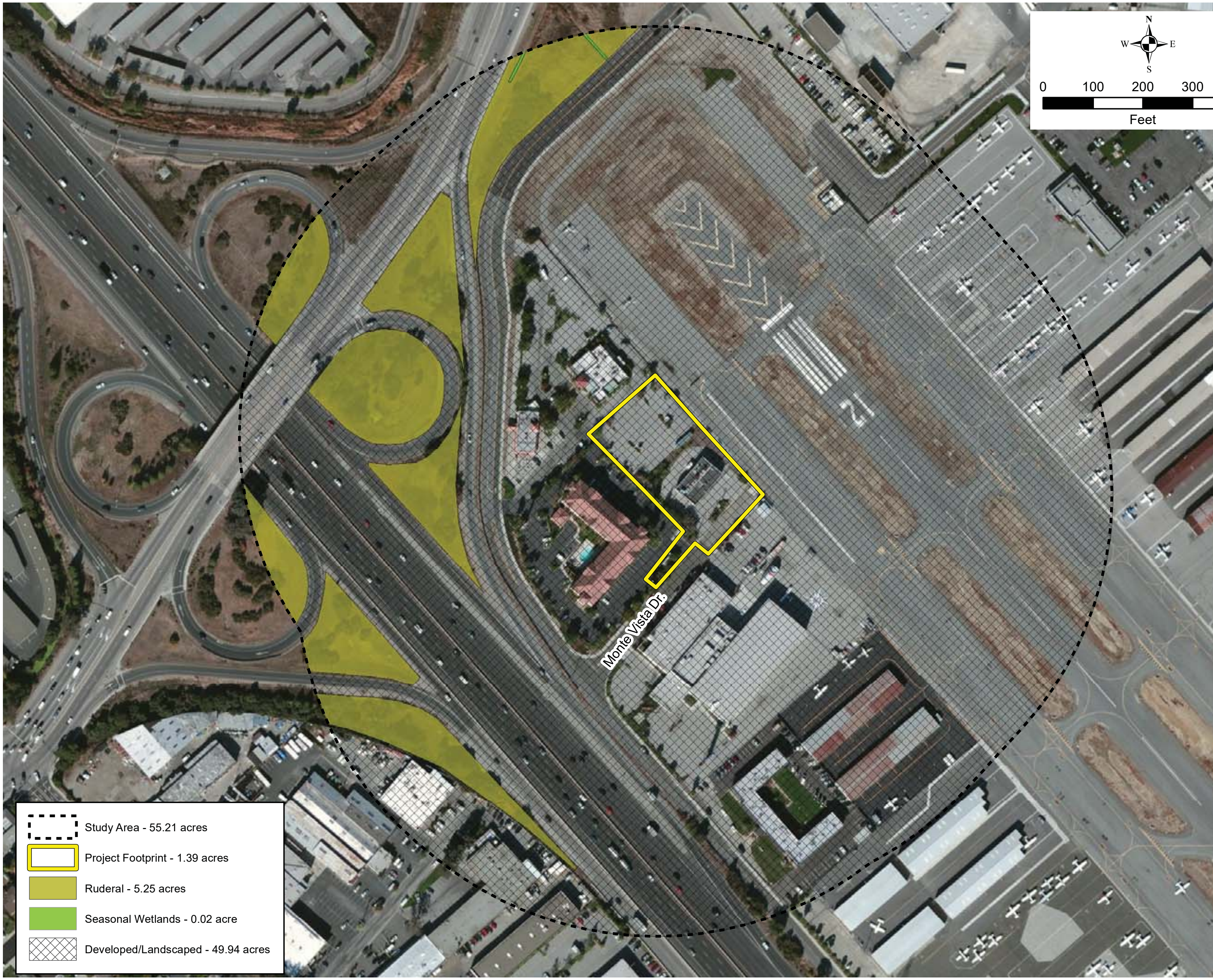
Ruderal vegetation is present outside of the Project footprint in the area of the San Carlos Airport crash zone. As this portion of the Study Area is located on an island, it is bordered by areas of tidal northern coastal salt marsh and open water to the south and west, outboard of the perimeter levee. Across Pulgas Creek/Steinberger Slough to the northwest, a diked (non-tidal) salt marsh basin is present and is surrounded by levees and development. The remainder of Inner Bair Island to the east of the existing levee and trail contains lands that were recently opened to tidal action as part of the Bair Island Restoration Project. These areas are currently unvegetated and are expected to accrete sediment to support tidal marsh vegetation over a period of more than ten years. At the time of Project construction, some sparse tidal marsh vegetation may be present in the restored wetlands, but it is not expected to be sufficient cover to support special-status wildlife species.

San Carlos Drop Shaft. The San Carlos Drop Shaft is located entirely within developed/landscaped lands adjacent to the San Carlos Airport (Figure 4.4-5). Areas within the Project footprint are entirely paved, developed, and containing minimal cover by landscaped trees and shrubs.



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE INNER BAIR ISLAND TBM RETRIEVAL SHAFT AREA FIGURE 4.4-4



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE SAN CARLOS DROP SHAFT AREA

FIGURE 4.4-5

WWTP Improvements

The WWTP Project footprint includes the WWTP, the ornamental ponds located just southwest of the WWTP, a small strip of land containing buried recycled water infrastructure between the two ornamental ponds, and an area of ruderal vegetation containing planted eucalyptus trees between the ornamental ponds and the WWTP (Figure 4.4-6). Biological Communities in the WWTP Project footprint include:

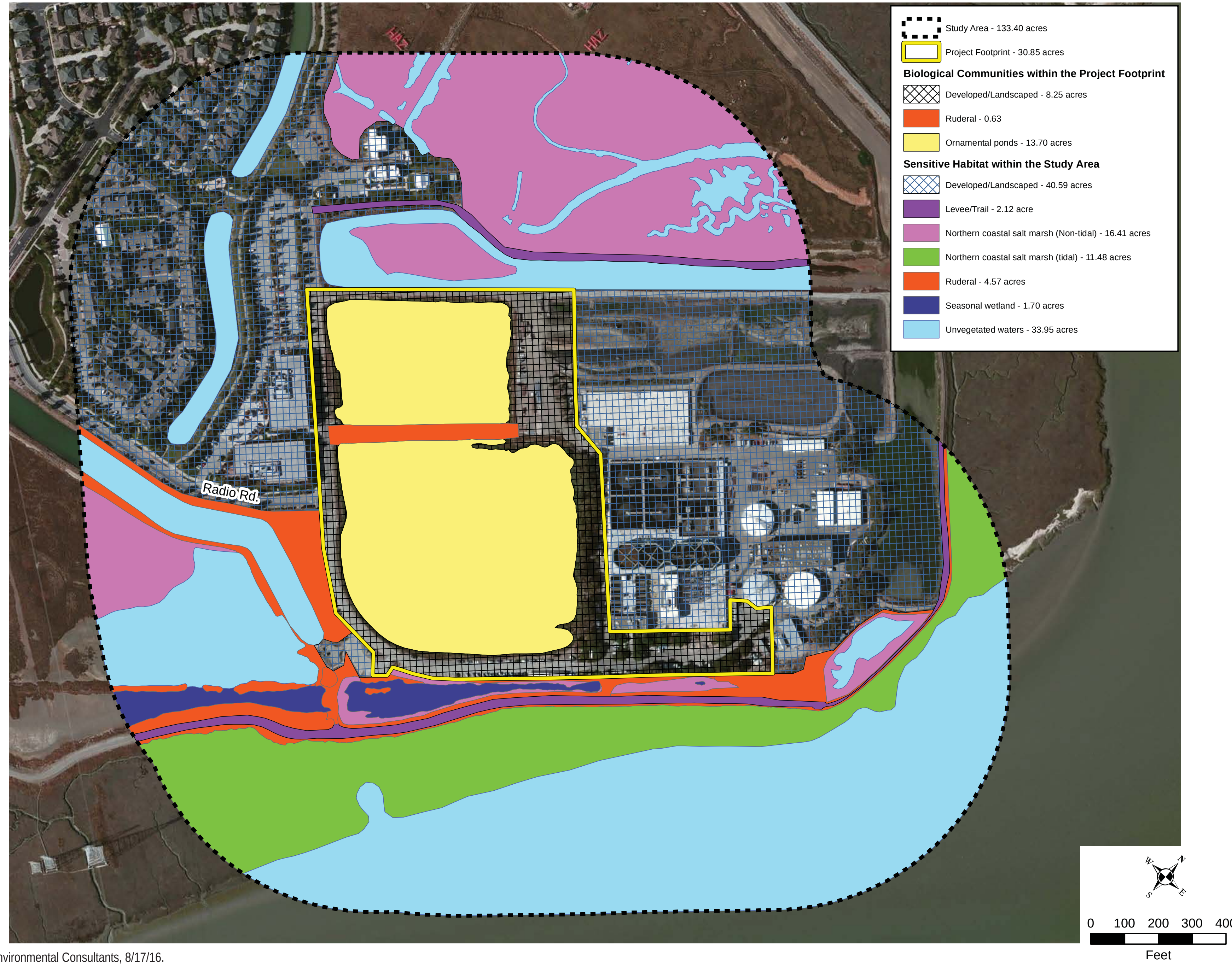
- Ornamental ponds
- Ruderal vegetation
- Developed/Landscaped areas

As noted above, the ponds can be drained and filled at the discretion of SVCW, and they were drained in the fall of 2016 (to conduct geotechnical evaluations), although the baseline condition for purposes of this EIR assumes the ponds are full, which was the case at the time the NOP was issued. The ornamental ponds make up the majority of the biological communities within the WWTP Project footprint. Other areas include developed lands with associated landscaped and ruderal vegetation surrounding the ornamental ponds and the existing WWTP.

Outside the Project footprint, the Study Area supports the following biological communities (see Figure 4.4-6):

- Northern coastal salt marsh
- Unvegetated waters
- Ruderal vegetation
- Developed/Landscaped areas
- Levee and trail

The areas immediately surrounding the ornamental ponds are all developed and landscaped areas, primarily including Radio Road, but also including the existing dog park to the south of Radio Road and the existing SVCW parking area. The existing SVCW treatment plant, including the drying beds and stormwater treatment pond, are also classified as developed and landscaped areas. Levee and trail is present along the reach of the Redwood Shores levee within the Study Area. Northern coastal salt marsh is present in an existing diked area to the northwest of the WWTP, in the diked area south of the dog park, and in tidal marsh areas outboard of the Redwood Shores Levee. The diked area south of the dog park also contains open water areas including unvegetated areas subject to shallow ponding during the winter and a portion of the Redwood Shores canal system.



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE WWTP IMPROVEMENTS AREA

FIGURE 4.4-6

Belmont Conveyance System Improvements

The majority of the Belmont Force Main Improvements will occur subsurface or within the existing pump station building, with only minimal surface disturbance necessary for access shafts, construction and staging. Biological Communities within the Project footprint for the Belmont Conveyance System Improvements include (Figures 4.4-7 and 4.4-8):

- Developed/Landscaped areas
- Ruderal vegetation

The majority of the Project footprint contains paved areas devoid of vegetation. Ruderal vegetation is currently present within the proposed Project staging areas at the Springhill Suites parcel and the U.S. 101/Holly Street Interchange parcel (at the interchange between Highway 101 and Holly Street). It should be noted that a new Marriott hotel, which will include surface parking and landscaping, has been approved on this Sprinhill Suites site.

Outside the Project footprint, biological communities include (Figures 4.4-7 and 4.4-8):

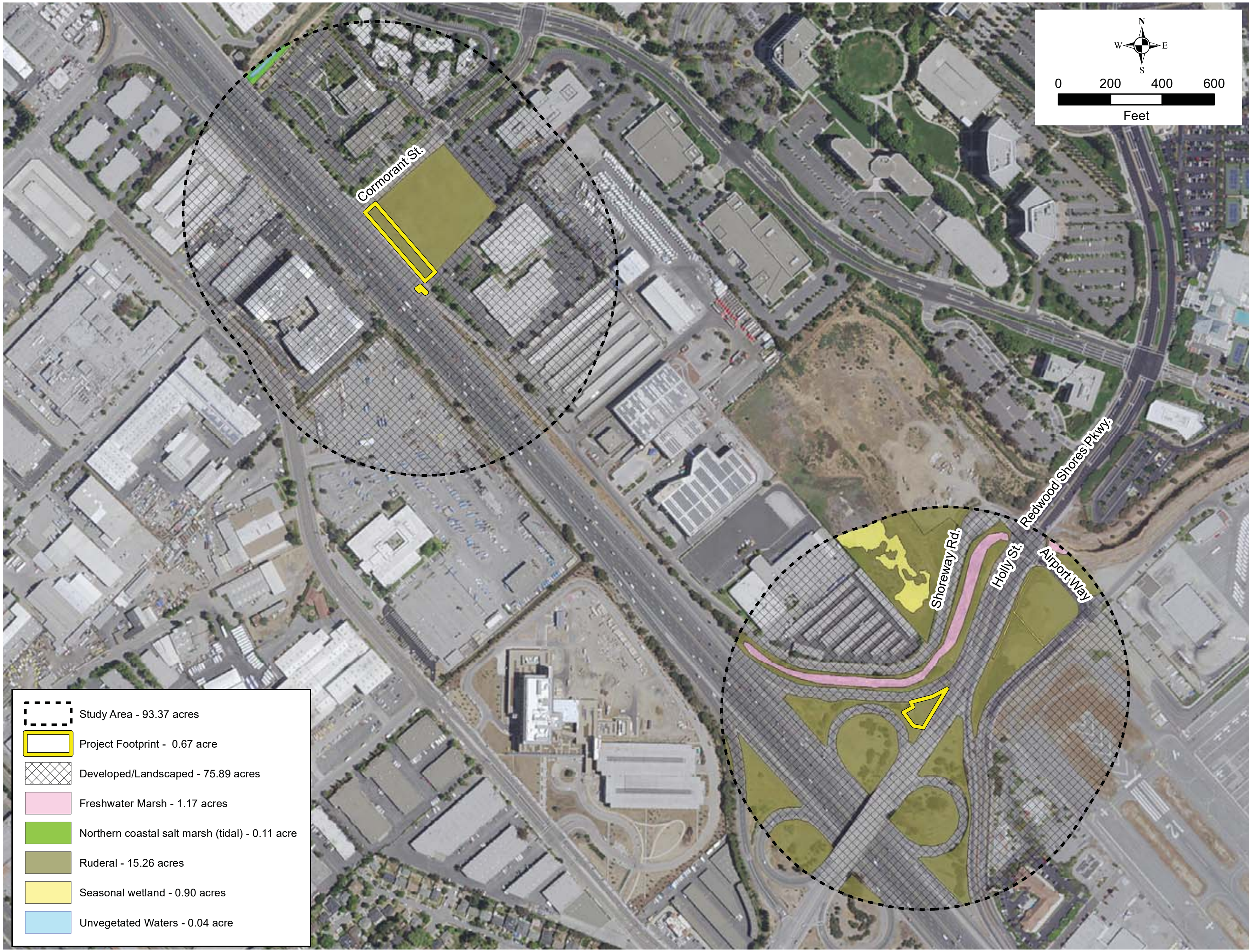
- Freshwater marsh
- Ruderal vegetation
- Developed/Landscaped areas
- Open water
- Northern coastal salt marsh

Most of the area adjacent to the Project footprint contains developed and landscaped areas, primarily existing commercial buildings and related infrastructure. A small tidal channel (the southernmost margin of Bay Slough) and associated northern coastal salt marsh are located just to the southeast of the Belmont Pump Station. A portion of the 54-inch force main crosses beneath freshwater marsh associated with the flood control channel located between Shoreway Road and the on-ramp for U.S. 101 at Holly Street. However, no surface disturbance will occur at this location.

Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE BELMONT PUMP STATION AND STAGING AREAS

FIGURE 4.4-7



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE BELMONT PUMP STATION FORCE MAIN REHABILITATION COMPONENTS FIGURE 4.4-8

San Carlos Pump Station Repurposing

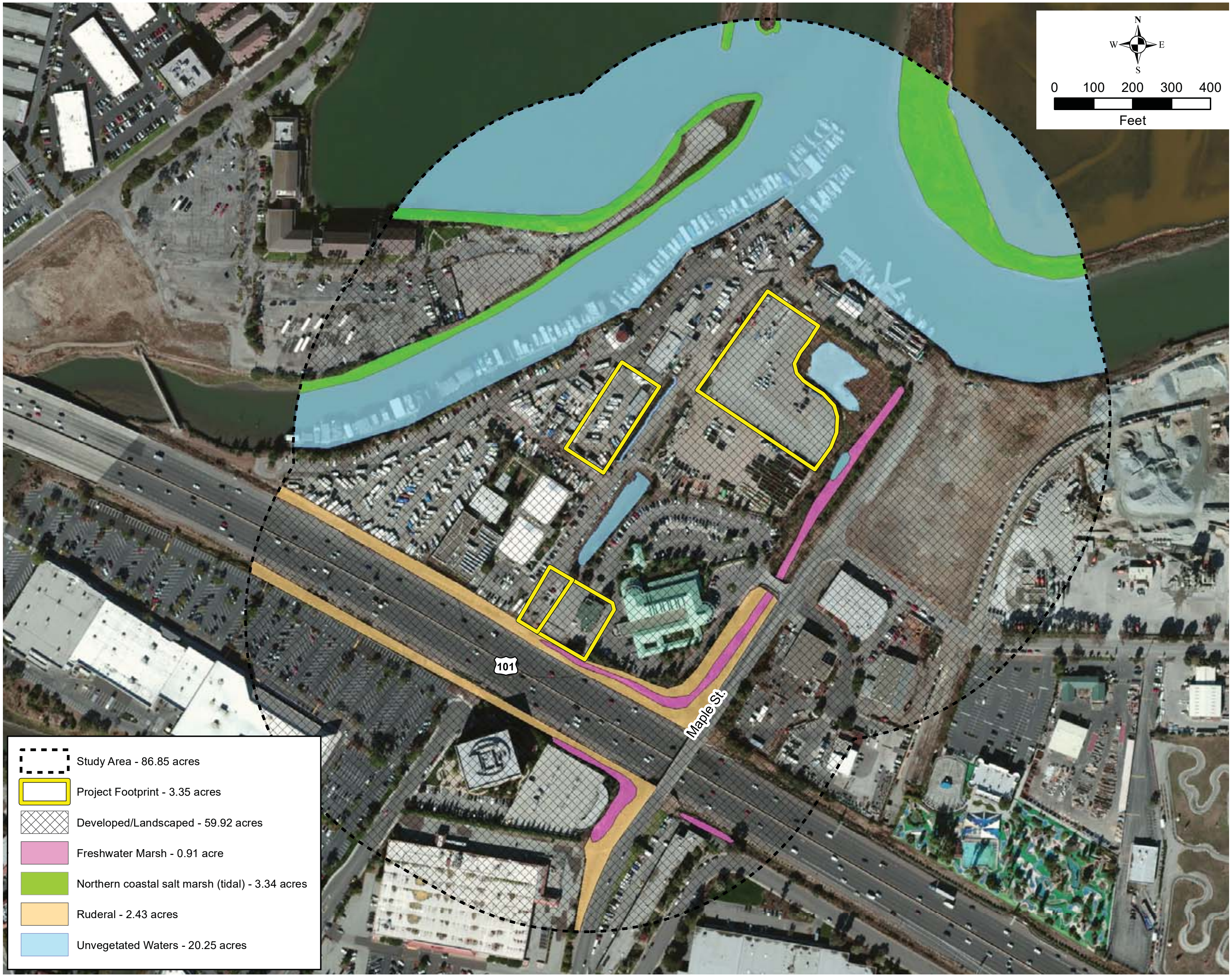
The San Carlos Pump Station is located entirely within developed/landscaped land with minimal areas containing planted trees and shrubs (see Figure 4.4-5). The Project footprint for this portion of the Study Area consists mainly of the concrete pad that holds the current pump station structure, a small area of landscaped vegetation in the northern central portion of the staging area, and an existing impervious parking lot area on the western side of the proposed staging area.

Outside the Project footprint, lands within the Study Area are also entirely developed lands, including commercial real estate and the San Carlos Airport. No sensitive habitat communities are present in the vicinity of the San Carlos Pump Station.

Redwood City Pump Station Replacement

The Redwood City Pump Station is entirely developed/landscaped, and staging areas are located in developed and landscaped areas and areas of ruderal vegetation (see Figure 4.4-9). The pump station lies directly adjacent to Bayshore Freeway (U.S. 101) and is surrounded on the remaining three sides by commercial development. Staging areas proposed for the Redwood City Pump Station avoid sensitive biological communities and were previously evaluated and used as staging for the construction of the 48-inch force main.

Outside the Project footprint, lands within the Study Area are almost entirely developed lands, including public service infrastructure. Two small seasonal wetland ditches containing salt marsh vegetation are present along Maple Street to the north of the pump station. This wetland ditch is non-tidal and is isolated from the greater salt marsh in San Francisco Bay to the north and west. This wetland ditch provides a very minimal value as habitat for plants and wildlife, and will not be disturbed by the Project.



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE REDWOOD CITY PUMP STATION AREA

FIGURE 4.4-9

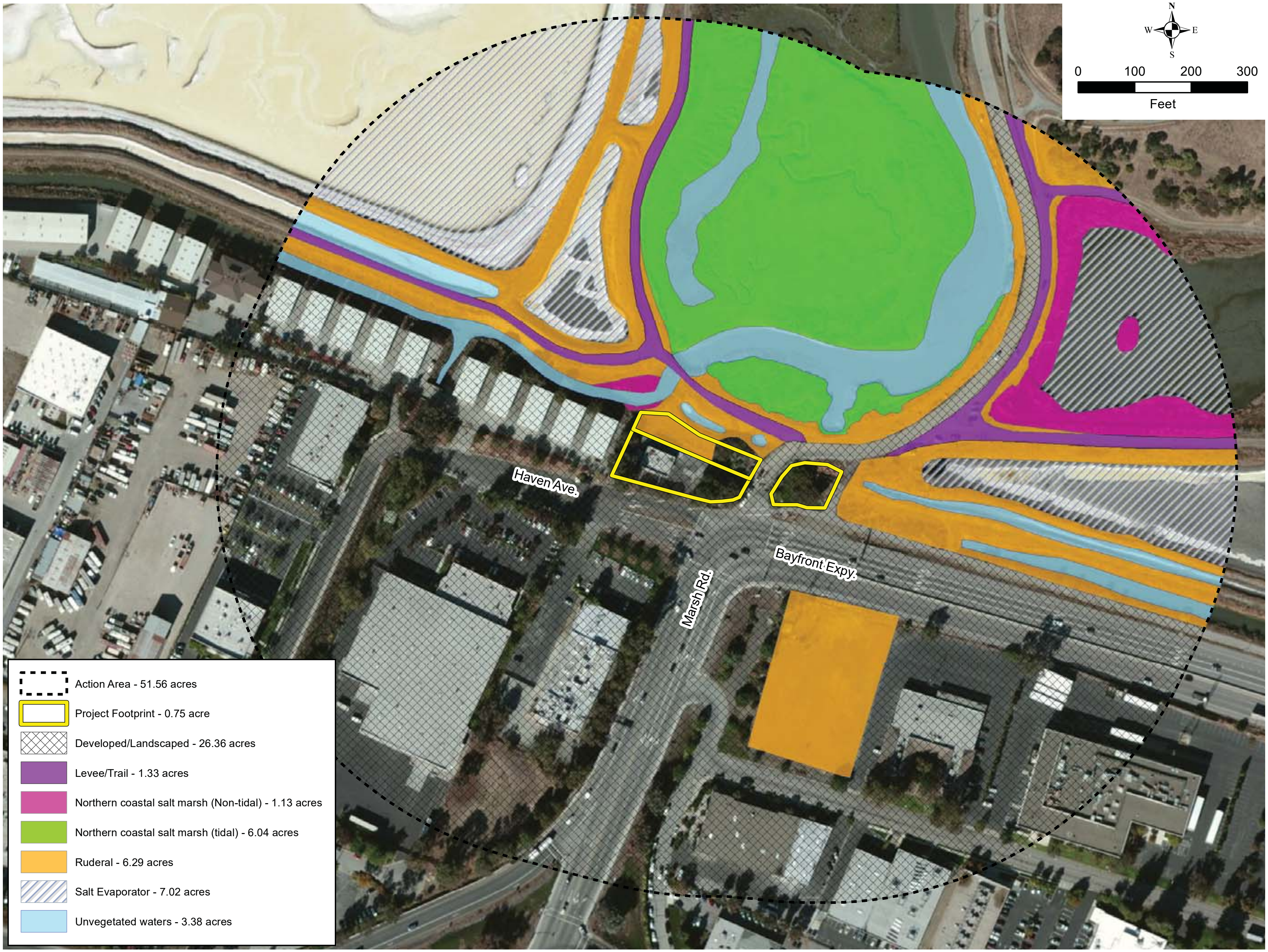
Menlo Park Pump Station Rehabilitation

The Menlo Park Pump Station is located within developed/landscaped lands, and staging areas are located within areas of ruderal vegetation. Surface disturbance will occur mainly within the existing pump station, which is fenced and paved and surrounded by several landscaped trees (Figure 4.4-10). The proposed staging and access areas contain ruderal and landscaped vegetation and could be subject to some vegetation removal.

Outside the Project footprint, lands within the Study Area include:

- Ruderal vegetation
- Developed/landscaped areas,
- Unvegetated waters
- Northern coastal salt marsh

Ruderal vegetation and landscaped/developed areas are dominant to the south of the Menlo Park Pump Station, including Haven Avenue to the south and commercial development to the south and west. Landscaped and developed areas are also present within Bedwell Bayfront Park to the northeast of the pump station. To the north, the Study Area contains a portion of Flood Slough which supports northern coastal salt marsh and unvegetated tidal waters (Figure 4.4-10). The salt marsh in this area of Flood Slough is frequently inundated and generally lacks a vegetated transition zone between the low marsh and surrounding levees. Other open water areas are present to the east of the staging areas, including a remnant salt pond.



Source: WRA Environmental Consultants, 8/17/16.

BIOLOGICAL COMMUNITIES IN THE MENLO PARK PUMP STATION AREA

FIGURE 4.4-10

4.4.2.3 *Existing Conditions for Special-status Plant Species*

Several of the most prevalent, common plant species observed in the Study Area are listed in the vegetation communities section above. Figure 4.4-11 shows the documented occurrences of special-status plant species within five miles of the Study Area. For further information on the plant species observed throughout the Study Area, refer to the reports completed by WRA following various site visits between 2010 and 2014 (See Appendix C).

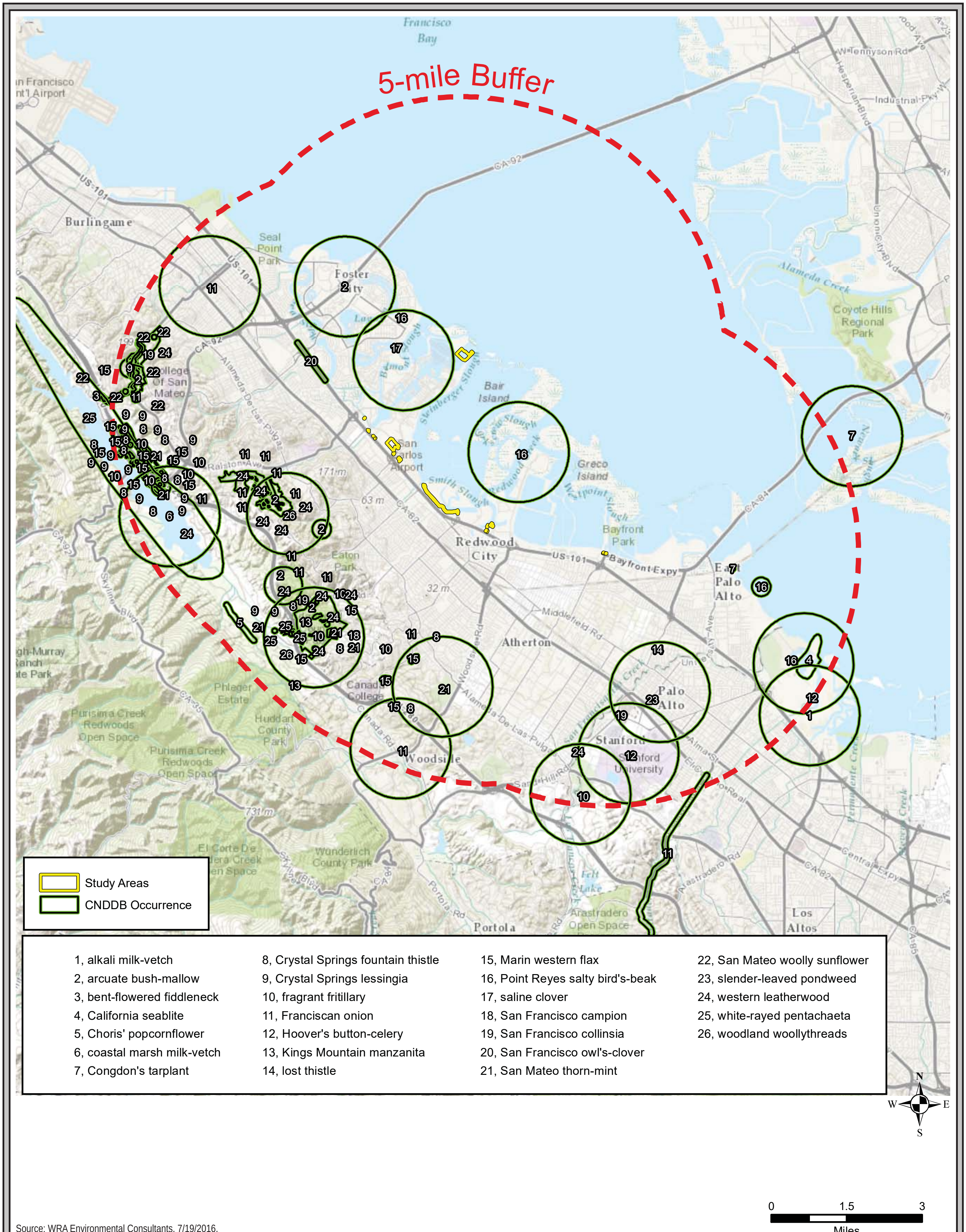
Based on a review of background literature sources referenced above, it was determined that the site is unsuitable for most special-status plant species documented in the literature. Of 61 documented special-status plant species occurrences in the vicinity, 60 were considered unlikely to be present or absent from the Study Area based on one or more of the following reasons:

- The species has a very limited range of geographic location and has never been observed in the vicinity of the Study Area.
- Common plants which are nearly always associated with the special-status species, and which indicate the presence of suitable, intact habitat, are absent from the Study Area.
- Specific soil and other habitat characteristics are absent from the Study Area.
- Management/maintenance of the Study Area (e.g., mowing, landscaping) precludes the species.
- Rare plant species were not observed during recent rare plant surveys in suitable habitat.

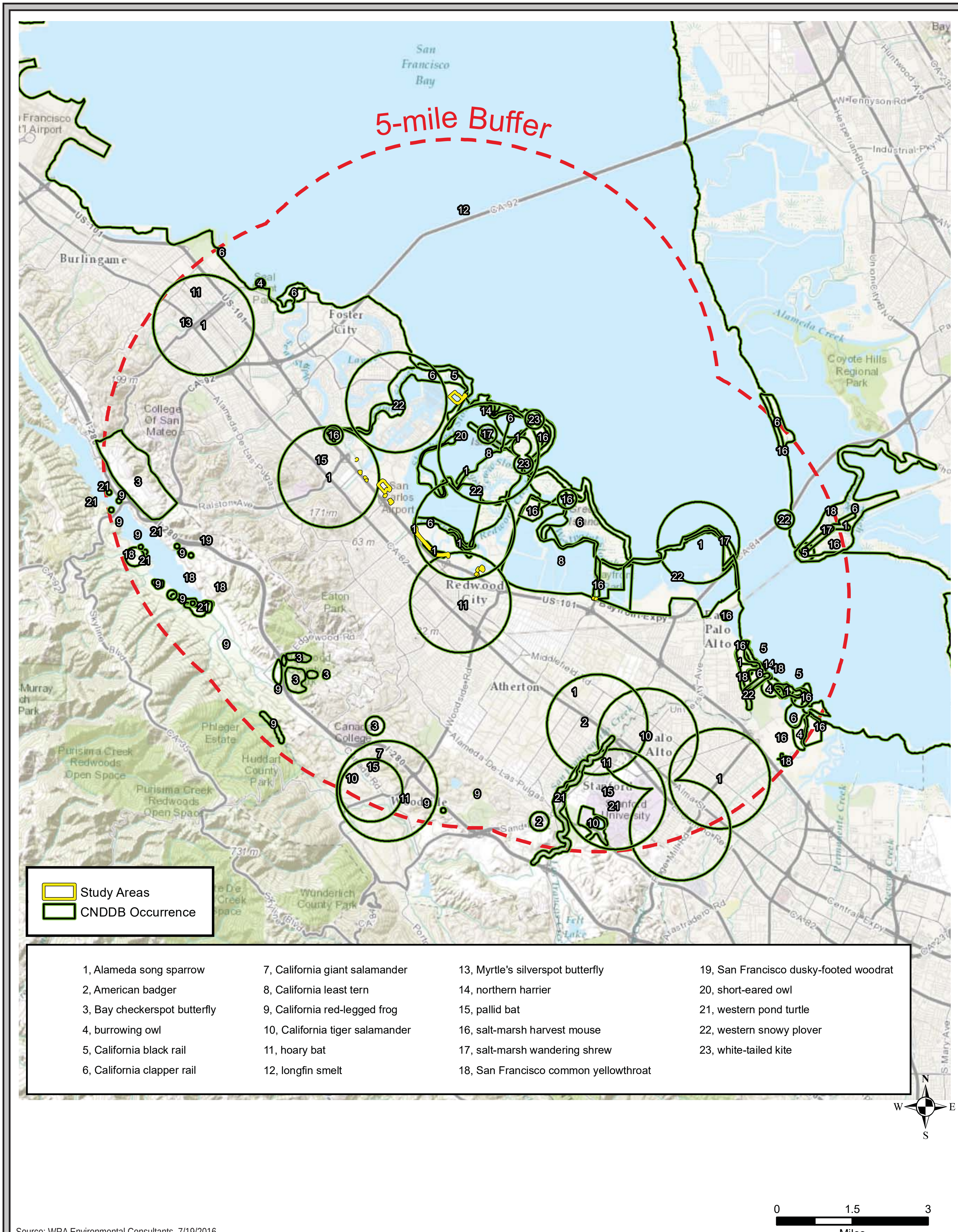
WRA completed rare plant surveys throughout the Project footprint on May 6, 2016 and August 19, 2016. No rare plants were found in any survey (see Appendix C). Existing conditions in and around areas of construction and staging are developed and primarily dominated by non-native and ruderal vegetation. These conditions do not lend themselves to establishment of rare plant populations, and rare plant species are not anticipated to be present prior to or during Project construction.

4.4.2.4 *Existing Conditions for Special-status Wildlife Species*

The following sections address observed and documented wildlife species within the Study Area, including both special-status species and non-special-status species. Much of the Study Area lies within developed and disturbed areas, limiting the diversity and abundance of wildlife species that are likely to inhabit the site. Appendix C summarizes the potential for occurrence for each special-status wildlife species documented in the vicinity of the Study Area. Figure 4.4-12 shows the documented occurrences of special-status wildlife species within five miles of the Study Area.



SPECIAL-STATUS PLANT SPECIES WITHIN 5 MILES OF THE STUDY AREA FIGURE 4.4-11



Source: WRA Environmental Consultants. 7/19/2016.

SPECIAL-STATUS WILDLIFE SPECIES WITHIN 5 MILES OF THE STUDY AREA

FIGURE 4.4-12

General Wildlife

Fishes

Most of the Study Area does not contain aquatic habitats to support fish. Seasonal wetlands within the Study Area are diked and not connected to fresh or brackish water corridors and are thus unlikely to support a population of fish. The recycled water in the ornamental ponds does not contain fish as it is processed and cycles through the ponds regularly via pumps. Tidal channels and sloughs adjacent to the Study Area connect to San Francisco Bay, and are suitable fish habitat for species found within Bay waters. However, the Project will not occur in areas that are suitable for fish.

Herptiles

Due to urban development and the lack of freshwater environments within and adjacent to the Study Area, the Study Area does not contain suitable habitat for amphibians. Aquatic environments within or adjacent to the Study Area are mostly tidal and/or brackish, which are too saline to support amphibian life. The freshwater marsh adjacent to the Airport Access Shaft Staging Area is choked with cattails and not connected to other potential special-status amphibian habitat or occurrences, though it may provide limited habitat for common species such as the Pacific tree frog (Pseudacris regilla). There have been no observations of any amphibian species within the Study Area by WRA.

Common reptile species adapted to disturbed or urban environments, such as the western fence lizard (Sceloporus occidentalis) and the gopher snake (Pituophis catenifer), may be found in ruderal, landscaped, or disturbed habitats including the Airport Access Shaft Area, the WWTP and the Study Area on Inner Bair Island. Aside from common species such as those listed above, there is little potential for other reptiles to occur within the Study Area due to a lack of undeveloped habitat and obstruction to those habitats by urban development. To date, WRA has observed one reptile species, western fence lizard, within the Study Area.

Waterbirds

Sloughs, ponds, mudflats and tidal channels in and adjacent to Inner Bair Island and the WWTP provide suitable foraging and loafing habitat for a wide variety of waterbird species. Nesting habitat for waterbirds within and adjacent to most of the Study Area is limited due to development, tidal inundation, and a lack of vegetation in the majority of the Study Area. Suitable nesting habitat is available within and adjacent to the WWTP (including the ornamental ponds), and adjacent to the Study Area on Inner Bair Island in vegetation that provides cover. Ducks and geese may use vegetation and undisturbed levees and roads adjacent to waters by Inner Bair Island and the WWTP. Avocets and stilts may nest on undisturbed islands, levees, and shorelines within the WWTP ornamental ponds and on Inner Bair Island that offer protection from predators. Forster's terns (Sterna forsteri) nest colonially on the same substrates as avocets and stilts overall, but will avoid the dirt levees within the Study Area.

The active local birding community has documented the following species of waterbirds nesting or attempting to nest at or adjacent to the ornamental ponds (eBird 2016, Yahoo Groups 2016): northern shoveler (Anas clypeata), mallard (Anas platyrhynchos), northern pintail (Anas acuta), ruddy duck (Oxyura jamaicensis), Canada goose (Branta canadensis), black-necked stilt (Himantopus mexicanus), American avocet (Recurvirostra americana), Forster's tern (Sterna forsteri); snowy egret

(Egretta thula), and black-crowned night-heron (Nycticorax nycticorax). WRA documented nesting Forster's terns at the ponds during the summer of 2015.

Eucalyptus trees adjacent to the WWTP have been previously used as rookeries by nesting egret and heron species (Yahoo Groups 2016). No heron or egret species that nest within the San Francisco Bay Area are special-status species; however, known rookeries are documented and protected by CDFW. The trees adjacent to the WWTP are not natural roosting or nesting habitat for herons and egrets and were planted as a part of the WWTP landscaping. Herons and egrets began using the trees following the orchestrated inundation of the ornamental ponds. However, the ponds were drained to combat an outbreak of avian cholera in early 2014. At that point, the ponds no longer provided a resource for herons and egrets, and their presence waned and nesting ceased (eBird 2016). Thus, the eucalyptus trees are used by herons and egrets when it is convenient from the inundation of the ponds, and not because the ponds provide a natural, vital resource for these species. Based on WRA's observations, the ornamental ponds are virtually unused by waterbirds when the ponds are dry, and would thus support nesting only in common bird species habituated to disturbed sitesf.

When filled, the ornamental ponds are opportunistically used by waterbirds that do not use the area when the ponds are dry and habitat value is greatly reduced. Without water, the habitat value of the ponds is similar to other dry, landscaped, or managed areas in the vicinity. The ponds were also first filled in 2002, so they do not represent natural or historical habitat for waterbirds; rather, they have been used opportunistically by waterbirds migrating through the area. Based on the impermanence of water within the ponds and the opportunistic use of the ponds by waterbirds depending on water levels, the ponds do not represent high-value habitat for these species. Moreover, the functional value of the ornamental ponds for the birds is not unique to the ornamental ponds; many other natural and man-made areas in the region provide the same functions (see comments by USFWS Refuge, Appendix C).

Other Birds (non-waterbirds)

The Study Area provides some suitable habitat for passerines and other non-waterbird species, including raptors. Common and generalist raptors such as red-tailed hawk (Buteo jamaicensis) have been observed by WRA foraging within the Study Area, and PG&E towers, ornamental trees, and utility poles provide raptor perches. Developed and landscaped portions of the Study Area may support urban-adapted passerine species including northern mockingbird (Mimus polyglottos) and western scrub-jay (Aphelocoma californica), as well as the non-native European starling (Sturnus vulgaris). However, woody vegetative cover of any type (e.g., trees, shrubs) is limited in areas that are not developed, restricting typical bird forage such as seeds and invertebrates. Ruderal, weedy cover within the Study Area offers some foraging and perching habitat for common species such as American goldfinch (Carduelis tristis), California towhee (Melozone crissalis), and mourning dove (Zenaida macroura). Passerine species associated with open, barren habitats such as American pipit (Anthus rubescens) and killdeer (Charadrius vociferous) may occur along roads. Seasonal wetlands within the Study Area adjacent to the WWTP and the Redwood City Pump Station contain emergent vegetation that may provide forage and cover for species such as red-winged blackbird (Agelaius phoeniceus).

Non-waterbirds may breed in a variety of structures and locations within and adjacent to the Study Area. Black phoebe (Sayornis nigricans) and barn swallow (Hirundo rustica) commonly utilize man-made structures and disturbed habitats in the San Francisco Bay Area, and build nests in structures such as culverts and the eaves of buildings. Ruderal vegetation within and adjacent to the Airport Access Shaft Area, the WWTP, and Inner Bair Island may support nesting passerines. Landscaped vegetation in developed portions of the Study Area may also be suitable for nesting urban-adapted passerine species. Ruderal and seasonal wetland vegetation may also be used as nesting substrate by passerines. However, due to the small, fragmented nature of these wetlands and ruderal sections and their location within a region of greater urban development, most birds likely to nest in these areas are species adapted to urban environments. Most common raptors are unlikely to nest within or adjacent to the Study Area due to the small amount of large trees and thick, undisturbed vegetation. Some special-status raptors, such as white-tailed kite (Elanus leucurus) and American peregrine falcon (Falco peregrinus anatum), may find suitable nesting habitat in select portions of the Study Area and are discussed below.

Mammals

The Study Area provides habitat for a variety of mammalian species. Common species such as California ground squirrel (Spermophilus beecheyi), Botta's pocket gopher (Thomomys bottae), and black-tailed jackrabbit (Lepus californicus) may inhabit landscaped, disturbed, urban, and ruderal areas and thus may inhabit the majority of the portions of the Study Area. Additional common and widespread species such as western harvest mouse (Reithrodontomys megalotis), raccoon (Procyon lotor) and striped skunk (Mephitis mephitis) may also occur. Occasionally, marine mammals such as Pacific harbor seal (Phoca vitulina) may venture into larger sloughs adjacent to the WWTP and Inner Bair Island. WRA has documented three mammalian species within or adjacent to the Study Area: black-tailed jackrabbit, California ground squirrel, and Pacific harbor seal.

Special-status Wildlife Species with Potential to Occur in the Project Footprint

Eighty-four (84) special-status wildlife species have been recorded in the vicinity of the Study Area. Of these, 64 were determined to be unlikely or have no potential to occur both in and adjacent to all portions of the Study Area, due to local extirpation following development, lack of suitable habitat, and the Study Area's location outside of the species' current range. Habitat suitability for grassland-associated species in the Study Area is reduced due to the fragmentation and disturbance of ruderal communities from encroaching development. No construction would occur in areas inhabited by special-status fish or marine mammals. Additionally, no onsite or adjacent aquatic communities are considered suitable for special-status amphibians or reptiles due to intolerable salinity levels and surrounding urban development.

Twenty (20) special-status wildlife species were either a) observed by WRA within the Study Area over the course of WRA's extended presence there, or b) were determined to have moderate or high potential to occur in at least one portion of the Study Area. Ten (10) of these species were observed at least once by WRA between 2012 and 2015. For the remaining 10 species, at least one portion of the Study Area contains habitat that has potential to support the species.

American White Pelican (Pelecanus erythrorhynchos); CDFW Species of Special Concern; Present (not nesting). This pelican is primarily an inland species, occurring in the San Francisco Bay region typically as a migrant and winter visitor, although non-breeding individuals have been known to occur year-round. The nearest breeding locations are in northeastern California (Shuford and Gardali

2008). Prey consists primarily of small, schooling fishes; foraging typically occurs in shallow waters, often cooperatively. This species was observed by WRA loafing in the ornamental ponds at the WWTP in 2015. This pelican may also forage or loaf in open waters adjacent to the WWTP, Inner Bair Island, and the Menlo Park Pump Station. No breeding habitat is present within or adjacent to the Study Area, and this species does not breed in the San Francisco Bay region. Additionally, because the ornamental ponds were drained in the fall of 2016 (to conduct geotechnical evaluations) and are planned to remain dry until a decision is made by the SVCW Commission on the proposed Project in the spring of 2017, this species is not expected to occur anywhere within the Project footprint during construction.

California Brown Pelican (Pelecanus occidentalis californicus); Federal Delisted, State Delisted, CDFW Fully Protected; Present (not nesting). Brown Pelican is a non-breeding visitor in the San Francisco Bay region, occurring nearly year-round. The nearest breeding location is in the Channel Islands. This species is often common in coastal and outer estuarine habitats, foraging for fish in open water and roosting in groups on coastal rocks as well as man-made structures such as jetties and piers. This species was observed by WRA loafing in the ornamental ponds at the WWTP in 2015. This pelican may also forage or loaf in open waters adjacent to the WWTP, Inner Bair Island, and the Menlo Park Pump Station. No breeding habitat is present within or adjacent to the Study Area, and this species does not breed in the San Francisco Bay region. Additionally, because the ornamental ponds were drained in the fall of 2016 (to conduct geotechnical evaluations) and are planned to remain dry until a decision is made by the SVCW Commission on the proposed roject in the spring of 2017, this species is not expected to occur anywhere within the Project footprint during construction.

Northern Harrier (Circus cyaneus); CDFW Species of Special Concern; Present. Northern harrier is found in open habitats throughout most of California, including freshwater and brackish marshes, fields, grasslands, agricultural areas and desert habitats. Harriers typically nest on the ground in open (i.e., treeless) areas in dense, relatively tall, vegetation, the composition of which is highly variable (Davis and Niemala 2008). Harriers are predatory and subsist on a variety of small mammals and other vertebrates. This species was observed by WRA flying over salt-marsh at Inner Bair Island. Other potential foraging habitat within the Study Area includes the areas surrounding the WWTP and adjacent to the Menlo Park Pump Station. Low-quality foraging habitat exists within the Airport Access Shaft Area. Although nesting is currently unlikely throughout the Study Area due to a lack of tall, dense, grassy vegetation; nesting adjacent to the Project footprint on Inner Bair Island may become more likely if upland vegetation in the restored northwestern portion of the island grows to a sufficient density by the start of construction.

White-tailed Kite (Elanus leucurus); CDFW Fully Protected; High Potential. White-tailed Kite is resident in agricultural areas, grasslands, scrub habitats, wet meadows, and emergent wetlands throughout the lower elevations of California. Nests are constructed mostly of twigs and placed in small to large trees, often at habitat edges (Dunk 1995). This species preys upon a variety of small mammals and other vertebrates. This species has been documented to nest within two miles of the Study Area on Outer Bair Island (CDFW 2016). Marsh and ruderal communities within and adjacent to Inner Bair Island, the Airport Access Shaft Area, and the Menlo Park Pump Station provide foraging habitat, and large trees or shrubs in these areas provide nesting habitat. Landscape trees throughout other portions of the Study Area are disturbed and provide poor nesting habitat, although nesting is possible.

American Peregrine Falcon (Falco peregrinus anatum); Federal Delisted, State Delisted, USFWS Bird of Conservation Concern, CDFW Fully Protected; Present. Peregrine falcon occurs as an uncommon resident, winter visitor and migrant throughout much of California. Nesting typically occurs on cliffs, rocky ridges or man-made structures such as bridges and tall buildings. Non-breeding habitat is variable and generally determined by the abundance of avian prey, particularly waterbirds. This species was observed by WRA foraging adjacent to Inner Bair Island, and has been documented to forage within the ornamental ponds at the WWTP (eBird 2016). Additionally, this species may forage in marsh adjacent to the Menlo Park Pump Station. Prey for this species is abundant within and adjacent to the Study Area along Redwood Shores and Inner Bair Island. Potential nesting habitat within the Study Area is limited to manmade structures that are regularly used, maintained, and are of poor quality for nesting. However, nesting is possible.

Long-billed Curlew (Numenius americanus); USFWS Bird of Conservation Concern; Moderate Potential (not nesting). This large sandpiper is a common winter visitor to the San Francisco Bay Estuary, foraging on mudflats (both tidal and non-tidal), open grasslands, and pastures with relatively short vegetation. Nesting habitat in California consists of short-grass prairies and wet meadows in the northeastern portion of the state. This species may forage in open mudflats within or adjacent to the Study Area, primarily around the WWTP, Inner Bair Island, and the Menlo Park Pump Station. This species does not nest in the vicinity of San Francisco Bay and is typically absent during the breeding season.

Caspian Tern (Hydroprogne caspia); USFWS Bird of Conservation Concern; High Potential. Caspian tern, the largest tern species, is largely a summer resident in northern California. It breeds colonially on undisturbed islands in large lakes, estuaries, river mouths and other coastal habitats. Expanses of open water with surface-shoaling fish are required for foraging. Caspian tern has been documented foraging and attempting to nest at the ornamental ponds at the WWTP (Yahoo Groups 2016). Islands within the ornamental ponds provide suitable nesting habitat for this species when water is present to prevent predators from accessing the nest and young. However, because the ornamental ponds were drained in the fall of 2016 (to conduct geotechnical evaluations) and are planned to remain dry until a decision is made by the SVCW Commission on the proposed Project in the spring of 2017, no nesting is anticipated within the Project footprint during construction. Additionally, this species may forage over open waters within or adjacent to other portions of the Study Area including offshore of the WWTP and Inner Bair Island, though no nesting habitat is present in these areas.

Black Skimmer (Rynchops niger); CDFW Species of Special Concern, USFWS Bird of Conservation Concern; Present. Black skimmer, a relative of the gulls and terns, is unique for having a lower mandible longer than the upper. It feeds on small fish by skimming its lower mandible along the surface of calm waters, principally at night. Black Skimmer is resident in California, occurring primarily in the southern portion of the state; a small population exists in South San Francisco Bay. This species nests colonially on undisturbed earthen islands or levees, often with terns (Molina 2008). Black skimmer has been observed by WRA and documented to attempt to nest at the ornamental ponds at the WWTP (eBird 2016, Yahoo Groups 2016). Islands within the ornamental ponds provide suitable nesting habitat for this species when water is present to prevent predators from accessing the nest and young. However, because the ornamental ponds were drained in the fall of 2016 (to conduct geotechnical evaluations) and are planned to remain dry until a decision is made by the SVCW Commission on the proposed Project in the spring of 2017, no nesting is anticipated within the Project footprint during construction. Additionally, this species may forage over open waters within or adjacent to other portions of the Study Area including offshore of the WWTP and Inner Bair Island, though no nesting habitat is present in these areas.

Nuttall's Woodpecker (Picoides nuttallii); USFWS Bird of Conservation Concern; Present. Nuttall's woodpecker, common in much of its range, is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is oak or mixed woodland, and riparian areas (Lowther 2000). Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. This species forages on a variety of arboreal invertebrates. This species was observed by WRA at the WWTP during bird surveys. Additionally, this species can be common in urban forest environments, and trees around the Gravity Pipeline surface disturbance areas may contain cavities suitable for nesting.

Oak Titmouse (*Baeolophus inornatus*); USFWS Bird of Conservation Concern; Moderate Potential. This relatively common species is a year-round resident throughout much of California including most of the coastal slope, the Central Valley and the western Sierra Nevada foothills. Its primary habitat is woodland dominated by oaks. Local populations have adapted to woodlands of pines and/or junipers in some areas (Cicero 2000). The oak titmouse nests in tree cavities, usually natural cavities or those excavated by woodpeckers, though they may partially excavate their own (Cicero 2000). Seeds and arboreal invertebrates make up the birds' diet. This species has been documented to inhabit the Redwood Shores area (eBird 2016). Additionally, this species can be found in urban forest environments, and trees around the Gravity Pipeline surface disturbance areas may contain cavities suitable for nesting.

Loggerhead Shrike (Lanius ludovicianus); CDFW Species of Special Concern, USFWS Bird of Conservation Concern; Moderate Potential. Loggerhead shrike is a resident and winter visitor in lowlands and foothills throughout California. This species is associated with open country with short vegetation and scattered trees, shrubs, posts, fences, utility lines or other perches. Nesting substrates vary from trees to brush piles; vegetation with thorns is usually preferred, and nests are typically well-concealed (Yosef 1996). Although they are songbirds, shrikes are predatory and forage on a variety of invertebrates and small vertebrates. This species has been documented to occur on Inner Bair Island and at the WWTP, and may forage in other undeveloped portions of the Study Area including near the Airport Access Shaft Area (eBird 2016). Dense vegetation typical of nesting habitat is currently limited within the Study Area to patches of shrubbery within the Airport Access Shaft Area. However, upland vegetation growth in the northwest portion of Inner Bair Island following restoration may support nesting at the time of construction.

Alameda Song Sparrow (Melospiza melodia pusillula); CDFW Species of Special Concern, USFWS Bird of Conservation Concern; Present. Alameda song sparrow, a subspecies of the common and widespread song sparrow (M. melodia), is an endemic resident of marsh habitat along the fringes of south and east San Francisco Bay. This subspecies prefers tidally influenced marsh, and taller shrubs such as gumplant are required for breeding to avoid nest flooding during high tides (Chan and Spautz

2008). This subspecies has been observed on Inner Bair Island and at the WWTP. Vegetation suitable for nesting is also present at these locations, and in marsh adjacent to the Belmont Pump Station and Menlo Park Pump Station. Lower quality ruderal vegetation for nesting is present at the Airport Access Shaft Area.

Bryant's Savannah Sparrow (Passerculus sandwichensis alaudinus); CDFW Species of Special Concern; Present. Bryant's Savannah Sparrow, a subspecies of the common and widespread Savannah Sparrow (P. sandwichensis), is an endemic resident in the coastal California fog belt. It typically occupies upper tidally-influenced habitats, often found where pickleweed communities merge into grassland; nesting occurs in vegetation on or near the ground, including along roads, levees, and canals (Fitton 2008). Like most sparrows, Bryant's consumes primarily invertebrates and vegetable matter (e.g., seeds). This species has been observed by WRA and others on Inner Bair Island and at the WWTP (eBird 2016). Nesting habitat is somewhat limited in these areas, although regrowth of vegetation at Inner Bair Island may increase available nesting habitat at the time of construction. Additionally, the Airport Access Shaft Area contains suitable, but lower-quality foraging and nesting habitat for this species.

San Francisco Common Yellowthroat (Geothlypis trichas sinuosa); CDFW Species of Special Concern, USFWS Bird of Conservation Concern; Present. San Francisco (formerly salt marsh) common yellowthroat, a subspecies of the common yellowthroat (G. trichas), is an endemic resident of the greater San Francisco Bay region. It typically nests and forages in emergent vegetation of salt, brackish and freshwater marshes, and also utilizes adjacent higher-elevation areas. Nests are well-concealed in vegetative substrates such as grass, tules, cattails and some shrubs (Gardali and Evens 2008). This species has been observed by WRA and others on Inner Bair Island and in emergent vegetation adjacent to the WWTP (eBird 2016, Yahoo Groups 2016). This species may forage and nest in the limited tall emergent vegetation along slough channels and the upper marsh edge along Inner Bair Island and in tall emergent vegetation adjacent to the Redwood City Pump Station and Menlo Park Pump Station. Suitable, but lower-quality habitat for this species is also found within the Airport Access Shaft Area.

Special-status Wildlife Species which may occur within the Study Area but Outside the Project Footprint

The following species have the potential to occur within the Study Area adjacent to, but not within, the proposed Project footprint. These species are unlikely to occur within the Project footprint due to a lack of suitable habitat within the Project footprint or a lack of access to the Project footprint from suitable habitat in the vicinity. Special-status fish species, marine mammals, and marine invertebrates that have potential to occur within the Study Area but outside of the proposed Project footprint are included for completeness. However, Project components within the Study Area will not involve in-water work, and no impacts to aquatic habitats are anticipated.

Short-eared Owl (Asio flammeus); CDFW Species of Special Concern; Moderate Potential. The short-eared owl occurs primarily as a winter visitor in California; regular breeding is restricted to the Great Basin, portions of the Central Valley, and scattered other lowland locations (e.g., the northern Sacramento-San Joaquin Delta; Shuford and Gardali 2008). Suitable year-round habitat for this species consists of open areas with herbaceous cover, and includes grasslands, prairies, marshes and wetlands, and agricultural areas. Nests are placed on the ground within vegetative cover. Short-eared owl breeding varies widely in geographic extent across years and is usually closely tied to the population cycle of voles (Microtus spp.), their primary prey (Shuford and Gardali 2008). Potentially suitable foraging habitat within the Study Area is limited to marsh and uplands on Inner Bair Island and marsh and uplands adjacent to the WWTP and Menlo Park Pump Station. Currently, these areas lack tall, dense vegetation and are unlikely to support breeding. However, upland vegetation regrowth over the next 5 years following restoration in the northeastern portion of Inner Bair Island may support nesting there in the future. This species is very unlikely to occur in other portions of Study Area due to high levels of urbanization and disturbance, lack of typical foraging habitat, and the absence of breeding habitat.

<u>Western Burrowing Owl (Athene cunicularia); CDFW Species of Special Concern, USFWS Bird of Conservation Concern; Present</u>. Western burrowing owl inhabits open areas with sparse or non-existent tree or shrub canopies; typical habitat is annual or perennial grassland, although human-modified areas such as agricultural land and airports are also used (Poulin et al. 2011). Burrowing owl is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting. In northern California, this species is typically found in close association with California ground squirrel. Anthropogenic substrates such as pipes or debris piles may also be occupied in place of burrows. In the San Francisco Bay Area, the species is generally resident year-round, and shows strong site fidelity.

This species has been documented by WRA and others to occur on Inner Bair Island, but only during the winter months, outside of the nesting season (eBird 2016). This species has very few documented occurrences along the San Francisco Peninsula north of the Dumbarton Bridge, including on the Bair Islands (eBird 2016). Burrowing owl is currently unlikely to inhabit Inner Bair Island within the Study Area, due to a lack of burrows following recent construction grading and compaction activities. Burrows may be present in ungraded areas adjacent to the Study Area on Inner Bair Island, but any burrows are unlikely to be used for nesting, given the pattern of absence of the species during the breeding season, nor for wintering due to only single or short-duration use of the site, indicating stopovers rather than wintering use. Habitat within the remainder of the open portions Study Area, including the WWTP and the Airport Access Shaft Area contains some vegetation low enough in height; however, none of these areas currently have burrows suitable for this species. Additionally, burrowing owl is unlikely to inhabit these portions of the Study Area and adjacent areas due to the prevalence of pavement, compacted gravel, and other surfaces impermeable to burrowing.

<u>Salt Marsh Wandering Shrew (Sorex vagrans halicoetes); CDFW Species of Special Concern; Moderate Potential</u>. This subspecies of the wandering shrew (S. vagrans) is endemic to the San Francisco Bay Estuary, historically inhabiting tidal marshes from the east shore of San Pablo Bay to Alviso, and along the west shore of South San Francisco Bay. Extant populations are known along the southeast shore of Bair Island, north of Corkscrew Slough, along the north bank of Mowry Slough, Dumbarton Point along the Southern Pacific elevated train tracks, and near the levee bordering the north portion of the marsh at the mouth of Alameda Creek (Josselyn et al. 1991). Typical habitat is medium to high pickleweed marsh with abundant driftwood present. This species has been documented to occur within one mile of the Study Area on Outer Bair Island (CDFW 2016). This species is unlikely to occur within all Project footprints, due to a lack of tidal marsh

vegetation. The Project footprint on Inner Bair Island is graded from recent construction activity and does not currently contain tidal marsh vegetation. However, there is tidal marsh adjacent to Project footprints on Inner Bair Island, the WWTP, and the Menlo Park Pump Station. These marshes are dominated by pickleweed and contain some driftwood, though the quality of habitat is reduced by the relatively limited amount of high tide refuge areas. Thus, this species may occur in tidal marsh adjacent to Project footprints in these areas. Tidal marsh adjacent to the Belmont Pump Station is short and sparsely vegetated, and does not allow access as a corridor between areas of suitable habitat; salt marsh wandering shrew (SMWS) is unlikely to occur there. No other portions of the Study Area have potential to support SMWS.

<u>Salt Marsh Harvest Mouse (Reithrodontomys raviventris); Federal Endangered, State Endangered, CDFW Fully Protected; Moderate Potential.</u> The Salt Marsh Harvest Mouse (SMHM) is a relatively small rodent found only in and adjacent to suitable salt- and brackish-marsh habitat in the greater San Francisco Bay, San Pablo Bay, and Suisun Bay areas. This species has been divided into two subspecies: the northern SMHM (Reithrodontomys raviventris halicoetes), which lives in the brackish marshes of the San Pablo and Suisun Bays, and the southern SMHM (Reithrodontomys raviventris raviventris), which is found in the marshes of San Francisco Bay and several locations north of the Golden Gate. Habitat associated with SMHM has been described as pickleweed-dominated marsh (Fisler 1965), though more recent studies have shown that SMHM is supported equally in pickleweed-dominated and mixed-vegetation (including native and non-native salt- and brackish-marsh species) (Sustaita et al. 2005, Sustaita et al. 2011). Furthermore, Shellhammer et al. (2010) found that SMHM inhabit brackish marshes with a developed thatch layer of vegetation, including bulrush (Schoenoplectus spp.), pepperweed (Lepidium latifolium)/bulrush, and pepperweed/spearscale marshes.

The SMHM does not burrow, and thus it is dependent on year-round vegetative cover. As such, the plant species composition of habitat is less important than the quality of cover from predators and the food sources provided by the vegetation. The SMHM prefers deep, dense vegetative cover greater than 11.8-inches (30 centimeters) in height (USFWS 1984), though there are indicators that shorter stands of vegetation (5.9-inches [15 centimeters] is the shortest commonly used) may also support an abundance of this species (Fisler 1965; Shellhammer et al. 1982). In tidal areas, the suitability of cover and vegetation depth is also dependent on the degree to which tidal vegetation is submerged during high tide events. The presence of grassland habitat adjacent to the marsh is not a strict requirement, though the SMHM's seasonal use of available upland grasslands (sometimes over 300 feet from the marsh edge) suggests that they opportunistically forage and seek cover within grasslands (USFWS 2010). Another key habitat requirement for this species is upland or tidal refuge habitat, which is used to escape high tides and storm events that flood portions of its habitat. SMHM is a good swimmer when necessary, but it feeds, nests, and seeks cover outside the water and thus requires refuge from incoming tides and floods. Tall stands of pickleweed that remain unsubmerged during high tides or floods, as well as gumplant (Grindelia), bulrush, natural and artificial dikes and levees, floating debris, and grasslands adjacent to the marsh edge are all potential sources of refuge. Without at least one of these forms of refuge available, the SMHM cannot persist in a wetland.

The SMHM is currently unlikely to occur within any portion of the proposed Project footprints, but has potential to be present in adjacent areas on Inner Bair Island and in the ruderal areas, seasonal wetlands, and tidal marshes to the southwest and southeast of the WWTP across Radio Road and adjacent to the Menlo Park Pump Station. The ruderal area dominated by eucalyptus between the ornamental ponds and the WWTP supports very little cover by herbaceous vegetation, and SMHM does not have the potential to occur there.

Marsh adjacent to the Project footprint on Inner Bair Island between U.S. 101 and the perimeter road is suitable for SMHM. SMHM has been documented to occur on Outer and Middle Bair Islands to the north (CDFW 2016, SFEI 2016), and there are no absolute barriers to dispersal between Inner Bair and Middle and Outer Bair islands, though the open water between them likely limits dispersal between all three islands. Because suitable salt marsh is present within the Study Area and no insurmountable barriers to dispersal occur between on-site salt marsh and documented occurrences to the north, SMHM is assumed present throughout suitable salt marsh and adjacent marsh/upland transition zones along Inner Bair Island that provide suitable cover as high tide refuges. Areas of Project construction on Inner Bair Island are non-tidal and currently unvegetated, and thus provide no cover for SMHM. However, SMHM may occasionally briefly venture into this portion of the Study Area, but this species is unlikely to inhabit it or seek refuge within it in its current unvegetated state.

Seasonal wetlands and associated ruderal areas to the south and west of the WWTP Improvements and WWTP Tunnel Boring Machine Retrieval Shaft Project footprints have the potential to support SMHM, and SMHM have been documented along the southern side of Redwood Shores (SFEI 2016). Large areas of tidal marsh and diked wetlands south of Radio Road contain vegetation tall and dense enough for SMHM. Cattails south of the eastern-most portion of this Study Area have died and may not provide suitable habitat for SMHM at the time of construction, depending on the density of thatch cover remaining. Ruderal areas southeast of the WWTP projects provide more limited habitat; they do not provide dense, permanent habitat but do contain cover that SMHM may use seasonally or temporarily during dispersal. The Improvements and WWTP Tunnel Boring Machine Retrieval Shaft Project footprints do not contain wetland or other vegetation dense enough to support SMHM. Additionally, although some areas adjacent to this portion of the Study Area are suitable for SMHM, most of this Study Area is immediately surrounded by roads, parking lots, or the operating WWTP. Mice are unlikely to move through extensive open, paved, developed areas from adjacent habitat into the Project footprint, where suitable habitat does not exist to support them.

Although SMHM have been documented in Flood Slough north of the Menlo Park Pump Station Study Area, vegetation adjacent to the Menlo Park Pump Station in the staging areas for the proposed Menlo Park Pump Station improvements is short and dominated by non-native ruderal species and would not provide suitable permanent or tidal refuge habitat for SMHM (SFEI 2016). Tidal marsh adjacent to these areas contains short vegetation that floods during high tide, which does not provide permanent habitat for SMHM. The ruderal staging areas are also separated from more suitable permanent habitat areas by Flood Slough and levee roads. While neither the slough nor the roads are complete barriers to movement, they may discourage mouse movement into vegetation adjacent to the pump station from more suitable habitat areas nearby. Combined with the poor quality of the vegetation adjacent to the Menlo Park Pump Station, SMHM is only likely to occur there during low tide to forage.

Presence of SMHM at the Belmont Pump Station is unlikely. Vegetation along Belmont Creek adjacent to the Study Area is extremely limited, narrow, and sparse. Moreover, vegetation ends at the culvert under Shoreway Road, thus it is unlikely that the mouse would use the poor quality habitat in the tidal channel for nesting, foraging, or as a movement corridor.

No other portions of marsh within the Study Area are suitable for SMHM.

Green Sturgeon (Acipsenser medirostris); Federal Threatened, CDFW Species of Special Concern; Moderate Potential. Green sturgeon is primarily a marine species, entering freshwater rivers mainly to spawn, although early life stages may reside in fresh or estuarine waters for up to two years (Moyle 2002). The southernmost spawning population is in the Sacramento River system, with the principal spawning area located in the lower Feather River (Moyle 2002). Adults typically migrate into fresh water from late February through late July; spawning occurs from March to July. Juveniles migrate out to sea primarily during the summer and fall before the end of their second year (Emmett et al. 1991). Migrating individuals may hold in low-gradient or off-channel sloughs or coves where temperatures are within acceptable thresholds. Thus, sturgeons of various life stages may occur throughout the Delta and estuary. Though green sturgeon is generally more prominent in the North Bay, it is treated as potentially present throughout the San Francisco Bay Estuary, including in South San Francisco Bay (NMFS 2010). The Sacramento-San Joaquin Delta, Suisun, San Pablo, and San Francisco bays (including the waters off shore of the Study Area) have been designated as Critical Habitat for this species.

This species does not have the potential to be present in any areas directly affected by the proposed Project. The open water and tidal channels adjacent to portions of the Study Area may provide foraging opportunities, particularly for lingering juveniles, but do not provide spawning habitat or primary migration habitat. There is no spawning habitat in San Francisco Bay for this species. This species may occasionally occur in aquatic areas within the Study Area, but outside of areas that would be affected by Project construction and operations.

Longfin Smelt (Spirinchus thaleichthys); State Threatened, CDFW Species of Special Concern; Moderate Potential. Longfin Smelt is a pelagic, generally estuarine fish that ranges from Monterey Bay north to Alaska. In the fall, adults found throughout San Francisco Bay migrate to brackish or freshwater areas in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers; spawning probably occurs in fresh to slightly brackish water (Baxter 1999). In April and May, juveniles are believed to migrate downstream to San Pablo Bay. Adults and juveniles tend to inhabit the middle and lower portions of the water column. This species tends to be abundant near freshwater outflow, where higher-quality nursery habitat occurs and potential feeding opportunities are greater.

Adults occur regularly in South San Francisco Bay, though the species is rare there except for during winter months (Baxter 1999, CDFG 2012). Longfin smelt may be present in open water and tidal slough habitats adjacent to portions of the Study Area during the winter (non-breeding) season. This species may occasionally forage in these aquatic habitats, though these areas do not support freshwater breeding.

This species does not have the potential to be present in any areas directly affected by the proposed Project. This species may occasionally occur in aquatic areas within the Study Area, but outside of areas that would be affected by Project construction and operations.

Federal Listed Species Unlikely to Occur in or Adjacent to the Project Footprint

The species discussed below are Federal listed species known from the vicinity that are unlikely to occur within the Study Area. Several Federal listed fish species, including Chinook salmon (Oncorhynchus tshawytscha) and steelhead (Oncorhynchus mykiss), and marine mammals including harbor seal (Phoca vitulina) and harbor porpoise (Phocoena phocoena) are unlikely to occur within Bay waters of the Study Area, and will not be affected by Project construction or operations. These species are only occasionally observed within Bay waters adjacent to the Study Area. Additionally, these aquatic species do not breed or spawn within the Study Area or use it as a corridor to more suitable breeding or spawning grounds. Furthermore, Project components within the Study Area will not involve in-water work, and no impacts to aquatic habitats are anticipated. No portions of the Study Area are likely to be used as haul-outs for marine mammals due to existing vegetation, development, and human disturbance. Thus, Federally-listed fish species and marine mammals known from the vicinity are highly unlikely to be affected by the Project, and are not discussed further.

<u>California Ridgway's (Clapper) Rail (Rallus obsoletus obsoletus); Federal Endangered, State Endangered, CDFW Fully Protected Species; Unlikely.</u> The California Ridgway's rail (CRR), formerly known as California clapper rail (R. longirostris obsoletus), is the resident Rallus species of northern and central California. Although more widespread in the past, it is currently restricted to the San Francisco Bay estuary. The CRR occurs only within salt and brackish marshes. According to Harvey (1988), Shuford (1993) and Eddleman and Conway (1998), important CRR habitat components are: 1) well-developed tidal sloughs and secondary channels; 2) beds of cordgrasss (Spartina spp.) in the lower marsh zone; 3) dense salt marsh vegetation for cover, nest sites, and brooding areas; 4) intertidal mudflats, gradually sloping banks of tidal channels, and cordgrass beds for foraging; 5) abundant invertebrate food resources; and 6) transitional vegetation at the marsh edge to serve as a refuge during high tides. In south and central San Francisco Bay and along the perimeter of San Pablo Bay, CRR typically inhabits salt marshes dominated by pickleweed and cordgrasss. Brackish marshes supporting CRR occur along major sloughs and rivers of San Pablo Bay and along tidal sloughs of Suisun Marsh. Nesting occurs from March through July, with peak activity in late April to late May (DeGroot 1927, Harvey 1988). CRR nests, platform-shaped and constructed of wetland vegetation, are placed near the ground in clumps of dense vegetation, usually in the lower marsh zone near small tidal channels (DeGroot 1927, Evens and Page 1983, Harvey 1988).

Ridgway's rail is unlikely to nest within or adjacent to all portions of the Study Area. CRR was documented to occur on Inner Bair Island in 1975 and a breeding population is known to occur on Outer Bair Island (CDFW 2016). Tidal marsh adjacent to the Project footprint on Inner Bair Island is low in elevation and dominated by short pickleweed, and provides little cover for nesting rails during high tides. The Project footprint on Inner Bair Island is graded from recent construction activity and does not currently contain tidal marsh or high marsh vegetation. Ridgway's rails may occasionally forage on mudflats in tidal marsh vegetation adjacent to the Project footprint on Inner Bair Island, though available tidal marsh is likely too low in elevation and may flood too regularly to currently support breeding. Repeated survey efforts for CRR conducted by Invasive Spartina Project (ISP) from 2010 to 2015 and by WRA along this portion of the Study Area from 2013 to 2015 for the

SVCW 48-inch force main project were negative, suggesting that CRR does not use this portion of Inner Bair Island (McBroom 2015).

The WWTP Project footprint does not contain tidal marsh, and tidal marsh within 700 feet (the typical no-disturbance buffer for breeding CRR) of the plant is dominated by short pickleweed and is low in elevation, and thus provides very limited cover and is unlikely to support nesting CRR. Repeated nesting season surveys from 2010 to 2015 by WRA and the ISP along the southern side of Redwood Shores adjacent to Steinberger Slough and on Inner Bair Island have yielded negative results (McBroom 2015). No CRR have been recorded or observed in the marsh southeast of proposed WWTP Improvement Project activities, which would be potentially exposed to construction disturbance. Although CRR have been observed in tidal marsh north and west of the WWTP between 2010 and 2013 along Belmont Slough (McBroom 2015), these observations are over 700 feet from the WWTP Improvements and WWTP Tunnel Boring Machine Retrieval Shaft Project footprints. Furthermore, the WWTP Project footprint is separated from adjacent tidal marsh visually and audibly by the operating WWTP and the Redwood Shores levee. The Redwood Shores levee is a heavily used recreational pathway servicing the Redwood Shores community and the general public. The levee top is approximately 12 feet above the ground surface elevation of the ornamental ponds, where the WWTP Project would be constructed. The levee is constructed of solid earth and is a visual and auditory buffer between the treatment plant and the proximate tidal marsh.

Tidal marsh adjacent to the Menlo Park Pump Station is also short and low in elevation, and generally lacks transitional and upland refuge habitat, which likely precludes nesting due to tidal inundation. Repeated ISP surveys from 2010 to 2015 have found either one or no individual CRR in this area in all survey years, suggesting that nesting does not occur, although CRR may occasionally forage in the area. Additionally, the tidal marsh present along the unnamed Belmont Creek tributary adjacent to the Belmont Pump Station is vegetatively sparse and does not provide sufficient cover to be suitable for CRR. No other portions of the Study Area have potential to sustain CRR.

Historical data from past surveys occurring over last ten years shows a lack of nesting history in the areas of potential construction disturbance surrounding the Project footprint on Inner Bair Island and at the WWTP. This historical data indicates a very low probability that the Project will impact nesting rails. At the WWTP, the existing Redwood Shores levee provides both a visual and acoustic buffer between areas of construction and areas of suitable habitat. The levee is also regularly used for recreational access. In addition, regular maintenance and operations at the WWTP provide a source of regularly occurring noise and light. These site-specific factors also reduce the potential for CRR occurrence at the WWTP.

<u>Western Snowy Plover (Charadrius alexandrinus nivosus); Federal Threatened, CDFW Species of Special Concern; Unlikely</u>. The Pacific coast breeding population of the western snowy plover (WSP) currently extends from Washington to Baja California, Mexico (USFWS 2007). Western snowy plovers breed primarily above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Less common nesting habitats include bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars (USFWS 2007). Nests typically occur in flat, open areas with sandy or saline substrates where vegetation and driftwood are usually sparse or absent. Nests consist of a shallow scrape or depression, sometimes lined with beach debris (e.g.,

small pebbles, shell fragments, plant debris, and mud chips (USFWS 2007). Nesting season extends from early March through late September. Snowy plovers winter mainly in coastal areas from southern Washington to Central America. In winter, snowy plovers are found on many of the beaches used for nesting as well as on beaches where they do not nest, in man-made salt ponds, and on estuarine sand and mud flats (USFWS 2007).

This species has been documented to nest on Middle Bair Island, at closest 0.5 mile from the Study Area on Inner Bair Island, although the most recent nesting documentation is from 1978 (CDFW 2016). WSP has only been documented in the Bair Island/Redwood Shores Area once in the past 35 years on Redwood Shores in October, outside of the nesting season (CDFW 2016, eBird 2016). The Study Area only provides marginal foraging habitat and extremely limited breeding habitat for this species at the WWTP. Potential foraging habitat there consists of the earthen sides of the non-tidal, man-made ornamental ponds, and any breeding habitat would be limited to sparsely vegetated small islands or portions of the levee between the two ponds. Both of these locations are small in area and often used for breeding by terns, ducks and geese. Furthermore, WSP has never been documented at the WWTP, despite over a decade of close attention from the birding community and surveys conducted by WRA in 2015 (Yahoo groups 2016, eBird 2016). The likelihood for this species to breed or forage in or adjacent to the WWTP has been further reduced since the ornamental ponds were drained in the fall of 2016 (to conduct geotechnical evaluations) and are planned to remain dry until a decision is made by the SVCW Commission on the proposed Project in the spring of 2017, which will reduce the amount of forage habitat/area and the protection from non-avian predators afforded by the water.

WSP may be occasionally found foraging on mudflats or levees adjacent to the portions of the Study Area on Inner Bair Island, the WWTP, and the Menlo Park Pump Station. However, these areas are highly unlikely to provide suitable nesting habitat for this species. Open, flat ground occurs on or adjacent to the pedestrian trail on Inner Bair Island, Redwood Shores and the Menlo Park Pump Station, though these areas experience a high degree of disturbance by humans and pets, which substantially limits the potential for breeding. Establishment of vegetation in these areas in the future will further limit the potential for nesting during Project construction.

All other portions of the Study Area are either developed, disturbed, or are graded and are easily open to predation and do not provide suitable foraging or nesting habitat. Based on habitat conditions and past surveys, this species is unlikely to occur within or nest in the vicinity of the Study Area.

<u>California least tern (Sternula antillarum browni), Federal Endangered, State Endangered, California Fully Protected Species; Unlikely.</u> The California least tern is a summer resident in California, with a current breeding distribution from the San Francisco Bay Area south to Baja California. This distribution is widely fragmented as a result of human activities. The California subspecies winters on the southern coast of Mexico and the Gulf of California. The nesting season lasts from mid-April through August, with peak activity between June and July. Least terns typically nest in loose colonies on flat sand-shell beaches, mud or gravel flats, and man-made habitats including airports, landfills, and dredge-fill sites, relatively free of plant growth (Fancher 1992). Typical colony population size is 25 pairs (USFWS 2006). Islands or isolated beaches are preferred, and nest sites are generally located in the proximity of suitable foraging habitat including coastal lagoons,

estuaries, or rivers. Colony size may be linked to habitat availability, as nests may be located between 10 to 300 feet apart (USFWS 1985). Least terns forage in inshore waters for small fishes.

Least tern has been documented to occur within 0.9 mile of the Study Area, although nesting has not been known to occur in the vicinity in recent years (CDFW 2016). The Cargill salt ponds south west of the Bair Islands had documented occurrences of a few nesting pairs in 1976 on evaporator ponds, but the site was not used in the following years and is now considered extirpated. Similarly, nesting occurrences on Outer Bair Island were steady throughout the 1970s, but the last nesting occurrence there was documented in 1982 and the site has since become unsuitable due to vegetation growth (CDFW 2016). The nearest extant nesting colony is across the Bay in the Hayward area.

This species may occasionally forage in open waters adjacent to the Study Area, but flat, open areas within it do not provide the undisturbed, unvegetated island habitat these terns require for nesting. Additionally, least tern has not been documented at the WWTP, despite many years of attention from birders and surveys conducted by WRA in 2015 (Yahoo groups 2016; eBird 2016). Given the lack of suitable habitat and the absence of nesting in recent decades, this species is unlikely to nest within the Study Area or forage within the Project footprint during construction.

Potential Wildlife Corridors

Wildlife corridors are landscape features that provide connectivity on larger scales between areas of suitable habitat or on smaller scales between habitat and resources such as cover or food that may otherwise be isolated. Corridors must be unobstructed and contain the proper biological communities such that transient and local animals may access them. A sufficient lack of stressors or disturbances within the corridor is also necessary in order for the corridor to be successful. Corridors vary by species due to species' unique habitat requirements, life histories, size, tolerance of disturbance, and movement patterns. Some species, particularly flying species, can use "stepping stone" dispersal habitats, or closely spaced pockets of habitat can be used by certain species during dispersal between larger core habitat areas (Forman 1995). Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2006).

Terrestrial Species

The Study Area is dominated by developed areas interspersed with ruderal communities unsuitable for most non-urban-adapted wildlife species. These areas a part of a larger region of urban development that persists along the eastern San Francisco Peninsula and prevents direct land connection to large, continuous, undeveloped habitat areas. Thus, much of the Study Area does not provide valuable wildlife corridor habitat value for terrestrial wildlife such as mammals and reptiles. Portions of Bair Island and the associated marshlands provide important habitat for some terrestrial species adapted for life in wetlands. However, no viable corridor exists for terrestrial species between Bair Island and other core habitat areas. Marshes adjacent to the Project Area are not considered a viable movement corridor for terrestrial species.

Aquatic Species

Tidal sloughs adjacent to Inner Bair Island and the WWTP are open and well-connected to larger open water Bay habitats. Marine mammals and fish are found throughout San Francisco Bay, and may move uninhibited between these sloughs and deeper waters in the Bay. Portions of this larger open water area of San Francisco Bay lie within the Study Area. However, there is no connectivity between aquatic habitats adjacent to the Study Area and core aquatic habitat areas upstream. This lack of connectivity limits the value of the aquatic areas adjacent to the Study Area as habitat and movement corridors for fish, and other aquatic organisms. Tidal sloughs adjacent to the Study Area terminate at culverts or underground drainages that form barriers to other aquatic areas upstream. In addition, upstream aquatic areas are managed urban stormwater areas which are of poor habitat quality for aquatic species. Thus, there is no viable aquatic connection between the Study Area and any upstream freshwater habitat areas.

Migratory Birds

On a broad scale, wetlands and aquatic areas within and adjacent to Study Area are small incidental parts of a broad mosaic of habitats used by migratory waterbirds in the San Francisco Bay Estuary, including tidal mudflats, tidal marsh and salt ponds, as part of the linkage known as the Pacific Flyway. The San Francisco Bay Estuary as a whole is one of the most important coastal wintering and migratory habitats for Pacific Flyway waterfowl and shorebird populations, with hundreds of thousands of individuals from each group observed annually during peak abundances (Accurso 1992, Stenzel et al. 2002). These birds utilize food sources present in the abundant mudflats, tidal marsh and salt evaporator areas within and along the margins of San Francisco Bay. These factors have led the Audubon Society to designate the entire margin of the South San Francisco Bay as an “Important Bird Area”. Coastal salt marsh, open water areas, and associated mudflats adjacent to the Project Area provide this type of “stepping stone” movement corridor for migratory birds.

When filled with water, the ornamental ponds at the WWTP within the Project Area also provide a “stepping stone” movement corridor for migratory birds. Migratory waterbirds use the ornamental ponds primarily as an overwintering site when water is present. When water is not present in the ornamental ponds, bird utilization is not substantially different from adjacent upland and developed areas. This decreased utilization has been documented recently by WRA and by the recreational birding community when the ornamental ponds were drained from 2014 to 2015 to control an outbreak of bird cholera. While the ponds were drained, bird utilization was substantially reduced compared to times when the ponds contain water. These ponds provide value as a stepping stone movement corridor when they are filled with water. The presence of water in the ponds is entirely controlled by SVCW. Recycled water is pumped into the ornamental ponds, and overflow water is returned to the WWTP for treatment via the existing WWTP stormwater system. This operation limits the value of this area as a corridor as it does not facilitate movement of wildlife from one location to another. As noted previously, the ornamental ponds were drained in the fall of 2016 (to conduct geotechnical evaluations) and are planned to remain dry until a decision is made by the SVCW Commission on the proposed Project in the spring of 2017, however, the baseline condition for purposes of this EIR reflects conditions in spring 2016 when the NOP was issued and the ponds were full.

4.4.2.5 *Existing Trees by Project Component*

As described above, WRA’s ISA-Certified Arborist conducted a tree survey within the Project footprint to identify trees covered by the applicable municipal tree ordinance. The Project lies outside the jurisdiction of local municipalites but this discussion is included to address CEQA requirements. The following sections provide a summary of existing trees covered by each ordinance within each of the Project component footprints. Appendix C depicts the locations of these trees within each Project component.

Gravity Pipeline

Each component of the Gravity Pipeline Project is located in Redwood City. No trees are present within the Bair Island Inlet Structure site or WWTP Access and Retrieval Shafts footprints. A total of 11 trees were surveyed within the Airport Access Shaft Project footprint. The Redwood City Tree Ordinance is applicable to all of these trees. All trees within this Project footprint are blackwood acacia (Acacia melanoxylon), a non-native ornamental species, rated as invasive by the California Invasive Plant Council (Cal-IPC 2016). Despite this species' invasive potential and undesirable status, trees within this Project footprint were rated "good" in condition, health, and structure.

WWTP Improvements

The WWTP Improvements Project footprint is located in Redwood City. A total of 101 trees were surveyed within the WWTP Improvements Project footprint. The Redwood City Tree Ordinance is applicable to all of these trees. Surveyed trees within the Project footprint comprise five species, all of which are non-native ornamental trees. Tree species surveyed include blue gum (Eucalyptus globulus), river redgum (E. calophylla), and Lollypop tree (Myoporum laetum), which are all considered invasive (Cal-IPC 2016). Additional species present include white peppermint-gum (Eucalyptus pulchella), and Italian stone pine (Pinus pinea). Surveyed trees within the WWTP Improvements Project footprint varied from "good" to "poor" with most trees ranking "fair" in health and general condition, and most trees ranking "good" in structure.

Belmont Conveyance System Improvements

The Belmont Force Main Improvements Project footprint is located in the City of Belmont. A total of 10 trees were surveyed within the Project footprint, nine of which are large enough to be considered "protected" per the Belmont Tree Ordinance, and one surveyed tree is not protected. All nine "protected" trees are non-native, ornamental species including blue gum and cherry plum (Prunus cerasifera), both considered invasive (Cal-IPC 2016), and Lombardy poplar (Populus nigra). Protected trees surveyed in the Project footprint generally ranked "fair" in condition and health, and "good" in structure.

San Carlos Pump Station Repurposing

The San Carlos Pump Station Repurposing Project footprint is located in the City of San Carlos. A total of 32 trees were surveyed within the Project footprint, ten of which are large enough to be considered "protected" per the San Carlos Tree Ordinance, and 22 trees are not protected. Protected trees within the Project footprint comprise four non-native, ornamental species, including Washington fan palm (Washingtonia robusta), lollypop tree, and black locust (Robinia pseudoacacia), all considered invasive (Cal-IPC 2016), and Canary Island pine (Pinus canariensis). The lollypop trees surveyed within the Project footprint ranked "poor" in health and condition, while the remainder of the trees generally ranked "good" in condition, health and structure.

Redwood City Pump Station Replacement

The Redwood City Pump Station Replacement Project footprint is located in Redwood City. One broad-leaved paperbark (Melaleuca quinqenervia) tree was surveyed within the Project footprint. The Redwood City Tree Ordinance is applicable to all of these trees. The tree ranked "fair" in health and condition, with "good" structure.

Menlo Park Pump Station Rehabilitation

The Menlo Park Pump Station Rehabilitation Project footprint is located in Menlo Park. A total of 34 trees were inventoried within the Project footprint, 22 of which are large enough to be considered "heritage trees" per the Menlo Park Tree Ordinance. Heritage trees within the Project footprint consist of four species, including blue gum, lollypop tree, blackwood acacia, all considered invasive (Cal-IPC 2016), and white peppermint-gum. Heritage trees within the Project footprint generally ranked "fair" in condition, health and structure.

4.4.3 Biological Resources Impacts

The purpose of this impact assessment is to evaluate the potential impacts of Project construction and operation on existing conditions for biological resources based on the significance thresholds for biological resources from CEQA Appendix G.

4.4.3.1 *Thresholds of Significance*

For the purposes of this EIR, a biological resource impact is considered significant if the Project would:

- 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;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service;
- 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;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.4.3.2 *Impacts and Mitigation Evaluation for Special-status Species*

Potential impacts and mitigation for potentially significant impacts are discussed below for each Project component.

Gravity Pipeline

Special-status Plant Species

As discussed in *Sections 4.4.2.3*, the level of historical and current disturbance throughout this portion of the Study Area significantly limits the value of the area as habitat for special-status plant species. In addition, no special-status plant species have been observed during surveys conducted throughout the Study Area, including multiple Biological Resource Assessment site visits, construction monitoring visits, and a rare plant survey that was completed throughout the Inner Bair Island Project footprint in 2013. Based on survey results, the assessment of habitat conditions, and the literature and database research results, no impacts to special status species are anticipated.

Special-status Wildlife Species

The Gravity Pipeline work will have limited impacts to wildlife. The majority of the work will occur underground. Potential impacts to wildlife are related to above-ground construction and staging efforts within the Project construction footprint. Most of the Project footprint, including staging areas will be located in developed areas, and relatively little vegetation will be removed. As discussed in *Section 4.4.2.4*, a number of special-status species have been observed, or have the potential to occur along Gravity Pipeline study area. Potential wildlife impacts include impacts to SMHM, SMWS, CRR, and nesting special-status and non-special-status birds. Based on the proposed Project design and thresholds criteria discussed above, the proposed Project has the potential to result in the following potential impacts:

Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew
No temporary or permanent loss of SMHM or SMWS habitat is anticipated due to Gravity Pipeline construction. Although the proposed Project is not anticipated to directly affect suitable habitat, there is a limited potential for direct impacts to occur to SMHM or SMWS individuals within the Project footprints at the Bair Island Inlet Structure. SMHM and SMWS have the potential to wander into the Project footprint on Inner Bair Island from adjacent tidal marsh and ruderal vegetation during construction. Direct impacts may occur due to interactions with construction traffic or entrapment in open trenches/holes, equipment or materials. In addition, individual mice may seek refuge in equipment or materials overnight and use of equipment or materials with these species inside may cause mortality. If no impact avoidance or minimization measures are implemented, direct mortality or harassment could occur to individual SMHM or SMWS present in these areas during construction. Because local populations of SMHM are very limited in abundance, impacts to individuals are considered a potentially significant impact.

In addition to protections under FESA, SMHM is also a State Fully Protected species under California Fish and Game Code. Fully Protected species are listed in Fish and Game Code Sections 3511, 4700, 5050, and 5515, which state that CDFW is unable to authorize incidental take of such species when activities are proposed in areas inhabited by those species. Project mitigation measures have been designed to completely avoid take of these species to comply with federal, state and local regulations.

Impact BIO-1: The proposed Project's construction activities at the Bair Island Inlet Structure could result in direct mortality and/or harassment of Federal and State Endangered SMHM individuals and special-status SMWS, which would be considered a significant impact.

To reduce potential impacts to SMHM and SMWS to a less-than-significant level, the following measures shall be implemented year-round:

MM BIO-1.1: Prior to ground disturbing activities adjacent to potential SMHM and SMWS habitat, exclusion barriers and/or fencing shall be installed to exclude individuals of these species from areas of active construction. The design of the exclusion barriers and fencing will be approved by a qualified biologist and shall be installed in the presence of a qualified biological monitor. The fence will be made of a material that does not allow SMHM or SMWS to pass through, and the bottom will be buried to a depth of a minimum of four (4) inches so that these species cannot crawl under the fence. All support for the exclusion fencing will be placed on the inside of the Project footprint. Additionally, it is not anticipated that removal of marsh or associated ruderal vegetation will be necessary for the proposed Project, but in the event removal of potential SMHM or SMWS habitat is necessary, it would be completed using only hand tools and in the presence of a biological monitor.

MM BIO-1.2: A qualified biological monitor will be present during wildlife exclusion fence installation and removal, and during all vegetation clearing and initial ground disturbance (if necessary) which take place in marsh habitats, and vegetation adjacent to marsh habitats. The monitor will have demonstrated experience in biological construction monitoring and knowledge of the biology of the special-status species that may be found in the Study Area, including SMHM and CRR. The monitor(s) will have the authority to halt construction, if necessary, if noncompliance actions occur. The biological monitor(s) will be the contact person for any employee or contractor who might inadvertently kill or injure a special-status species or anyone who finds a dead, injured, or entrapped special-status species. Following fence installation, vegetation removal in potential habitat areas, and initial ground disturbance in potential habitat areas, the biologist will train an onsite monitor to continue to document compliance. The biologist will conduct weekly site checks to provide guidance for fence maintenance, provide environmental sensitivity training, and document compliance with permit conditions.

MM BIO-1.3: The biological monitor shall provide an endangered species training program to all personnel involved in Project construction. At a minimum, the employee education program shall consist of a brief presentation by persons knowledgeable about the biology of sensitive species with potential to occur in the Project footprint, and about their legislative protection to explain concerns to contractors and their employees involved with implementation of the Project.

The program shall include a description of this species and their habitat needs, any reports of occurrences in the area; an explanation of the status of these species and their protection under State and Federal legislation; and a list of measures being taken to reduce impacts to these species during construction.

MM BIO-1.4: Food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each work day from the investigation site to eliminate an attraction to predators of listed species.

MM BIO-1.5: If a Federal or State listed species is observed at any time during construction in the work area, work will not be initiated or will be stopped immediately until the animal leaves the vicinity of the work area of its own volition. If the animal in question does not leave the work area, work will not be reinitiated until the appropriate agency is contacted and has made a decision on how to proceed with work activities. The biological monitor will direct the contractor on how to proceed accordingly. The biological monitor or any other persons at the site will not pursue, capture, handle, or harass any species observed.

Implementation of these mitigation measures will reduce potential impacts to SMHM and SMWS to a level that is less than significant.

California Ridgway's Rail

No temporary or permanent loss of CRR habitat due to Project construction is anticipated. No CRR are anticipated to occur within any portion of the Project footprint; all Project footprints lie outside tidal marsh and generally occur on open, developed and/or ruderal areas. Generally, rails remain in areas of tidal marsh and unvegetated tidal waters, including mudflats, and are thus unlikely to occur within any construction areas. Even if a CRR was observed within a Project footprint, the species can fly and is highly mobile, and no direct impacts to any individual CRR within a construction area are anticipated. However, CRR may forage and have limited potential to nest in tidal marsh habitats within 700 feet of the Inner Bair Island and WWTP Project footprints. If CRR breeding or nesting occurs within 700 feet of Project activities, there is potential for nesting disturbance. Noise and other disturbances could disrupt nesting and breeding activity adjacent to the Project footprint.

Historical data from past surveys occurring over the last ten years shows a lack of nesting history in the areas of potential construction disturbance surrounding the Project footprint on Inner Bair Island and at the WWTP. This historical data indicates a very low probability that the Project will impact nesting rails. At the WWTP, the existing Redwood Shores levee provides both a visual and acoustic buffer between areas of construction and areas of suitable habitat. In addition, the waste treatment activities at the WWTP are an ongoing background source of noise and visual disturbance, including lights, traffic, and ongoing maintenance activities. These site-specific factors also reduce the potential for impacts to CRR at the WWTP. As a result, this species was considered to be unlikely to occur within or adjacent to the Project Area during construction or post-construction operations. However, because the local population of CRR in the vicinity of the Project is an important one for the regional species recovery, potential noise and visual disturbance is considered a potentially significant impact.

In addition to protections under FESA, CRR is also a State Fully Protected species under California Fish and Wildlife Code. Fully Protected species are listed in Fish and Game Code Sections 3511, 4700, 5050, and 5515, which state that CDFW is unable to authorize incidental take of such species when activities are proposed in areas inhabited by those species. Project mitigation measures have been designed to completely avoid take of CRR to comply with both state and federal regulations.

Impact BIO-2: The proposed Project's construction activities at the Bair Island Inlet Structure and at the Flow Spiltter Shaft may cause noise and visual disturbances that result in harassment of Federal and State Endangered CRR individuals causing nest abandonment, which would be considered a significant impact.

MM BIO-2.1: For Project activities occurring on Inner Bair Island, construction during the CRR breeding season (February 1 through August 31) will be avoided as much as feasible. If construction work is proposed during the CRR breeding season (February 1 through August 31), surveys will be conducted to determine the extent and location of nesting CRR. CRR surveys with USFWS-approved protocols will be conducted along Inner Bair Island in areas where construction or staging is to occur within 700 feet of tidal salt marsh habitat that is suitable for CRR nesting. Survey methods that are modified from the USFWS survey protocol may be permitted if approved by USFWS and CDFW. Results of protocol-level breeding surveys will be submitted to the USFWS and CDFW for approval. If no nesting CRR are found during the surveys, construction may proceed during the CRR breeding season. If nesting CRR are detected, work will be avoided within 700 feet of the active calling center until the end of the breeding season (August 31).

MM BIO-2.2: For Project activities occurring in the WWTP area or at the Menlo Park Pump Station, surveys for CRR as described in **MM BIO-2.1** will be conducted during the nesting season just prior to initial ground disturbance. If nesting CRR are detected within 700 feet of construction at the WWTP or Menlo Park Pump Station during these preconstruction surveys, initial ground disturbance within 700 feet of the detected calling center will be delayed until the end of the breeding season (August 31). Alternatively, if CRR nesting is detected adjacent to the WWTP or Menlo Park Pump Station and avoiding construction within 700 feet of the calling center is not feasible, a visual and auditory barrier will be erected and maintained for the duration of construction along the southwestern boundary of the WWTP Project footprint, or northern boundary of the Menlo Park Pump Station. The size and material used for the barrier would be determined based on the location of any observed CRR nesting, and would be submitted to USFWS for approval. The barrier will augment the existing levees, to provide an additional visual and acoustic barrier to prevent the elevated local noise and activity levels of construction activities from disturbing any nesting CRR in the vicinity. Following initial ground disturbance, construction activities in these areas are anticipated to be constant with consistent types of construction equipment in use. The consistent disturbance in combination with the visual and acoustic barrier provided by the adjacent levees would provide a consistent baseline for conditions of noise and visual disturbance that would continue throughout construction.

Implementation of these mitigation measures will reduce potential impacts to CRR to a level that is less than significant.

Western Burrowing Owl

No temporary or permanent loss of burrowing owl habitat due to Project construction is anticipated. As discussed above, Inner Bair Island is the only portion of the Study Area which may support burrowing owls. Nesting has not been documented on Inner Bair Island, and owls are only likely to use the island for migration stopovers or potentially overwintering. At the start of construction, the number of available burrows and the amount of available forage are likely to be limited due to recent construction and the Bair Island Restoration Project, but potentially present. If present, burrowing owls would be found in upland areas with low or no vegetative cover and suitable burrows, which are most likely to occur along the Inner Bair Island levees and trails. If overwintering owls are present during construction, individuals may be directly impacted by vehicle traffic, or they may be flushed from protective burrows by vehicle traffic or ground disturbance. Overwintering burrows, if present, may also be impacted or made inaccessible through ground disturbance or stockpiling of equipment and materials. Therefore, construction and staging for the Bair Island Inlet Structure is considered a potentially significant impact for burrowing owl.

Impact BIO-3: Construction activities at the Bair Island Inlet Structure may directly impact overwintering burrowing owl individuals through ground disturbance and vehicle traffic, or they may impact potential habitat through ground disturbance or staging or stockpiling construction materials, which would be considered significant impacts.

MM BIO-3: For Project activities occurring within the Bair Island Inlet Structure Project footprint, one pre-construction survey no more than 14 days prior to initial ground disturbance shall be performed in accordance with the Staff Report on Burrowing Owl Mitigation (CDFG 2012). The pre-construction survey shall include suitable habitat up to 656 feet (200 meters) from proposed activities and be conducted prior to the start of staging and construction, regardless of time of year. If burrowing owl is detected within the Project footprint during the non-nesting season and the burrow cannot be avoided, a burrowing owl exclusion plan shall be prepared and implemented. Mitigation may be required by CDFW as part of the exclusion plan. If burrowing owl is detected outside the Project footprint but within the Study Area during the non-nesting season, vehicle traffic and construction noise and visual disturbance shall be minimized to the extent feasible to minimize the potential for flushing overwintering owls from protective burrows. Implementation of this mitigation measure will reduce potential impacts to western burrowing owl to a level that is less than significant.

Special-status and Other Nesting Birds

The following special-status avian species have potential to occur within or adjacent to the Study Area for the Gravity Pipeline: American white pelican, California brown pelican, northern harrier, white-tailed kite, peregrine falcon, Caspian tern, black skimmer, Nuttall's woodpecker, oak titmouse, loggerhead shrike, Alameda song sparrow, Bryant's savannah sparrow, San Francisco common yellowthroat, long-billed curlew, and short-eared owl. However, not all have the potential to be harmed, harassed, or killed as a result of Project construction.

No impact is expected for the American white pelican, California brown pelican, long-billed curlew, or short-eared owl. None of these special-status species are expected to be significantly impacted because they are infrequent visitors, they do not nest within the Study Area, and do not rely on communities within the Study Area for any essential breeding, foraging, or wintering habitat. If an individual of these species were to incidentally enter the site, they are highly mobile and are expected to leave the work area without being impacted.

Project construction for the Gravity Pipeline would result in construction in a portion of the ornamental ponds at the WWTP for the Flow Splitter Shaft. As described above, the ornamental ponds are a popular spot for birding and host a wide variety of waterbirds. Many birds, including special-status birds, have been documented to nest at the ornamental ponds. Although foraging opportunities are very limited because the ponds are man-made and controlled by pumping of treated water, the ornamental ponds do provide an area for loafing and roosting (resting) for resident and migratory birds. Birds are often present at the ornamental ponds in great abundance when water is present, as documented in surveys available on online forums and documented by surveys completed by WRA. Conversely, when water is not present in the ponds, bird utilization is much lower, and is comparable to landscaped and park areas along the Redwood Shores peninsula. Observations of bird utilization in the ornamental ponds under ponded and drained conditions show that the value of the ornamental ponds as habitat for birds is entirely dependent on the pumping of water into the area.

The pumping of water into the ornamental ponds is done based on the needs of SVCW's recycled water program, and is a part of regular operations and maintenance. Additionally, the construction of infrastructure in them does not have the potential to affect the resiliency of local and regional resident bird populations or migratory birds because the functional value of the ornamental ponds for the birds is not unique to the ornamental ponds; many other natural and man-made areas provide the same functions. Moreover, in absence of the Project, the ponds may still be drained as part of normal operational practices, or be abandoned based on SVCW's future needs. Either of these scenarios could result in a change in the amount or quality of the water in the ponds and the subsequent decline of their use by nesting birds. Based on the combination of these factors, the ultimate construction of infrastructure within them is considered a less than significant impact.

Non-special-status nesting birds protected under the MBTA and CFGC have the potential to nest in trees, shrubs, herbaceous vegetation, and on man-made structures within and adjacent to all areas of the Project footprint for the Gravity Pipeline. Special-status nesting birds listed above have the potential to nest in the ornamental ponds and in tidal marsh and seasonal wetland areas adjacent to the Project footprint. Project construction activities have the potential to impact nests in these areas if construction is initiated during the breeding bird season (February 1 through August 31). Potential impacts include direct destruction of nests as well as indirect visual and acoustic disturbance to nesting birds from construction in adjacent areas that has the potential to result in nest abandonment. Additionally, if water is present in the ornamental ponds and the ponds are drained during the nesting season, the disturbance and access for predators could trigger nest abandonment. Direct destruction of nests or indirect disturbance resulting in nest abandonment caused as a result of construction is a potentially significant impact.

Impact BIO-4: Project construction activities in the Project footprint for the Gravity Pipeline Project have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

MM BIO-4: Potential significant impacts to nesting special-status and other native nesting birds will be mitigated through avoiding disturbance to active nests. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. Additionally, if water is present in the ornamental ponds prior to construction and it is necessary to drain one or both ponds, the ornamental ponds will be drained during the non-breeding season (i.e., they will be drained between September 1 and January 31).

If construction initiation and/or ornamental pond draining during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds. Surveys will encompass the entire construction area and the surrounding 500 feet. An exclusion zone where no construction would be allowed will be established around any active nests of any avian species found in the Study Area until a qualified biologist has determined that all young have fledged and are independent of the nest. Suggested exclusion zone distances differ depending on species, location, and placement of nest, and will be at the discretion of the biologist and, if necessary, USFWS and CDFW. These surveys would remain valid as long as construction activity is consistently occurring in a given area and will be completed again if there is a lapse in construction activities of more than 14 consecutive days during the breeding bird season.

Implementation of this mitigation measure will reduce potential impacts to nesting birds to a level that is less than significant.

WWTP Improvements

Special-status Plant Species

No impacts to special-status plant species are anticipated to result from construction of the WWTP Improvements Project. No potential habitat for special-status plant species is present within the Project footprint for the WWTP.

Special-status Wildlife Species

Potential direct impacts to special-status wildlife are related to initial ground disturbance for above-ground construction and staging efforts. Potential indirect impacts to special-status wildlife species are related to construction noise and visual disturbance. Most of the Project footprint, including staging areas will be located in developed and unvegetated areas, and relatively little vegetation will be removed. As discussed above, a number of special-status species have been observed, or have the potential to occur within the ornamental ponds WWTP Improvements Study Area. Additionally, as discussed above, the ornamental ponds are man-made and are only opportunistically used by birds due to the pumping of water into the ponds by SVCW. Thus, their removal will not constitute a significant impact to essential foraging, loafing, or nesting habitat in the region. Based on the proposed Project footprint in this area, very little vegetation will be removed. Potential wildlife impacts include impacts to SMHM, SMWS, CRR, and nesting special-status and non-special-status birds. Based on the proposed Project design and thresholds criteria discussed above, the proposed Project has the potential to result in the following potential impacts:

Salt Marsh Harvest Mouse

No temporary or permanent loss of SMHM or SMWS habitat is anticipated to occur as a result of the WWTP Improvements Project. Although the proposed Project is not located in suitable habitat for SMHM, suitable habitat is present in surrounding diked wetlands and marshes where pickleweed is abundant. There is a limited potential for direct impacts to occur to SMHM or SMWS individuals who may wander into the WWTP construction area from surrounding suitable habitat. Direct impacts may occur due to interactions with construction traffic, equipment or materials, or entrapment in open trenches/holes. In addition, individual mice may seek refuge in equipment or materials overnight and use of equipment or materials with these species inside may cause mortality. If no impact avoidance or minimization measures are implemented, direct mortality or harassment could occur to individual SMHM or SMWS present in this area during construction.

Impact BIO-5: The proposed Project's construction activities at the WWTP Improvements Project footprint immediately adjacent to marsh vegetation could result in direct mortality and/or harassment of Federal and State Endangered SMHM individuals and special-status SMWS from individuals wandering into the construction area from adjacent suitable habitat, which would be considered a significant impact.

Implementation of mitigation measures **MM BIO 1.1 through 1.5** will mitigate this potential impact to a level that is less than significant.

California Ridgway's Rail

No temporary or permanent loss of CRR habitat will occur due to Project construction because the Project avoids direct impacts to suitable CRR habitat. No CRR are anticipated to occur within any portion of the Project footprint; all Project footprints lie outside tidal marsh and generally occur on open, developed and/or ruderal areas. Generally, rails remain in areas of tidal marsh and unvegetated tidal waters, including mudflats, and are thus unlikely to be present within any construction areas. Even if a CRR was observed within a Project footprint, the species can fly and is highly mobile, and no direct impacts to any individual CRR within a construction area are anticipated. However, CRR may forage and have limited potential to nest in tidal marsh habitats within 700 feet of the WWTP Project footprint. If CRR breeding or nesting occurs within 700 feet of Project activities, there is potential for nesting disturbance. Noise and other disturbances could disrupt nesting and breeding activity within or adjacent to the Project footprint.

Impact BIO-6: The proposed Project's construction activities at the WWTP Improvements Project footprint may cause noise and visual disturbances that result in harassment of Federal and State Endangered CRR individuals causing nest abandonment, which would be considered a significant impact.

Implementation of mitigation measure **MM BIO-2.2** will reduce this potential impact to a less than significant level.

Nesting Birds

The following special-status avian species have potential to occur within or adjacent to this portion of the Study Area: American white pelican, California brown pelican, norther harrier, white-tailed kite, peregrine falcon, Caspian tern, black skimmer, Nuttall's woodpecker, oak titmouse, loggerhead shrike, Alameda song sparrow, Bryant's savannah sparrow, San Francisco common yellowthroat, long-billed curlew, and short-eared owl. However, not all have the potential to be harmed, harassed, or killed as a result of Project construction.

No impact under this threshold is expected for the American white pelican, California brown pelican, long-billed curlew, Nuttall's woodpecker, oak titmouse, Alameda song sparrow, Bryant's savannah sparrow, San Francisco common yellowthroat loggerhead shrike, northern harrier, or short-eared owl. None of these special-status species are expected to be significantly impacted because they are infrequent visitors and/or they do not nest within the Study Area or rely on it for any essential breeding or foraging habitat. If an individual of these species were to incidentally enter the site, they are highly mobile and are expected to leave the work area without being impacted.

The WWTP Improvements Study Area may provide suitable nesting habitat for white-tailed kite and peregrine falcon. The Study Area also has the potential to support non-special-status nesting birds protected under the MBTA and CFGC.

Impact BIO-7: Project construction activities in the Project footprint for the WWTP Improvements have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

Implementation of mitigation measure **MM BIO-4** will reduce this potential impact to a level that is less than significant.

Belmont Conveyance System Improvements

<u>Special-status Plant Species</u>

As discussed in *Sections 4.4.2.3,* the level of historical and current disturbance throughout this portion of the Study Area significantly limits the value of the area as habitat for special-status plant species. Based on survey results, the assessment of habitat conditions, and the literature and database research results, no impacts to special status species are anticipated.

<u>Special-status Wildlife Species</u>

The Belmont Force Main Improvements will have limited impacts to wildlife. The Project footprint is located entirely within developed areas and ruderal areas completely surrounded by development, and little to no vegetation will be removed. Potential impacts to wildlife are related to construction noise and vegetation removal. No special-status wildlife species have the potential to occur within or adjacent to the Project footprint for the Belmont Conveyance System Improvements, however, construction activity at the Belmont Pump Station may result in impacts to nesting special-status and non-special status birds.

Nesting Birds
The construction and staging area immediately surrounding the Belmont Pump Station may provide suitable nesting habitat for Alameda song sparrow. This portion of the Study Area also has the potential to support non-special-status nesting birds protected under the MBTA and CFGC.

Impact BIO-8: Project construction activities in the Project footprint for the Belmont Pump Station Improvements have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

Implementation of mitigation measure **MM BIO-4** will reduce this potential impact to a level that is less than significant.

San Carlos Pump Station Repurposing

<u>Special-status Plant Species</u>

The entirety of the Project footprint, including construction staging areas for the San Carlos Pump Station Repurposing Project, is located in developed and landscaped areas which do not provide potential habitat for special-status plant species. No impacts to special-status plant species are anticipated to result from construction of the San Carlos Pump Station Repurposing Project.

Special-status Wildlife Species

The San Carlos Pump Station Repurposing Project will have limited impacts to wildlife. The Project footprint is located entirely within developed areas, and little to no vegetation will be removed. No special-status wildlife species have the potential to be present within the footprint of the San Carlos Pump Station Repurposing Project. Potential impacts to wildlife are related to construction noise and vegetation removal. Potential wildlife impacts include impacts to nesting non-special-status birds in the vicinity.

Nesting Birds
The San Carlos Pump Station Study Area may provide suitable nesting habitat for non-special-status nesting birds protected under the MBTA and CFGC.

Impact BIO-9: Project construction activities in the Project footprint for the San Carlos Pump Station Repurposing Project have the potential to result in direct impacts or indirect disturbance to native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

Implementation of mitigation measure **MM BIO-4** will reduce this potential impact to a level that is less than significant.

Redwood City Pump Station Replacement

Special-status Plant Species

The entirety of the Project footprint, including construction staging areas for the Redwood City Pump Station Replacement Project, is located in developed and landscaped areas or ruderal areas subject to constant disturbance. These areas do not provide potential habitat for special-status plant species. No impacts to special-status plant species are anticipated to result from construction of the Redwood City Pump Station Replacement Project.

Special-status Wildlife Species

The Redwood City Pump Station Replacement will have limited impacts to wildlife. The Project footprint is located entirely within developed areas, and little to no vegetation will be removed. The Project footprint is not located in proximity to habitat areas that have the potential to support special-status wildlife species. Potential impacts to wildlife are related to construction noise and vegetation removal. Potential wildlife impacts include impacts to nesting special-status and non-special-status birds.

Nesting Birds
Aquatic areas adjacent to the northern staging area at the Redwood City Pump Station may provide suitable nesting habitat for San Francisco common yellowthroat. However, this area is subject to regular disturbance from construction, construction staging, and traffic. Therefore, potential impacts to San Francisco common yellowthroat are considered less than significant. This portion of the Study Area also has the potential to support non-special-status nesting birds protected under the MBTA and CFGC.

Impact BIO-10: Project construction activities in the Project footprint for the Redwood City Pump Station Replacement have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

Implementation of mitigation measure **MM BIO-4** will reduce this potential impact to a level that is less than significant.

Menlo Park Pump Station Rehabilitation

Special-status Plant Species

The entirety of the Project footprint, including construction staging areas for the Menlo Park Pump Station Rehabilitation Project, is located in developed and landscaped areas or ruderal areas subject to constant disturbance. These areas do not provide potential habitat for special-status plant species. No impacts to special-status plant species are anticipated to result from construction of the Menlo Park Pump Station Rehabilitation Project.

Special-status Wildlife Species

The Menlo Park Pump Station Rehabilitation Project will have limited impacts to wildlife. Potential direct impacts to wildlife are related to initial vegetation removal and ground disturbance. Potential indirect impacts to special-status wildlife species may occur in surrounding areas from construction noise and visual disturbance. As discussed above in *Section 4.4.2.4*, a number of special-status species have the potential to occur adjacent to the Project footprint for the Menlo Park Pump Station Rehabilitation. Potential wildlife impacts include impacts to SMHM, SMWS and nesting special-status and non-special-status birds.

Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew
No temporary or permanent loss of SMHM or SMWS habitat due to Menlo Park Pump Station Rehabilitation Project construction is anticipated. No suitable habitat for SMHM or SMWS is present within the Project footprint for the Menlo Park Pump Station Rehabilitation. Although the proposed Project is not anticipated to directly affect suitable habitat, there is a limited potential for direct impacts to occur to SMHM or SMWS individuals within the Project footprint. These species have the potential to wander into the Project footprints in these areas from adjacent tidal and diked marsh and ruderal vegetation during construction. Direct impacts may occur due to interactions with construction traffic or entrapment in open trenches/holes, equipment or materials. In addition, individual mice may seek refuge in equipment or materials overnight and use of equipment or materials with these species inside may cause mortality. If no impact avoidance or minimization measures are implemented, direct mortality or harassment could occur to individual SMHM or SMWS present in these areas during construction.

Impact BIO-11: The proposed Project's construction activities at Menlo Park Pump Station Rehabilitation footprint could result in direct mortality and/or harassment of Federal and State Endangered SMHM individuals and special-status SMWS, which would be considered a significant impact.

Implementation of mitigation measures **MM BIO 1.1 through 1.5** will reduce these potential impacts to a level that is less than significant.

California Ridgway's Rail

No temporary or permanent loss of CRR habitat will occur due to Project construction because the Project avoids direct impacts to suitable CRR habitat. No CRR are anticipated to occur within any portion of the Project footprint; all Project footprints lie outside tidal marsh and generally occur on open, developed and/or ruderal areas. Generally, rails remain in areas of tidal marsh and unvegetated tidal waters, including mudflats, and are thus unlikely to be present within any construction areas. Even if a CRR was observed within a Project footprint, the species can fly and is highly mobile, and no direct impacts to any individual CRR within a construction area are anticipated. However, CRR may forage and have limited potential to nest in tidal marsh habitats within 700 feet of the Menlo Park Pump Station Project footprint. If CRR breeding or nesting occurs within 700 of Project activities, there is potential for nesting disturbance. Noise and other disturbances could disrupt nesting and breeding activity within or adjacent to the Project footprint.

Impact BIO-12: The proposed Project's construction activities at the Menlo Park Pump Station Rehabilitation Project footprint may cause noise and visual disturbances that result in harassment of Federal and State Endangered CRR individuals causing nest abandonment, which would be considered a significant impact.

Implementation of mitigation measure **MM BIO-2.2** will reduce this potential impact to a level that is less than significant.

Nesting Birds

The following special-status avian species have potential to occur within or adjacent to this portion of the Study Area: American white pelican, California brown pelican, norther harrier, white-tailed kite, peregrine falcon, Caspian tern, black skimmer, Nuttall's woodpecker, oak titmouse, loggerhead shrike, Alameda song sparrow, Bryant's savannah sparrow, San Francisco common yellowthroat, long-billed curlew, and short-eared owl. However, not all have the potential to be harmed, harassed, or killed as a result of Project construction. No impact under this threshold is expected for the American white pelican, California brown pelican, peregrine falcon, Caspian tern, black skimmer, Nuttall's woodpecker, oak titmouse, loggerhead shrike, Bryant's savannah sparrow, long-billed curlew, or short-eared owl. None of these special-status species are expected to be significantly impacted because they are infrequent visitors and/or they do not nest within the Study Area or rely on it for any essential breeding, foraging, or wintering habitat. If an individual of these species were to incidentally enter the site, they are highly mobile and are expected to leave the work area without being impacted.

The Menlo Park Pump Station Rehabilitation Study Area may provide suitable nesting habitat for northern harrier, white-tailed kite, Alameda song sparrow, and San Francisco common yellowthroat. The Study Area also has the potential to support non-special-status nesting birds protected under the MBTA and CFGC.

Impact BIO-13: Project construction activities in the Project footprint for the Menlo Park Pump Station Rehabilitation have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment.

Implementation of mitigation measure **MM BIO-4** will reduce this potential impact to a level that is less than significant.

4.4.3.3 *Impacts and Mitigation Evaluation for Sensitive Natural Communities*

Sensitive natural communities within the Study Area include: unvegetated waters, seasonal wetlands, northern coastal salt marsh, Bair Island Restored Wetlands, and freshwater marsh. Each of these communities is a wetland or non-wetland waters community.

Gravity Pipeline

The Gravity Pipeline Project was designed to avoid impacts to sensitive natural communities. Because of the construction methods employed, no impact is anticipated to sensitive natural communities from below ground tunneling. Although no impacts to wetlands or non-wetland waters are anticipated, the Bair Island Inlet Structure portion of the Project is located immediately adjacent to northern coastal salt marsh and associated unvegetated waters. Additionally, construction at the Airport Access Shaft could similarly result in indirect discharges to adjacent seasonal wetlands and freshwater marsh. Potential impacts and mitigation measures to avoid impacts to these sensitive natural communities are described below.

Impact BIO-14: Construction activities adjacent to northern coastal salt marsh, freshwater marsh, seasonal wetlands, and unvegetated waters adjacent to the Bair Island Inlet Structure and the Airport Access shaft may result in unintentional fill or discharge into wetlands or non-wetland waters.

MM BIO-5: Prior to ground disturbing activities, flagging of sensitive habitats adjacent to Project construction areas and silt fencing shall be installed with oversight from a qualified biologist in the areas adjacent to wetlands or non-wetland waters. It should be noted that this fencing can be the same as the wildlife exclusion fencing described in **MM BIO-1.1** above.

Implementation of this mitigation measure will reduce this potential impact to a level that is less than significant.

WWTP Improvements

The WWTP Improvements Project was designed to avoid impacts to sensitive natural communities. The majority of the WWTP Improvements Project would occur within the ornamental ponds, which, as described above, hold water due to the pumping of recycled water by SVCW. These ponds are maintained as an ornamental buffer between the SVCW treatment plant and the surrounding community. The presence of water and the associated benefits to wildlife species are controlled by and subject to SVCW's operations. Bird utilization in the ornamental ponds dropped precipitously when the pumping of recycled water was turned off during a period of time when the ponds were infected with avian cholera. As noted in *Section 4.4.2*, the baseline condition for purposes of analysis in this EIR is that the ponds are full, as they were at the time the NOP was issued, even though SVCW has drained the ponds in fall 2016 (to conduct geotechnical evaluations). Because the presence of water in these ponds is controlled by and subject to SVCW, they are not classified as a sensitive natural community.

Although no direct impacts to wetlands or non-wetland waters are anticipated from construction at the WWTP, the Influent Connector portion of the Project is located immediately adjacent to seasonal wetlands. Potential impacts and mitigation measures to avoid impacts to seasonal wetlands are described below. Other Project activities would occur in a basin surrounded by paved areas and would not have the potential to result in indirect discharges to sensitive natural communities.

Impact BIO 15: Construction activities adjacent to seasonal wetlands adjacent to the Influent Connector portion of the Project may result in incidental fill or discharge into wetlands or non-wetland waters.

Implementation of mitigation measure **MM-BIO 5** will reduce this potential impact to a level that is less than significant.

Belmont Conveyance System Improvements

The Belmont Conveyance System Improvements Project was designed to avoid impacts to sensitive natural communities. The Project footprint is limited to developed areas which lack wetlands and non-wetland waters; therefore, no direct impacts are anticipated. Potential indirect impacts could occur during work at the Belmont Pump Station construction and staging area through unintentional or incidental discharges during construction to the adjacent northern coastal marsh and associated unvegetated waters within the southernmost extent of Bay Slough. This is a potentially significant impact.

Impact BIO-16: Construction activities adjacent to northern coastal marsh and unvegetated waters adjacent to the Belmont Pump Station may result in unintentional fill or discharge into wetlands or non-wetland waters.

Implementation of mitigation measure **MM-BIO 5** will reduce this potential impact to a level that is less than significant.

San Carlos Pump Station Repurposing

The San Carlos Pump Station Repurposing Projects were designed to avoid impacts to wetlands and non-wetland waters. The Project footprint is limited to developed areas which lack wetlands and non-wetland waters, and there are no adjacent sensitive natural communities; therefore, no impacts are anticipated.

Redwood City Pump Station Replacement

The Redwood City Pump Station Replacement Project was designed to avoid impacts to wetlands and non-wetland waters. The Project footprint is limited to developed areas which lack wetlands and non-wetland waters, and no portion of the Project will be directly adjacent to sensitive natural communities; therefore, no impacts are anticipated.

Menlo Park Pump Station Rehabilitation

The Menlo Park Pump Station Rehabilitation Project was designed to avoid impacts to wetlands and non-wetland waters. The Project footprint is limited to developed areas which lack wetlands and non-wetland waters; therefore, no direct impacts are anticipated. Construction staging areas for the Menlo Park Pump Station are located directly adjacent to open water areas supporting northern coastal salt marsh vegetation. Potential indirect impacts could occur during work in the Menlo Park Pump Station staging areas through unintentional or incidental discharges during construction to the adjacent unvegetated waters and associated northern coastal marsh. This is a potentially significant impact.

Impact BIO-17: Construction activities adjacent to northern coastal marsh and unvegetated waters adjacent to staging areas for the Menlo Park Pump Station may result in incidental fill or discharge into wetlands or non-wetland waters.

Implementation of mitigation measure **MM BIO-5** will reduce this potential impact to a level that is less than significant.

Wetlands and Other Areas Regulated by Section 404 of the Clean Water Act

No direct impacts to wetlands are anticipated from the Project. All potential indirect impacts and mitigation to wetlands and other potential jurisdictional areas are discussed above in *Section 4.4.3.3*. All sensitive natural communities present within and adjacent to the Project footprint are wetlands and other areas subject to Section 404 jurisdiction. Potential impacts to wetlands for all Projects are covered by **Impact BIO 14 – 17** and mitigation measure **MM BIO-5**.

Habitat Corridors and Linkages

As noted in *Section 4.4.2*, no portions of the Study Area provide connectivity between areas of suitable habitat. For terrestrial species, all portions of the Study Area are within a greater context of urban development, and for aquatic species, there is no connectivity between the Study Area and upstream freshwater habitats. No impact will occur to migratory corridors for terrestrial and aquatic species.

Migratory birds use the ornamental ponds at the WWTP opportunistically, and large amounts of higher quality habitat along the Pacific Flyway exist in the adjacent San Francisco Bay. The ornamental ponds offer only an incremental benefit for species along the Pacific Flyway. Additionally, the habitat that is provided for migratory birds in the ornamental ponds is man-made, and is only used if the ponds are inundated. The habitat provided is subject to the manipulation of water levels by SVCW. Based on these factors, the draining of the ornamental ponds and subsequent construction of waste treatment facilities will result in a less than significant impact to migratory corridors and habitat linkages. This less than significant impact is applicable to the Gravity Pipeline Project component (Flow Splitter Shaft) and construction and operation of the WWTP Improvements.

4.4.3.4 *Consistency with Plans and Policies*

The following plans and policies related to biological resources are applicable to the proposed Project:

- Redwood City General Plan (City of Redwood City 2009)
- Redwood City Code Chapter 18, Article IX - Filling of Bay Lands
- Redwood City Code Chapter 35 - Tree Preservation
- Menlo Park Municipal Code Chapter 13.24 - Heritage Trees
- City of Belmont Municipal Code Chapter 25 – Tree Ordinance
- City of San Carlos Municipal Code Chapter 12.2 – Maintenance and Removal of Trees on Public and Private Property

The Project entirely avoids filling bay lands. The Project is therefore consistent with the City of Redwood City General Plan and Code regarding bay fill, and no impact will occur related to these local policies (applicable to all Project components).

A limited amount of tree removal may be required for each Project, as needed for construction and access. Some of the trees removed may be classified as heritage trees or otherwise protected by local ordinances.

The Project would require removal of trees covered by tree ordinances of the City of Redwood City, City of Belmont, City of San Carlos, and City of Menlo Park. Based on site assessments, the tree removal required for the Project will consist primarily of non-native species. The Redwood City Tree Ordinance requires tree removal permits for all trees, regardless of size. Up to eight trees are anticipated to be removed for the Gravity Pipeline Project component, up to 22 trees are anticipated to be removed for the WWTP Improvements Project, and one tree would be removed for the Redwood City Pump Station Project, all of which are covered by the City of Redwood City Tree Ordinance. The Belmont Pump Station Project is anticipated to require removal of up to six trees, all of which are covered by the City of Belmont Tree Ordinance. The San Carlos Pump Station Project would require the removal of up to 21 trees, seven of which are covered by the City Tree Ordinance. The Menlo Park Pump station Project would require removal of up to 29 trees, 17 of which are covered under the City's Tree Ordinance, and would require substantial pruning of three trees also covered by the City's Tree Ordinance. Table 4.4-2 below provides a summary of tree removal by Project component.

Table 4.4-2: Summary of Tree Removal by Project Component				
Project Component	Number of trees suveyed	Number of trees meeting Tree Ordinance Thresholds	Number of trees to be removed not meeting Tree Ordinance Thresholds	Number of trees trimmed meeting Tree Ordinance Thresholds
Belmont Force Main Improvements	10	6	0	0
San Carlos Pump Station Repurposing	32	7	14	0
Redwood City Pump Station	1	1	0	0
Airport Access Shaft	11	8	0	0
WWTP Improvements	101	22	0	0
Menlo Park Pump Station	34	17	12	3
Source: WRA, October 2016				

There is no significant impact under CEQA as there is no potential conflict with these local tree ordinances under doctrine of intergovernmental immunity. As stated in *Section 4.4.1.3*, SVCW, as a Joint Powers Authorirty, is exempt from the requirement to comply with the ordinances of its Member Agencies, therefore, there is no potential conflict with these local tree ordinances and there is no significant impact due to tree removal. Nevertheless, SVCW will cooperate with each Member Agency to determine a number of replacement trees to be planted for each Project component in areas where tree replacement is warranted. Therefore, the Project would have a less than significant impact and no mitigation measures will be required.

4.4.3.5 *Habitat Conservation Plans*

There are no adopted local, regional or state habitat conservation plans that are applicable to the proposed Project. Therefore, the Project does not have the potential to conflict with an adopted local, regional, or state habitat conservation plan (applicable to all Project components)**.**

4.4.4 Conclusion

The proposed Project, with implementation of identified mitigation measures to avoid impacts to special status species and provide replacement planting for tree removal, would not result in significant impacts to biological resources. **[Less Than Significant Impact with Mitigation]**

4.5 CULTURAL RESOURCES

This section addresses paleontological, archaeological, and historic architectural resources, as well as human remains. It describes the paleontologic, prehistoric, historic, and ethnographic resources in the Study Area, assesses impacts on those resources, and identifies mitigation measures that would be needed to reduce significant impacts to less than significant levels as required by CEQA. The information in this section is based on an Archaeological Survey and Extended Phase I Testing report for the Silicon Valley Clean Water Project prepared by Far Western Anthropological Research Group, Inc., (*Far Western)* in September 2016 and later updated in March 2017. A copy of the report is ~~attached~~ included as Appendix D~~.~~ and available to qualified personnel at SVCW's office and will be made available upon request to qualified archaeologists.

The updated report expanded the search area from a 100-foot buffer around the proposed APE to a 0.5 mile buffer around the proposed APE, per comments received during the circulation period of the Draft EIR. Despite the increase in search area, the findings of the report did not change from the original publication in September 2016.

4.5.1 Regulatory Setting

4.5.1.1 *Federal*

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires Federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800).

Archaeological Resources Protection Act

The Archaeological Resources Protection Act preserves and protects resources and sites on federal and Native American/Indian lands. The Act prohibits the removal, sale, receipt, and interstate transportation of archaeological resources obtained illegally (i.e., without permits) from public or Native American/Indian lands and authorizes federal agency permit procedures for investigations of archeological resources on public lands under the agency's control. An archaeological resource under this Act is defined as material remains of past human life or activities that are of archaeological interest and includes but is not limited to pottery, basketry, bottles, weapons, tools, structures, rock paintings or carvings, intaglios, graves, and human skeletal materials.

Native American Graves Protection and Repatriation Act, Title 25 USC, Sections 3001–3013

The Native American Graves Protection and Repatriation Act describes the rights of Native American lineal descendants, Indian tribes, and Native Hawaiian organizations associated with the treatment, repatriation, and disposition of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony with such entities can show a relationship of lineal descent or cultural affiliation. Among other provisions, the Act stipulates that illegal trafficking in human remains and cultural items may result in criminal penalties; authorizes the Secretary of the Interior to administer a grants program to assist museums and Indian Tribes in complying with the statute; and requires the Secretary of the Interior to establish a Review Committee to provide assistance in carrying out key provisions of the statute.

Executive Order 13007 – Indian Sacred Sites

Executive Order (EO) 13007 requires Federal land managing agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It also requires agencies to develop procedures for reasonable notification of proposed actions or land management policies that may restrict access to or ceremonial use of, or adversely affect, sacred sites.

Sacred sites are defined in the EO as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." It is important to note that a sacred site may not meet the National Register criteria for a historic property and that, conversely, a historic property may not meet the criteria for a sacred site. In these instances, where an undertaking may affect a historic property that is also considered by an Indian tribe to be a sacred site, the Federal agency should, in the course of the Section 106 review process, consider accommodation of access to and ceremonial use of the property and avoidance of adverse physical effects in accordance with EO 13007.

4.5.1.2 *State and Regional*

California Register of Historic Resources

The California Register of Historic Resources (CRHR) establishes a list of properties that are to be protected from substantial adverse change (Public Resource Code Section 5024.1). A historical resource may be listed if it meets any of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values; or
4. It has yielded, or is likely to yield, information important to prehistory or history of the local area, California, or the nation.

The CRHR includes properties that are listed or have been formally determined to be eligible for listing in the National Register of Historic Places (NRHP), State Historical Landmarks, and eligible Points of Historical Interest. Historical Landmarks are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Other resources require nomination for inclusion in the CRHR. These may include resources contributing to the significance of a local historic district, individual historical resources, historical resources identified in historic resource surveys conducted in accordance with State Historic Preservation Officer (SHPO) procedures, historic resources or districts designated under a local ordinance consistent with Commission procedures, and local landmarks or historic properties designated under local ordinance.

CEQA Regulations Regarding Human Remains

Section 15064.5 of the State CEQA Guidelines specifies procedures to be used in the event of an unexpected discovery of Native American human remains on nonfederal land. These procedures are outlined in Public Resources Code Sections 5097 and 5097.98. These codes protect such remains from disturbance, vandalism, and inadvertent destruction, establish procedures to be implemented if Native American skeletal remains are discovered during construction of a project, and establish the Native American Heritage Commission (NAHC) as the authority to resolve disputes regarding disposition of such remains.

California Native American Historical, Cultural and Sacred Sites Act

The California Native American Historical, Cultural and Sacred Sites Act applies to both state and private lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and the county Coroner be notified. If the remains are of a Native American, the Coroner must notify the NAHC. The NAHC then notifies those persons most likely to be related to the Native American remains. The Act stipulates the procedures that the descendants may follow for treating or disposing of the remains and associated grave goods.

Senate Bill 18

Signed into law in September 2004, Senate Bill (SB) 18 requires cities and counties to notify and consult with Native American Tribes about proposed local land use planning decisions for the purpose of protecting tribal cultural resources. SB 18 stipulates that cities and counties must send any proposals for revisions or amendments to general plans and specific plans to those California Native American Tribes that are on the NAHC's contact list and have traditional lands located within the city or county's jurisdiction. Cities and counties must also conduct consultations with these tribes prior to adopting or amending their general plans or specific plans.

Assembly Bill 52

As of July 1, 2015, Lead Agencies are required to address a project's impacts on tribal cultural resources consistent with Assembly Bill (AB) 52. The Public Resources Code Section 21074 defines tribal cultural resources as:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
  a) Included or determined to be eligible for inclusion in the CRHR.
  b) Included in a local register of historical resources as defined in subdivision (k) of the Public Resources Code Division 5, Article 2, Section 5020.1.
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Division 5, Article 2, Section 5024.1. In applying the criteria set forth in subdivision (c) of Section

5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

The site is not known to contain tribal cultural resources pursuant to AB 52, nor have any tribes culturally affiliated with the area requested consultation under AB 52, therefore, no known tribal cultural resources will be impacted by implementation of the proposed Project.

California Health and Safety Code

California Health and Safety Code Section 7050.5 regulates the procedure to be followed in the event of human remains discovery. Pursuant to Public Resources Code Section 5097.98, in the event of human remains discovery, no further disturbance is allowed until the County Coroner has made the necessary findings regarding the origin and disposition of the remains. If the remains are determined to be Native American, the Coroner is required to contact the NAHC. The NAHC is responsible for contacting the most likely Native American descendent, who will consult with the local agency regarding how to proceed with the remains. According to Section 15064.5 of the CEQA Guidelines, all human remains are considered a significant resource.

California Public Resources Code – Paleontological Resources

The California Native American Historical, Cultural and Sacred Sites Act applies to both state and private lands. The Act requires that upon discovery of human remains, construction or excavation activity cease and the County Coroner be notified. If the remains are of a Native American, the Coroner must notify the NAHC. The NAHC then notifies those persons most likely to be related to the Native American remains. The Act stipulates the procedures that the descendants may follow for treating or disposing of the remains and associated grave goods.

4.5.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

City of Belmont Historic Resources Ordinance

Chapter 7, Article VII (Structures of Historic or Aesthetic Value), of the City of Belmont Municipal Code is intended to, "preserve, enhance, and perpetuate for the benefit of the general public those buildings, structures, and areas having special historical or aesthetic interest or value which contribute to community aesthetics and identity, and to prescribe the procedure for altering, relocating, and demolishing those structures so classified." This article also includes procedures for the classification of landmarks and historic resources within the City, as well as the approval process/procedures for alterations, including demolition, or historic resources. The City of Belmont maintains a list of designated historic buildings within the City. A historic resource designated as a City landmark or determined to be eligible for designation as a City landmark is, by definition, considered a significant resource under CEQA.

City of San Carlos Historic Resources

In 1990, a group of local volunteers identified and researched the historic resources in San Carlos which led to the creation of the 1991 Historic Resources Inventory. This inventory contains 52 listings which include residential and commercial structures and one public park. The San Carlos 2030 General Plan acknowledges that these resources are highly valued by San Carlos, but the City has no historic preservation ordinance, nor formal designation. Protection of historic resources within the City is provided through CEQA, which requires that any potential impacts to historical properties be sufficiently evaluated, but does not necessarily prohibit demolition of or damage to a potentially historically significant property.

Redwood City Historic Preservation Ordinance

The Redwood City Historic Preservation Ordinance (Chapter 40 of the Municipal Code) is intended to safeguard the City's heritage by providing for the protection of historic landmarks, encouraging public knowledge of the City's history, and fostering a sense of identity in the community. The Historic Preservation Ordinance is also structured to identify historical resources at the early stages of projects and to resolve conflicts that arise between land uses and the preservation of historical resources. The Historic Preservation Ordinance requires that applications or projects affecting historic resources comply with applicable local, state, and federal laws. Under the Historic Preservation Ordinance, the City also maintains a list of individual historic landmarks, resources, and districts. A historic resource designated as a City landmark or determined to be eligible for designation as a City landmark is, by definition, considered a significant resource under CEQA.

Menlo Park Zoning Ordinance

Title 16 of the City of Menlo Park Municipal Code sets forth the City's Zoning Ordinance. While the City maintains no local register of historic resources, Chapter 16.54 of the Zoning Ordinance provides for a Historic Site District (H) for protecting, enhancing, preserving the use of structures, sites and areas that are reminders of people, events or eras, or which provide significant examples of architectural styles and the physical surroundings in which past generations lived. This section of the ordinance allows the City Council to designate historical resources or sites, and restricts the Department of Community Development from approving or issuing a permit for any construction, alteration, removal or demolition of a designated structure, unless it is in keeping with various architectural controls provided in Section 16.68. For sites designated as historic landmarks, Section 16.68 requires that the Planning Commission make a finding that the proposed work will preserve, enhance or restore, and not damage or destroy the exterior architectural features of the landmark (City of Menlo Park, 2012).

4.5.2 Environmental Setting

Modern and Recent Setting

The Area of Potential Effect (APE) (See Figure 3 of Appendix D) is within the San Francisco Bay region; specifically, it lies along the bay's edge in the southern San Francisco Peninsula. The entire APE lies east of the historic-era bay shoreline, and nearly all structures and developments there are built on artificial fill.

Historical Setting

The APE lies within what was historically a large estuary immediately northeast of the former estuary margin (Figures 4 through 6 of Appendix D). Several creeks that drain the Santa Cruz Mountains to the west flow into the bay along the Project corridor, including Belmont, Pulgas, Cordilleras, and Redwood Creeks. This estuary was characterized by numerous sinuous open water tidal channels (e.g.; Steinberger, Corkscrew, and Westpoint Creeks). This indicates that the entire Project corridor was historically a dynamic estuarine environment that was flooded on a regular basis.

4.5.2.1 *Prehistoric Context*

This section is a summary discussion of the San Francisco Bay-Delta Area regional cultural sequence, which includes San Mateo County. It is presented in relation to potential prehistoric resources that could be identified during subsurface explorations; no prehistoric sites are currently identified within the APE.

The Late Holocene (4,200 – 180 cal BP [calendar years before present [1950]) is generally divided into the following five main time periods: Early (4200–2550 cal BP), Early/Middle Transition (EMT; 2550–2150 cal BP), Middle (2150–930 cal BP), Middle/Late Transition (MLT; 930–685 cal BP), and Late (685–180 cal BP). Over the last 4,000 years it is generally thought that regional human population increased and there was an upward trend in social, political, and economic complexity, in part reflected by distinct, geographically specific cultural traditions.

- ***The Early Period*** marks the establishment or expansion of a number of large shell mounds. Multi-season plant and animal foods (e.g., Byrd and Berg 2009; Price et al. 2006; Wiberg 2010), residential structures (Price et al. 2006; Wiberg 2010), cemeteries, mortars and pestles, and evidence for regular exchange, all suggest that relatively sedentary communities had emerged by the Early Period (Byrd and Berg 2009).
- The ***Middle Period*** is often considered to have witnessed greater settlement permanence characterized by either sedentary or multi-season occupation (Hylkema 2002; Milliken et al. 2007). This time interval is also often considered to have been the heyday of mound building (as many of the bay margin shell mounds have dates within this time span) and correlated with greater social complexity and ritual elaboration (Lightfoot 1997; Lightfoot and Luby 2002, 2012). During the Middle Period there are also indications that people originating in the San Joaquin Valley moved into the East Bay through Amador-Livermore Valley and the San Ramon and Walnut Creek Valleys, ultimately reaching the bay plain near Fremont.
- The ***Late Period*** is the best-documented era, and current evidence suggests that Bay-Delta Area populations grew in size (Lightfoot and Luby 2012; Milliken et al. 2007), and sedentary villages flourished (Eerkens et al. 2013).

4.5.2.2 *Ethnohistoric Context*

The APE falls within the aboriginal territory of the Ohlone, once referred to by the Spanish as Costanos (for "coastal people"). Most of what we know about the Ohlone comes from early Spanish accounts—both explorers and mission staff—along with a few twentieth-century interviews by anthropologists who gathered information on remembered lifeways (Bean 1994).

According to Levy (1978:485), there were approximately 1,400 Ohlone inhabiting the area of modern San Francisco and San Mateo counties and speaking *Ramaytush* in AD 1770. The Ohlone tribe who inhabited the Bay Shore from Belmont south to Redwood City were the *Lamchin* (Milliken 1995). For the Ohlone as a whole, the basic unit of political organization was a territory-holding group of one or more associated villages and smaller temporary encampments. Often referred to as a tribe or tribelet (Kroeber 1962), these groups were generally considered independent, multi-family, landholding groups. Each regional community was a largely autonomous polity numbering typically between 150 and 400 people falling under the jurisdiction of a headman and council of elders who served as advisors to the villagers (Levy 1978:487). Permanent villages were established near the coast and on river drainages, while temporary camps were located in prime resource-processing areas. Some tribes occupied a central village, while others had several villages within a few miles of each other. The most common type of housing consisted of small hemispherical huts thatched with grasses and rushes (Kroeber 1925:219). Other types of village structures included sweathouses, dance enclosures or plazas, and assembly houses.

4.5.2.3 *Historic Context*

Spanish Period

Spanish colonial policy throughout the late 1700s and early 1800s was directed toward establishing missions, presidios, and secular towns known as pueblos, with all land being held by Spain. North of the Project area, the San Francisco Presidio District included Mission San Francisco de Asis at Dolores, founded in 1776. South of the Project area, Mission Santa Clara de Asis was established in 1777 (Beck and Haase 1974). By 1823, 21 mission complexes were linked by a travel corridor referred to as El Camino Real or King's Highway. The original route traveled south from San Francisco along State Highway 82, and continued along the central and southern coast roughly along the current alignment of U.S. 101.

As noted by Lightfoot (2005) the missions were designed to be self-sufficient agrarian communities and generally supported between 500 and 1,200 Indian neophytes. The Alta California mission system was the driving force behind tribal disintegration, with native people leaving their villages for the missions where padres controlled their daily lifestyles, work, diet, and religious expression. Natives were enlisted as laborers, and agriculture was introduced to neophytes via the planting of gardens, orchards, grain fields, and pastures for mission livestock. Timber was also procured for construction activities, some of which was conveyed down San Francisquito Creek (Brown 1966). By 1810, all surviving Ohlone had left their villages and were living on mission lands (Milliken 1995, 2006).

Mexican Period

During the Mexican Period the missions were secularized and millions of acres of land, including mission lands, were parceled out through a system of land grants, whereby enormous swaths of land were given out to relatively few individuals of Mexican and foreign descent (Hayes 2007:68). The land grant system transformed the economic climate of California and opened up local and foreign markets that had been denied under Spanish rule (Price et al. 2006:8).

The SVCW Project area lies east of the former Mexican land grant of Rancho de las Pulgas. Established in 1795, this land grant was bounded by San Francisquito Creek on the south and San Mateo Creek on the north. Rancho de las Pulgas included portions of present-day San Mateo, Belmont, San Carlos, Redwood City, Atherton, and Menlo Park. The land grant traces back to the early Spanish pioneer, Don Jose Dario Arguello. Arguello was active in the Spanish military and was granted the land prior to 1800. The location of his ranch house is unknown, but is thought to be located near present-day San Carlos (Kyle 1990:379–381).

American Period

Agriculture continued to be the major economic pursuit in the region with the onset of the American Period, in particular to supply the gold mines from 1848 to the 1850s. American farmers then became commonplace in the region, and a series of court cases in the 1850s resulted in the loss of land for many Mexican land-grantees. Rancho Las Pulgas was subdivided and the site of what the Spanish and Mexican officials called the Embarcadero at Redwood Creek became Redwood City.

San Mateo County was formally created in 1856. Redwood City was founded in 1854 and the town economy featured commercial enterprises such as shipbuilding and blacksmithing in addition to being a shipping center for lumber, shingles, hay, and wheat (USFWS and CDFW 2007). Into the second half of the nineteenth century, land grants continued to be subdivided for towns and eventually, in the 1860s, for the railroad right-of-way. Construction on the San Francisco and San Jose Railroad began in 1861 in the San Francisquito Creek area, with passenger and freight service beginning in 1863 (Beck and Haase 1974:68; JRP 2002:14). Railroads expanded the agricultural industry throughout California by creating more effective ways to ship and preserve food supplies, such as refrigerated cars, which were developed in 1880. Between 1850 and 1950 the Redwood Shores peninsula was used for farming, pasture land and later, salt production (City of Redwood City 2001:27).

4.5.2.4 *Project Area Submerged Site Sensitivity*

When Native Americans occupied the region more than 11,000 years ago, the San Francisco Bay did not yet exist because the Pacific Ocean was about 40 meters (approximately 131 feet) lower than today. Over the following several thousand years, rising sea level transformed the terrestrial landscape of the San Francisco Bay into the tidal estuary and marsh that exists there now. Because the size and position of the Bay have changed over time, any attempt to model the locations of prehistoric sites in the Project area must take into account the timing and extent of these large-scale landscape changes.

Because sea level has risen during the Holocene, a sizable part of the landscape that was previously available for human use and occupation is now submerged below the waters and wetlands of San Francisco Bay. As this surface was submerged it was covered by sediments deposited underwater within the newly established estuary, known collectively by geologists as the 'young bay mud'. However, the middle and upper portions of the young bay mud soil conditions represent open water and/or active estuarine environments that were not likely to be the focus of repeated and intentional use by prehistoric humans and are therefore unlikely to contain intact archaeological sites. The young bay mud may, however, contain isolated archaeological materials that were either intentionally or accidentally deposited into the Bay, or those that were naturally reworked into the estuary by wave erosion or fluvial transport.

The Project APE is situated entirely within the historical extent of the San Francisco Bay and estuary. This aquatic setting is not sensitive for surface or near-surface prehistoric sites; however, portions of the Project APE were modeled to have a high sensitivity for submerged sites. For this reason, subsurface coring was conducted as part of the Project cultural resources inventory. The submerged prehistoric site potential of this area is shown in Figure 4.5-2. This model is based on analysis of the entire San Francisco Bay as summarized in Byrd and Whitaker (2015:74–75).

4.5.3 Cultural Resources Impacts

Surface impacts of the Project APE are limited to construction staging areas. The most extensive Project impacts will occur far below the surface (mostly 20–52 feet deep, with a maximum depth of 88 feet), in subsurface tunnel-boring construction in stable, pre-bay sediments below the unstable bay mud layers.

4.5.3.1 *Thresholds of Significance*

For the purposes of this EIR, a cultural resources impact is considered significant under CEQA if the Project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries; or
- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    - Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or
    - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying this criteria, the significance of the resource to a California Native American tribe shall be considered.

According to Section 106 of the NHPA, adverse effects occur when those characteristics of a historic property that qualify it for inclusion in the NRHP are altered in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR 800.5[a]). Adverse effects are listed below.

- Physical destruction of or damage to all or part of the property.
- Alteration of the property that is not consistent with the Secretary of the Interior's standards for the treatment of historic properties (36 CFR 68).
- Removal of the property from its historic location.
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.
- Neglect of a property that causes its deterioration.
- Transfer, lease, or sale of the property out of federal ownership or control.

4.5.3.2 *Methodology*

Record Search Methods and Results

A records search at the Northwest Information Center of the California Historical Resources Information System, Sonoma State University, Rohnert Park, was conducted by Far Western on April 14, 2016 (Appendix D). Contacts were also previously made by Leach-Palm (2012) with Mike Bursak, a volunteer at the Archives Committee of the Redwood City Public Library and Local History Room. General Land Office plat maps were acquired from the Bureau of Land Management, Sacramento. Historical US Geological Survey (USGS) topographic quadrangles were examined on the USGS historical map collection website (USGS 2016).

The records search covered the entire Project area, including a ~~100-foot~~ 0.5 mile buffer around the proposed APE; resources were also noted if they lie adjacent or possibly adjacent to the APE. Additionally, to develop a sensitivity model to predict the probability of encountering submerged prehistoric archaeological sites, resources were noted within a one-quarter mile radius upstream of APE crossings over perennial creeks that flow into the Bay. Sources consulted include:

- Directory of Properties in the Historic Property Data File
- California Inventory of Historical Resources (California Department of Parks and Recreation 1976)
- California Points of Historical Interest (California Department of Parks and Recreation 1992, listed in the Historic Property Data File)
- California Historical Landmarks (California Department of Parks and Recreation 1996, listed in the Historic Property Data File)
- Historic-era maps including General Land Office plat maps, and US Geological Survey maps from 1899, 1939–1941, and 1953–1959

Based on the site record and literature search, one archaeological site (P-41- 002295), a historic-era salt works levee on Inner Bair Island, was found during surface inventory within a construction staging area and access shaft of the APE (see Figure 4.5-1). One other site (P-41-002393) is buried at 3.0–4.5 feet below surface, above the bay mud. It is a sheet scatter of historic-era artifacts near the Redwood City Pump Station. The artifacts are mostly scraps of leather, but also include a modicum of glass, ceramic, and metal fragments that appear to be household debris. They are associated with Frank‘s Tannery, a business employing up to 450 workers which operated from the 1870s to the 1960s, and had a footprint of several acres (Psota 2015). The portion of the site documented in Maple Street was recommended as not eligible to the CRHR due to the lack of association with important events or persons, the absence of architectural features, and the dearth of artifacts that could address general research themes. Despite this finding, it was noted that subsurface work in adjacent areas would likely encounter additional portions of the site, and recommended that a historical archaeologist should be retained to conduct subsurface explorations, or to monitor construction (Psota 2015).

Field Methods

Project construction staging areas were surveyed on June 28, 2016. Field conditions were mostly good, with surface visibility at or near 100 percent. A few areas were under paved parking lots or had road base or gravel fill obscuring the ground surface. Survey was done by walking transects spaced at 10-meter intervals. Photographs were taken of all staging areas. No newly identified cultural resources were found during pedestrian reconnaissance of the staging areas and surface access shafts.

Subsurface Coring

The objective of subsurface coring was to test for the presence or absence of submerged archaeological resources in the APE. Due to the urban nature of the Project area, and the significant depths below surface that needed to be reached, subsurface testing was conducted with a hydraulic coring device, known commercially as a Geoprobe. Cores were drilled through the Holocene bay and estuary deposits (commonly referred to as “bay mud”) to sample the underlying “pre-bay” terrestrial landform that is sensitive for submerged prehistoric archaeological sites.

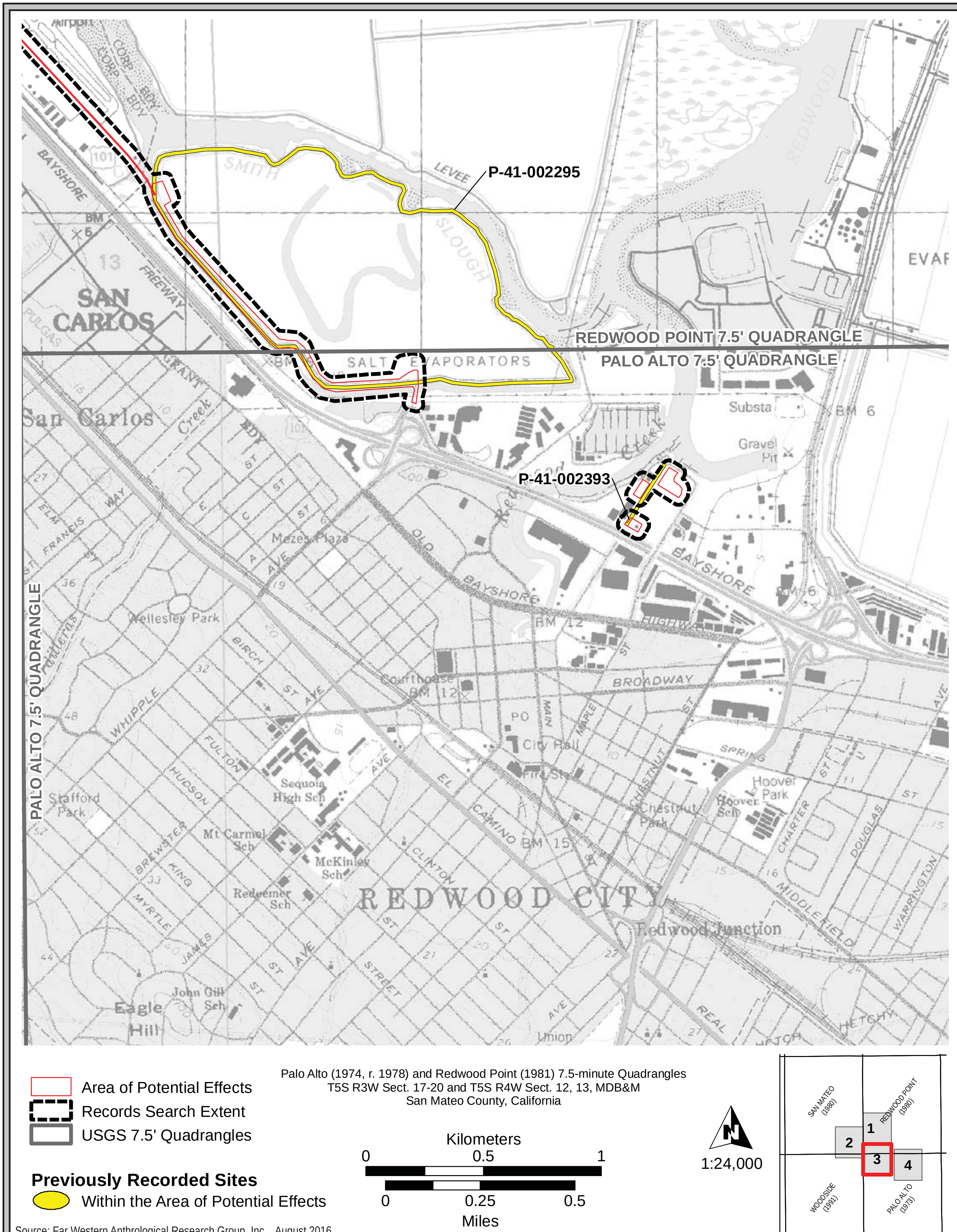
Coring was conducted from May 25 to June 3, 2016. Ten cores were drilled in the nine areas of high or highest sensitivity for submerged sites that were accessible for testing (Figure 4.5-3). To assess whether the deposits contained any identifiable archaeological materials, all terrestrial buried soils and shell concentrations within the bay mud were wet-screened as a bulk sample through 1/16-inch mesh (Table 4.5-1). Although relatively small, the core samples can reliably determine the: (1) presence or absence of potential archaeological materials; and (2) nature and extent of subsurface deposits. Detailed core descriptions are provided in Appendix D.

Six samples of organic sediment were selected from six cores for *radiocarbon analysis*. The selection and submission of these samples were based on a careful consideration of the stratigraphy, with the goal of constraining the age of geologic units identified in the Project area. None were considered to represent material from archaeological sites; instead these organics were selected from geological deposits.

Table 4.5-1: Core Summary					
Core no.	Depth (M)		Depth (FT)		Samples Processed
	Min	Max	Min	Max	
1	0.0	11.9	0	39	Wet-screened thin shell concentration at lower contact of bay deposits (2Cg horizon) together with submerged terrestrial soil (3Ag horizon) 4.75–4.88 meters (15.6–16 feet) below surface.
2	0.6	11.0	2	36	Wet-screened thin shell concentration at lower contact of bay deposits (2Cg horizon) 4.42–4.57 meters (14.5–15 feet) and submerged terrestrial soil (3Ag horizon) 4.57–4.88 (15–16 feet) below surface.
3	0.0	11.9	0	39	Wet-screened submerged terrestrial soil (3Ag horizon) 3.60–3.96 meters (11.8–13 feet) below surface.
4	2.4	12.2	8	32	Wet-screened submerged terrestrial soil (3Ag horizon) 4.57–4.88 meters (15–16 feet) below surface.
5	3.7	12.8	12	42	Wet-screened submerged terrestrial soil (3Ag horizon) 5.39–6.40 meters (17.7–21 feet) below surface.
6	2.4	11.9	8	39	Wet-screened submerged terrestrial soil (3Ag horizon) 4.79–16.2 meters (15.7–16.2 feet) below surface.
7	1.5	7.3	5	24	Wet-screened submerged terrestrial soil (3Ag horizon) 4.42–4.72 meters (14.5–15.5 feet) below surface.
8	0.6	18.3	2	60	Wet-screened shell concentration near lower contact of bay deposits (2Cg horizon) 11.98–12.07 meters (39.3–39.6 feet) and submerged terrestrial soil (3Ag horizon) 12.50–13.11 meters (41–43 feet) below surface.
9	6.1	18.3	20	60	Wet-screened shell concentration at lower contact of bay deposits (2Cg horizon) 12.95–13.11 meters (42.5–43 feet) and submerged terrestrial soil (3Ag horizon) 13.11–13.41 meters (43–44 feet) below surface.
10	6.1	18.3	20	60	Wet-screened shell concentration near lower contact of bay deposits (2Cg horizon) 12.65–12.74 meters (41.5–41.8 feet) and submerged terrestrial soil (3Ag horizon) 14.17–14.33 meters (46.5–47 feet) below surface.
Source: Far Western, September 2016					

4.5.3.3 *Impacts to Historical Resources*

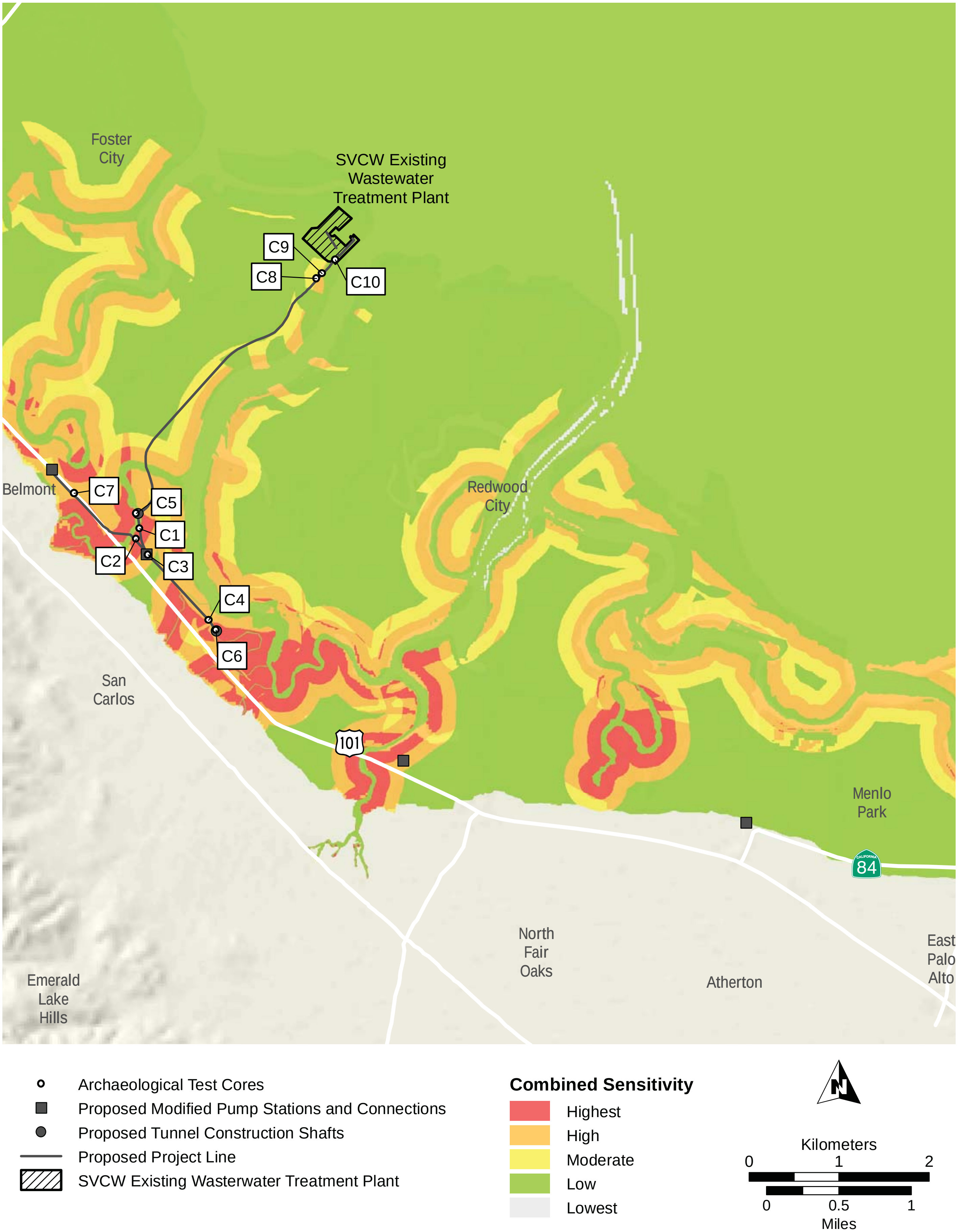
The types of cultural resources that meet the definition of historical resources under CEQA generally consist of districts, sites, buildings, structures, and objects that are significant for their traditional, cultural, and/or historical associations. As described above, there are no listed or potentially eligible historic resources within or near the Project area that could be affected by the proposed Project. In addition, none of the existing pump stations and associated facilities are over 50 years old, and therefore, are not considered eligible to be historic. Further, there are no buildings within the project area that would require removal or modification under the proposed Project. Therefore, the Project would not result in any adverse impacts to historic resources.



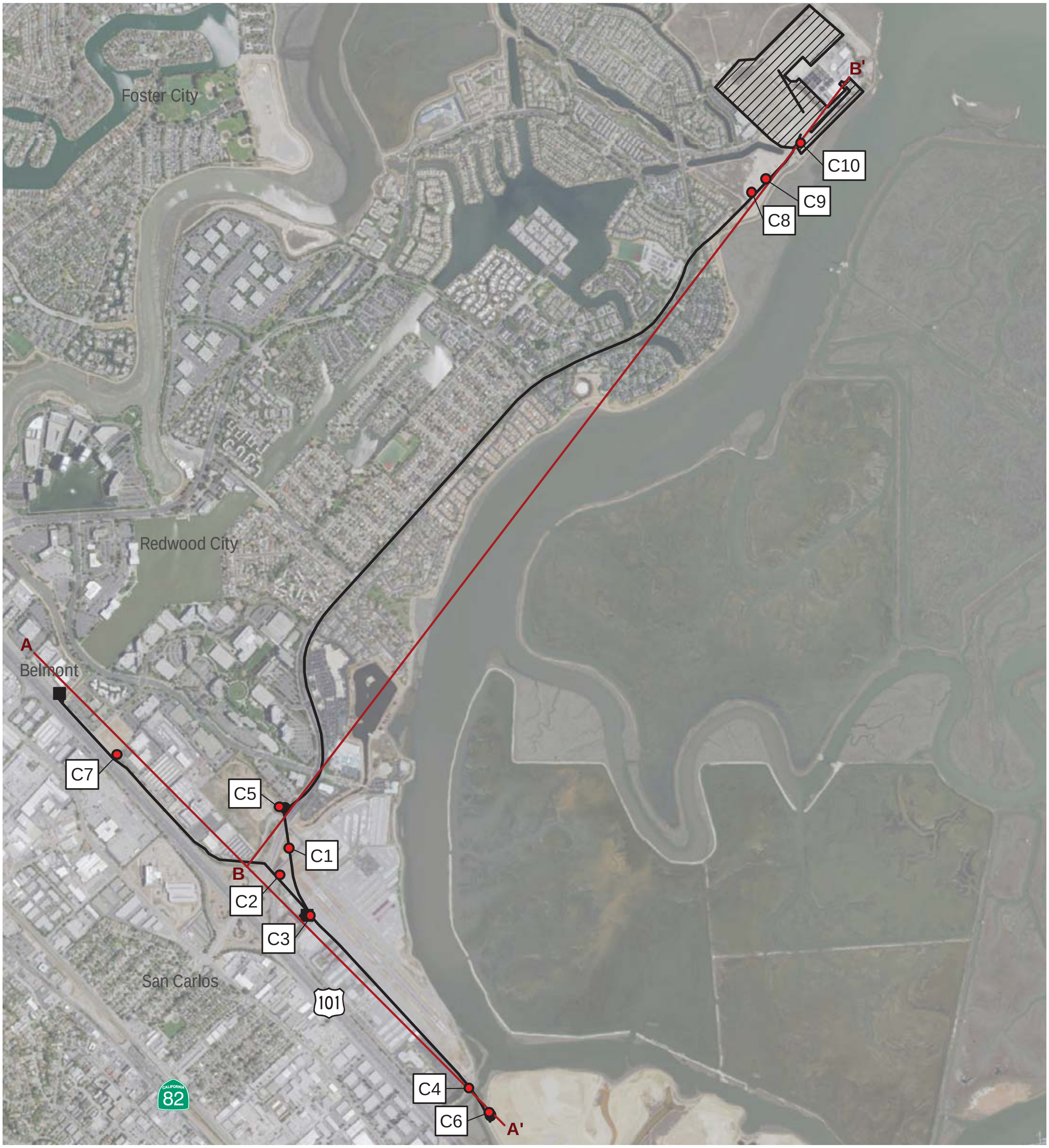
Source: Far Western Anthrological Research Group, Inc., August 2016.

PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

FIGURE 4.5-1



ESTIMATED SENSITIVITY FOR SUBMERGED PREHISTORIC ARCHAEOLOGICAL SITES FIGURE 4.5-2



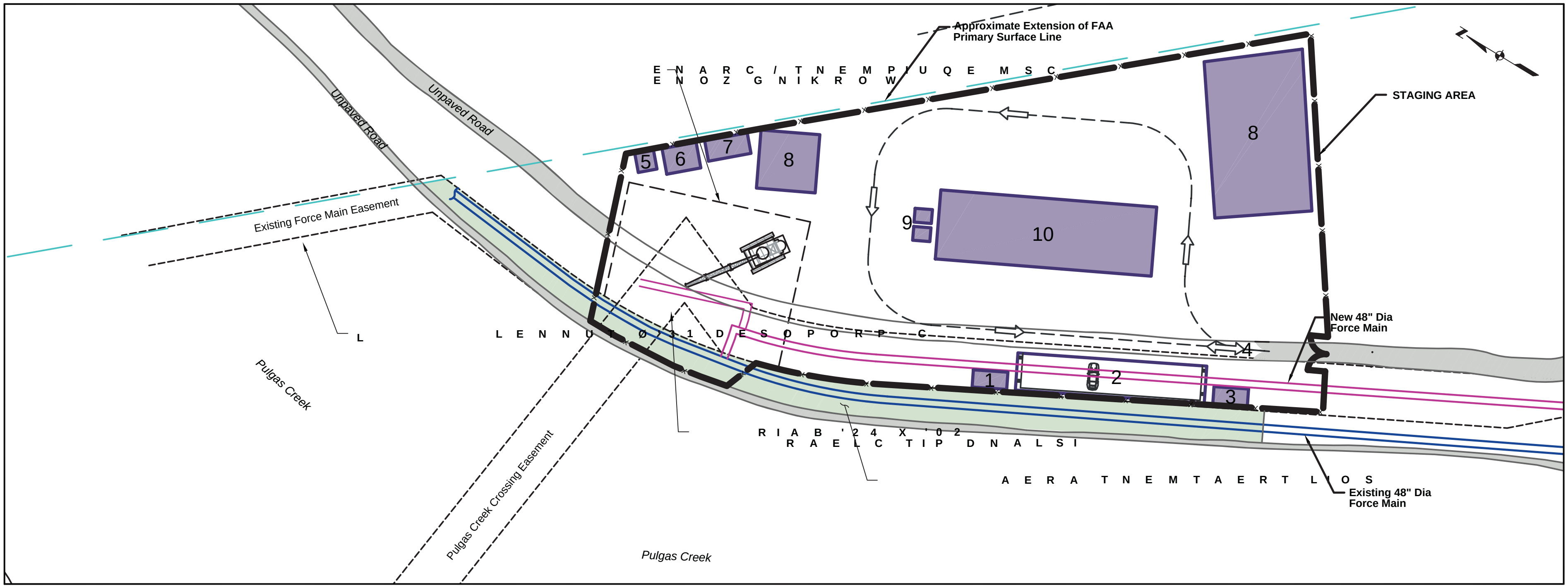
Core
Cross-Sections (See Figures 10 and 11)
Proposed Modified Pump Stations and Connections
Proposed Tunnel Construction Shafts
Proposed Project Line
SVCW Existing Wastewater Treatment Plant

Meters
0 500 1,000
0 1,000 2,000
Feet

Source: Far Western Anthrological Research Group, Inc., August 2016.

CORE LOCATIONS FOR SUBMERGED ARCHAEOLOGICAL INVESTIGATION

FIGURE 4.5-3

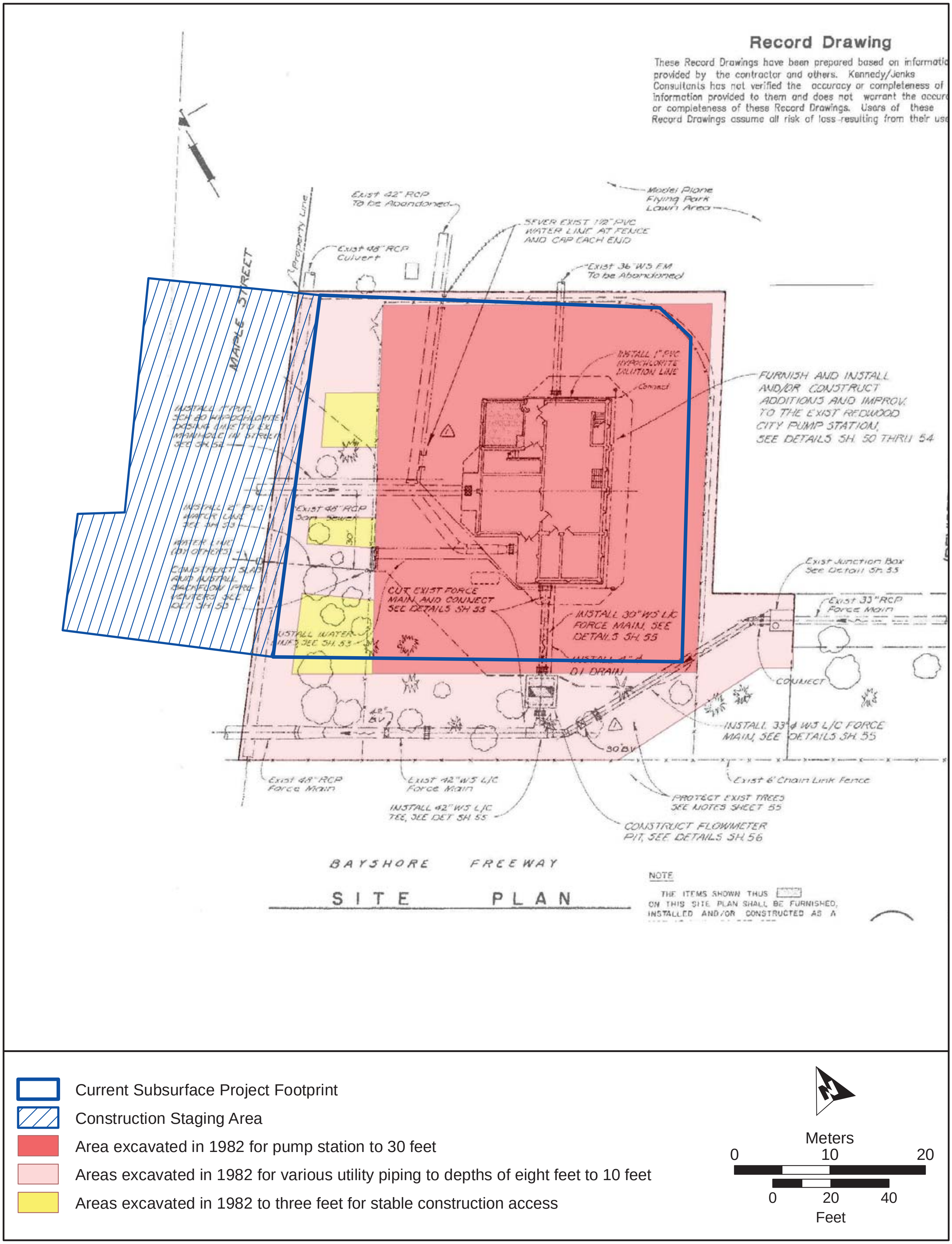


LEGEND

1. Contractor Trailer
2. Job Parking
3. CM Trailer
4. Entry/Exit Gate
5. Compressor
6. Generator
7. Locker Room
8. Material Storage
9. Storage Boxes
10. Muck Storage (3 Days) 40'X125'

BAIR ISLAND RAMP INLET STAGING AREA AND PRIOR DISTURBANCE

FIGURE 4.5-4



REDWOOD CITY PUMP STATION SITE PLAN AND PRIOR DISTURBANCE FIGURE 4.5-5

4.5.3.4 *Impacts to Archaeological Resources and Human Remains*

Archaeological surface reconnaissance and deep coring explorations were conducted in support of the proposed Project as detailed in *Section 4.5.3.2*. No submerged archaeological sites were found in the deep cores. Previous surface studies noted only one previously recorded archaeological site, a salt works levee (P-41-002295) on Inner Bair Island, located within the construction staging area and Bair Island Inlet Structure (as shown in Figute 4.5-1). Surface studies were unable to re-locate the previously recorded salt works levee (P-41-002295) due to extensive fill recently deposited over much of Inner Bair Island. Within the last two years, the USFWS imported more than one million cubic yards of fill to enhance waterfowl habitat and to build an emergency landing area for nearby San Carlos Airport (Bruce Burnworth, SVCW, personal communication, September 2016). The former salt works levee, recorded in 2012, was likely obliterated by this construction. Rather than a low area formerly suitable for salt collection surrounded by a levee, much of the island is now a raised terrestrial fill zone with no levee visible. Moreover, construction of the existing 48-inch-diameter pipeline in 1970 has thoroughly disturbed the former levee location at the proposed Inlet Structure (Figure 4.5-4). As no intact portion of the levee remains at this location, the Project will not have any adverse effects on this cultural resource, and no further studies are necessary.

One other site (P-41-002393), documented in the Project records search, very probably extends into the adjacent APE under the parking lot around the Redwood City Pump Station. This site is a very extensive buried (3.0–4.5 feet below surface, above the bay mud), historic-era deposit associated with Frank's Tannery at the mouth of Redwood Creek (See Figute 4.5-1). Vertical excavation at the Redwood City Pump Station site could be as deep as 35 feet. However, plans from the 1982 construction of the existing pump station document extensive and deep disturbance to nearly all the proposed construction footprint of the new pump station construction (Figure 4.5-5). Importantly, most of the footprint for the pump station improvements has been disturbed below the 4.5-foot maximum depth where the Frank's Tannery scatter has been documented. Only three small areas, less than 2,000 square feet in combination, at the west end of the proposed construction footprint may have intact deposits below a depth of approximately three feet; all other areas within the pump station footprint have been disturbed to depths of eight to 30 feet

Impact CUL-1: Construction activity near Redwood City Pump Station, in areas that have not been subject to previous disturbance, could encounter cultural resources which would be considered a significant impact.

MM CUL-1: The Project shall implement either of the following measures which will reduce the impact to a less than significant level.

- Avoid the buried historic-era deposit by prohibiting construction associated with the pump station that would reach more than two feet below the present paved parking lot surface, primarily in construction staging areas.
- If avoidance is not possible, the Project should retain a qualified historical archaeologist to monitor excavation at the three potentially intact areas at Redwood City Pump Station. The historical archaeologist will have the authority to stop construction in the unlikely event that intact features are found, and excavate and fully document features for Project mitigation recommendations. Monitoring will be limited to the zone of buried cultural

deposits, within five feet of the parking lot surface, or until bay mud is encountered.

Other Resources

Additional resources adjacent to but outside the 100-foot buffer and APE include two salt works levee segments and a radio tower near the WWTP, and an extensive salt works evaporator near the Menlo Park Pump Station.

None of the five cultural resources within, potentially within, or adjacent to the APE has been evaluated to the National Register. It remains possible, that small, sparse, isolated, and/or redeposited archaeological materials may be located in some other part(s) of the Project area. Construction activities could disturb unknown historic or archaeological resources which would be a potentially significant impact.

Impact CUL-2: Construction activities associated with the proposed Project could disturb unknown buried archaeological resources.

MM CUL-2 In the event cultural resources are encountered during construction, work shall halt and the SVCW Project manager shall be notified.

- All construction activity within 50 feet (15 meters) of the find/feature/site will cease immediately.
- If human bones are found, the appropriate County authority (Coroner) and the SVCW Project manager shall be notified immediately.
- In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code shall be followed. Section 7050.5(b) of the California Health and Safety Code 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 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.

Implementation of mitigation measure CUL-2 will reduce the impact to a less than significant level.

4.5.3.5 *Impacts to Paleontological Resources and Unique Geologic Features*

Paleontological resources are fossils, the remains or traces of prehistoric life preserved in the geologic record. They range from the well-known and well-publicized (such as mammoth and dinosaur bones) to scientifically important fossils.

The Project area includes artificial fill and Holocene young bay mud soil deposits, which are classified as having a low paleontological sensitivity. In addition, there are no known nearby paleontological sites that are within the same geologic soil unit as the Project area; therefore, the proposed Project would not result in any impacts to paleontological resources.

4.5.3.6 *CEQA-Plus Evaluation*

As the Project will receive federal funding as part of the SWRCB's SRF program, it is subject to compliance with Section 106 of NHPA. Under Section 106, the lead federal agency is responsible for consulting with the State Office of Historic Preservation on the Project APEs (APE; Figure 3 of Appendix D) and with appropriate Native American group(s), as specified in Section 800.4(a)(1) and Section 800.4(a)(4). The NHPA requires the lead federal agency for a project to consider effects to significant cultural resources ("historic properties") from a proposed federal undertaking. This includes identification of historic properties (usually through archival research, field inventories, public interpretation, and/or test evaluations), assessment of potential adverse effects to those properties, and, where necessary, development of mitigation measures to offset those effects. Under the Act, a "significant" cultural resource is one that is listed on, or eligible for listing on, the NRHP (National Register).

To ensure compliance with Section 106 of the NHPA, Far Western conducted a cultural resources inventory for the proposed SVCW JPA upgrade of the existing wastewater conveyance system, support structures, and treatment plant. Native American consultation was undertaken during the studies completed for this Project. The NAHC was contacted on April 12, 2016 for a search of the Sacred Lands file to determine whether known cultural sites lie within or near the Project parcels, and for a list of interested Native American groups and individuals who might have information or concerns about the Project area. The Commission responded on April 19, 2016 that a review of their Sacred Land Files did not identify any recorded resources within the Project parcels, but cautioned that the absence of specific site information did not indicate the absence of resources.

On April 27, 2016, letters describing the proposed Project and Project area were sent to Native American individuals and organizations identified by the NAHC as possibly having knowledge of cultural resources in the Project parcels. The letter described the proposed Project and its location, noted that archival research and the Commission reported no recorded resources, and invited the contact to communicate information about resources or any concerns or issues they might have. On May 12, and June 8, 2016, follow-up emails were sent to the Native American contacts. Follow-up phone calls were made on June 15, 2016. If an individual was not reached by phone, a telephone message was left if possible. The dates, methods, and content of the contacts are detailed in Appendix D. No concerns or issues were identified through this consultation process.

4.5.4 Conclusion

Cultural resources impacts related to construction could occur; however, potential impacts can be reduced to a less than significant level by incorporating the mitigation measure described above. **[Less Than Significant Impact with Mitigation]**

4.6 ENERGY

The following discussion is based, in part, on an Air Quality and Greenhouse Gas Emissions Assessment prepared by *Illingworth & Rodkin* in November 2016. The report is provided in Appendix B of this EIR.

4.6.1 Regulatory Setting

4.6.1.1 *Federal*

There are no applicable federal regulations that are relevant to the proposed Project.

4.6.1.2 *State*

Energy Action Plan II

The Energy Action Plan II is the State of California's principal energy planning and policy document. The plan continues the goals of the original Energy Action Plan, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported.

The Energy Action Plan II includes the following energy efficiency action specific to wastewater treatment systems such as the proposed Project:

- Identify opportunities and support programs to reduce electricity demand related to the water supply system during peak hours and opportunities to reduce the energy needed to operate water conveyance and treatment systems.

In 2002, California established its Renewables Portfolio Standard (RPS) Program, with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent of retail sales by 2017. In 2006, California's 20 percent by 2010 RPS goal was codified under SB 107. Under the provisions of SB 107 (signed into law in 2006), investor-owned utilities were required to generate 20 percent of their retail electricity using qualified renewable energy technologies by the end of 2010. In 2008, *Executive Order S-14-08* was signed into law and required that retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. PG&E's (the electricity provider to the Project site) 2015 electricity mix was 30 percent renewable.

4.6.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

The following policies found in the Redwood City and San Carlos General Plans are related to energy impacts and are applicable to the proposed Project:

Redwood City Policies

<u>Policy BE-24.12:</u> Seek energy demand reductions in both residential buildings and large industrial and commercial buildings, where reductions by a single user could have a large effect.

<u>Policy BE-42.1:</u> Require that improvements and maintenance to electric and gas transmission and distribution systems that are made to accommodate new growth be performed in a manner that maintains safety, reliability, and environmental compatibility.

<u>Policy BE-42.2:</u> Support efforts to increase the use of renewable energy and low-emission power sources. Encourage the installation and construction of renewable energy systems and facilities such as wind, solar, hydropower, geothermal, and biomass facilities.

<u>Policy BE-42.4:</u> Ensure that pipeline owners protect and maintain underground high-pressure gas pipelines to ensure maximum safety.

San Carlos Policies

<u>Policy EM-9.7:</u> Implement energy efficiency in City-owned and -operated facilities to reduce municipal energy costs and serve as a model for the community.

Menlo Park and Belmont General Plans do not contain energy policies relevant to the Project.

4.6.2 <u>Environmental Setting</u>

Energy consumption is analyzed in an EIR because of the environmental impacts associated with its production and usage. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.) and emissions of pollutants during both the production and consumption phases of energy use.

Energy usage is typically quantified using the British thermal unit (Btu).[14] As points of reference, the approximate amount of energy contained in a gallon of gasoline, a cubic foot of natural gas, and a kilowatt hour (kWh) of electricity are 123,000 Btus, 1,000 Btus, and 3,400 Btus, respectively. Utility providers measure gas usage in therms. One therm is approximately equal to 100,000 Btus.

Electrical energy is expressed in units of kW and kWh. One kW, a measurement of power (energy used over time), equals one thousand joules per second.[15] A kilowatt-hour is a measurement of energy. If run for one hour, a 1,000 watt (one kW) hair dryer will use one kWh of electrical energy. Other measurements of electrical energy include the megawatt (1,000 kW) and the gigawatt (1,000,000 kW).

Total energy usage in California was approximately 7,642 trillion Btus in the year 2013 (the most recent year for which this specific data was available) (U.S. Energy Important Enery Administration, 2013). The breakdown by sector was approximately 19 percent for residential uses, 19 percent for commercial uses, 24 percent for industrial uses, and 38 percent for transportation.[16]

Natural Gas

In 2013, California imported approximately 90 percent of its natural gas supplies from other states and from Canada (CEC 2016). Overall, 2013 consumption of natural gas in California is estimated to be 6,061 million cubic feet per day. This equates to approximately 6,061 billion Btu of natural gas every day.

Natural gas is supplied by PG&E in the Project area. Natural gas is conveyed through a network of pipelines that connect gas fields located hundreds of miles away to Redwood City. Three main natural gas pipelines run the length of the Peninsula, terminating in San Francisco. One pipeline parallels U.S. 101 and two parallel pipelines run adjacent to Interstate 280. A cross-connection between these pipelines runs through San Carlos. A regulator station draws the gas from this pipeline to supply Redwood City. A lateral network of smaller diameter pipelines distributes the gas for local use to individual customers. Within the Project area, natural gas is distributed through a series of gas distribution lines located within street right-of-ways including Maple Street, Skyway Road, and Monte Vista Drive.

Gasoline for Motor Vehicles

With a crude oil distillation capacity of nearly two million barrels per day, California is one of the nation’s largest producers of transportation fuels (United States Energy Information Administartion 2011). Annual crude oil imports are expected to rise over 2010 levels by between 22 million and 104 million barrels per year by 2030.

According to the California Energy Commission’s 2013 Integrated Energy Policy Report, California is expected to experience a 13 percent decrease in gasoline consumption from 14.6 billion gallons per year in 2012 to 12.7 billion gallons per year by 2022. This projected decline is largely attributed to

[14] A Btu is the amount of energy that is required to raise the temperature of one pound of water by one degree Fahrenheit.
[15] As defined by the International Bureau of Weights and Measures, the joule is a unit of energy or work. One joule equals the work done when one unit of force (a Newton) moves through a distance of one meter in the direction of the force.
[16] Ibid.

improved vehicle fuel efficiency mandated by the national Corporate Average Fuel Economy (CAFÉ) standards. The CAFÉ standard for Model Year 2025 vehicles is 54.5 miles per gallon.

The existing parking areas at the WWTP and pump stations accommodate vehicles generated by Project operation. Since the Project implementation would not increase the amount of permanent trips, the Project would not increase the use of gasoline, other than temporarily during construction activities over several years.

Existing Conditions

Electric service is provided to Redwood City, San Carlos, Belmont, and Menlo Park by PG&E, which has supplied much of Northern California with natural gas and electricity since the early 20th century. PG&E obtains electricity from different generation sources, including hydroelectric, fossil fuels, nuclear, wind, and geothermal.

Electricity

The existing conveyance system utilizes power from the PG&E electrical grid. Table 4.6-1 displays the annual energy consumption of the existing pump stations and the projected energy consumption of the pump stations with Project implementation, based on 2015 average annual flow and on data provided by SVCW.

Table 4.6-1: Project Component Annual Power Consumption

Project Component	Existing[1] (kWh)	Proposed[2] (kWh)	Difference (kWh)
WWTP/FoP Improvements			
Receiving Lift Station	N/A	1,532,108	+1,532,108
Headworks Facility	N/A	1,372,342	+1,372,342
Flow Diversion Facilities	N/A	122,640	+122,640
FoP Stormwater Pump Station	N/A	18,671	+18,671
Subtotal:	N/A	3,045,761	+3,045,761
Pump Stations			
Redwood City	509,340	655,905	+146,565
San Carlos	316,640	130,670	-185,970
Belmont	161,440	100,375	-61,065
Menlo Park	283,680	397,120	+113,440
Subtotal:	1,271,100	1,284,070	+12,970
Total	**1,271,100**	**4,329,831**	**+3,058,731**

Notes:
[1] Existing kWh is based on 2015 actual PG&E billings.
[2] Projected kWh is based on 2015 average annual flow calculated by multiplying 694.44 to convert Gallons Per Minute (GPM) to Millions of Gallons per Day (MGD).
1 MGD = 694.44 GPM
FOP = front of the plant, kWh = kilowatt hours

Source: Calculations for existing and proposed power consumption based on data provided by SVCW

WWTP

The existing WWTP consumed 9,470,637 kWh of electricity annually, with a monthly average of approximately 789,220 kWh.

Redwood City Pump Station

The existing pump station has six 100 HP pumps and slots for two more pumps that pump wastewater through a 42-inch lined and coated welded steel manifold to the existing 48-inch reinforced concrete force main. The Redwood City Pump Station uses a total of 509,340 kWh of electricity annually, with a monthly average consumption of approximately 42,445 kWh.

San Carlos Pump Station

The existing pump station has three 150 HP pumps (and one empty bay) that pump the flows through a 24-inch lined and coated, welded steel manifold to the existing 48-inch force main. The San Carlos Pump Station uses a total of 316,640 kWh of electricity annually, with an average of approximately 26,387 kWh per month.

Belmont Pump Station

The existing pump station has three 100 HP pumps that convey flows from the wet well to the existing 24-inch diameter force main. The Belmont Pump Station uses 161,440 kWh of electricity annually, with an average use of approximately 13,453 kWh per month.

Menlo Park Pump Station

The existing pump station has five 100-HP pumps and two wet wells, with one wet well housing two pumps and the other wet well housing three pumps. The Menlo Park Pump Station uses 283,680 kWh of electricity annually, with a monthly average of approximately 23,640 kWh.

4.6.3 Energy Impacts

4.6.3.1 *Thresholds of Significance*

For the purposes of this EIR, an energy impact is considered significant if the Project would:

- Result in a wasteful, inefficient, and unnecessary consumption of energy;
- Result in a substantial increase in demand upon energy resources in relation to projected supplies; or
- Result in longer overall distances between jobs and housing.

The proposed Project's goal is to provide a more reliable, efficient, wastewater treatment system for the residents of Redwood City, San Carlos, Belmont, and Menlo Park that are served by the Silicon Valley Clean Water District. As stated in Appendix F of the State CEQA Guidelines, "*Potentially significant energy implications of a project shall be considered in an EIR to the extent relevant and applicable to the project*."

4.6.3.2 *Project Construction Energy Consumption*

During construction, the Project would use energy resources from nonrenewable fossil fuels (including fuel oil), gasoline for automobiles and construction equipment and electricity. Construction-based impacts would include the use of energy resources required to upgrade the various pump stations, manufacture the material components of the pipeline and its facilities, as well as those necessary for preparing and installing the pipeline in its permanent position. The consumption of such nonrenewable resources would be temporary and would not affect long term supplies of nonrenewable resources.

4.6.3.3 *Project Operational Energy Consumption*

The expected future energy consumption of each of the Project components are discussed below.

WWTP

Receiving Lift Station

Electrical facilities for the RLS would be accommodated within an electrical building constructed for the Headworks, RLS, and FDS. A rental portable crane would be utilized for routine maintenance at the RLS throughout the year. The electrical demand for the RLS would be 2,625 HP.

Headworks Facility

Electrical facilities for the Headworks would be accommodated within an electrical building constructed for the Headworks, RLS, and FDS. The existing two 2-MW generators would provide the backup power for the RLS, Headworks and if needed the FDS. Space will be provided with the Headworks structure for possible additional generators for the future Nutrient Removal facilities.

The connected horsepower would be approximately 410 HP from the Headworks and the annual average power demand is expected to be approximately 190 HP, which would be an increase in energy usage compared to existing conditions given that the existing WWTP does not have an equivalent Headworks component. Power supply for the Nutrient Removal facilities may be from two new transformers located at the same elevation as the electrical building and in close proximity to the building. The Headworks structure would provide space for these possible future transformers.

Flow Diversion Facilities

All of the electrical supply components required for the possible Flow Diversion Facilities, as well as for the Headworks and Odor Control Facilities, would be located in the Headworks building. Standby power and other supplementary equipment needed to operate and maintain the new return pump station and other electrical needs would also be housed within the new Headworks building.

The pumps and other equipment for the Flow Diversion Facilities would use electrically driven motors, and power to the site would be through a connection to the PG&E power grid. The overall power supply would be 3-phase, 480 volt. Since the WWTP does not have an equivalent FDS component, this would result in an increase in energy usage from the existing conditions. Overall power needs to the site would peak when stored wastewater is pumped back to the treatment facilities.

Pump Stations

Redwood City Pump Station

The connected horsepower of the existing pumps is 600 HP. The new Redwood City Pump Station would increase the connected 600 HP to 1,740 HP to accommodate re-pumping of Menlo Park flows during peak wet-weather events. At a peak flow rate of 60 MGD, the operating power would be 960 HP. There would be an increase in energy consumption from approximately 509,340 kWh/year to 655,905 kWh/year (See Table 4.6-1) due to anticipated higher flows in 2022, minimal amount of power for the screening equipment, and primariliy, due to the new fans associated with the odor control system. A new transformer would be required for the increase in power requirements. Additionally, the existing PG&E transformer is in conflict with the proposed new utilities. The transformer would be relocated to a different location within the Redwood City Pump Station construction site with the new power routed to the pump station and police station.

San Carlos Pump Station

The existing San Carlos Pump Station would no longer be an active pumping station but would primarily be used to house Odor Control Facilities to contain and treat odors venting from the San Carlos Drop Shaft, hence the large decrease in projected energy consumption shown in Table 4.6-1. The Odor Control Facilities would have a connected horsepower of 160 HP, and the annual average power demand is expected to be 22 HP.

Belmont Pump Station

Existing electrical components at the Belmont Pump Station would be upgraded to current SVCW standards at the time of construction. Power demand for the Belmont Pump Station would be reduced from a peak demand of 300 HP to approximately 210 HP with the pump station renovations, since a much lower pressure is required for operation of the Belmont flows to connect to the proposed gravity conveyance system. The projected energy consumption at the Belmont Pump Station would decrease from approximately 161,440 kWh/yr to 100,375 kWh/yr.

Menlo Park Pump Station

The connected horsepower of the existing pump station is 500 HP. The connected horsepower for the upgraded Menlo Park Pump Station is less than the existing at 425 HP. The connected horsepower for the upgraded pump station would be less, because the Menlo Park Pump Station would only need to pump peak flows to Redwood City and to a point near the end of Bair Island or to Redwood City and not all the way to the San Carlos Booster Pump Station or to the SVCW WWTP. At a peak flow rate of 22 MGD, the operating horsepower would be 300 HP. The projected energy consumption at the Menlo Park Pump Station would increase from 283,680 kWh/yr to 397,120 kWh/yr. Peak flow numbers do not have a marked effect on annual consumption as they occur for very little time. The increase in projected operating HP is due to improved ventilation and increased ancillary uses for modern HVAC and odor control which operate 24 hours per day.

Summary

Overall, the combination of proposed WWTP/Front of Plant improvements and improvements/rehabilitation of the pump stations would increase the overall electricity consumption for all SVCW facilities from approximately 10,700 megawatt hours per year to approximately 13,500 megawatt hours per year. This increase reflects the construction of new Project components at the WWTP, the rehabilitation and/or repurposing of existing pump stations, and tunneling of the Gravity Pipeline, all of which are considered to be necessary and would be technologically superior. The increase would be commensurate with the amount of energy needed for each proposed Project components, and would not result in the wasteful, inefficient, or unnecessary consumption of energy. Therefore, the proposed Project would not result in a significant impact.

4.6.3.4 *Other Energy Impacts*

The proposed Project would rehabilitate existing pump stations and WWTP components, and would not result in the generation of new, permanent jobs. For these reasons, the overall distances between jobs and housing associated with the Project would not be affected and therefore, have no impact.

4.6.4 Conclusion

The proposed Project's consumption and commitment of nonrenewable resources would occur in compliance with the applicable Federal, State, and local standards and would not, therefore, result in inefficient energy consumption. **[Less Than Significant Impact]**

4.7 GEOLOGY AND SOILS

This EIR chapter describes existing geologic and soil conditions in the Project area and in the immediate vicinity, identifies associated potential geotechnical impacts related to the proposed Project, and identifies measures to mitigate identified significant adverse impacts. The information in this section is based on a Geotechnical Feasibility Letter prepared by *Cornerstone Earth Group* in May 2016. A copy of the report is attached as Appendix E. This report reviewed the following previously prepared, site-specific reports for their analysis:

- A geotechnical report, titled "South Bayside System Authority Pre-design of Planned Pump Stations, Redwood City, San Carlos and Menlo Park, California, Geotechnical Data Report," prepared by Jacobs Associates, dated October 22, 2013.
- A geotechnical letter, titled "Draft Predesign Geotechnical Interpretive Report (GIR), South Bayside System Authority Pump Station Predesign, CIP #7010, Task Order No. 2012-01," prepared by DCM Consulting, Inc., dated November 25, 2013.
- A soil corrosivity evaluation for the Redwood City wastewater treatment plant, titled "Technical Memorandum, Freyer & Laureta, Inc., Soil Corrosivity Evaluation, Silicon Valley Clean Water (SVCW)," prepared by V&A Consulting Engineers, dated December 2015.
- A geotechnical letter, titled "Preliminary Characterization of Subsurface Conditions, SVCW Clean Water Tunnel – Alignment 4BE, Redwood City, California," prepared by Geotechnical Consultants, Inc. (GCI), dated December 9, 2015.

A geotechnical letter, titled "Preliminary Pile Foundation Design Criteria, Peak Flow Diversion Structure, Silicon Valley Clean Water, Redwood City, California," prepared by DCM Consulting, Inc., dated January 11, 2016. Additional data sources considered in the preparation of this EIR chapter included published reference materials produced by the Department of the Interior and USGS.

4.7.1 Regulatory Setting

4.7.1.1 *Federal*

There are no applicable federal regulations related to geology and soils that would apply to this Project.

4.7.1.2 *State and Regional*

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act regulates development in California near known active faults due to hazards associated with surface fault ruptures. The Earthquake Fault Zones indicate areas with potential surface fault-rupture hazards. Areas within the Alquist-Priolo Earthquake Fault Zone require special studies to evaluate the potential for surface rupture to ensure that no structures intended for human occupancy are constructed across an active fault.

The Project is not located within an Alquist-Priolo Earthquake Fault Zone. The nearest Alquist-Priolo zone is located approximately four miles west of the Project area, roughly parallel and west of Interstate 280. There are no active major faults within the Project alignment; therefore, the Project area would not be subject to the regulations of the act.

Seismic Hazard Mapping Act

The Seismic Hazard Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The Act directs the U.S. Department of Conservation to identify and map areas prone to the earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground shaking. The Act requires site-specific geotechnical investigations to identify potential seismic hazards and to formulate mitigation measures prior to permitting most developments designed for human occupancy within the Zones of Required Investigation.

International Building Code

The construction of all buildings within Redwood City is regulated by the International Building Code (IBC), as amended by the California Building Code (CBC). The IBC and the CBC have been formulated to ensure that buildings constructed in conformance with their earthquake design provisions can safely withstand the effects of earthquake-induced ground shaking. As a result, it is not expected that newly constructed buildings in Redwood City will collapse or otherwise fail structurally during a major earthquake, although they may sustain substantial cosmetic damage.

Although, SVCW is exempt from local building codes, permits and ordinances under the doctrine of intergovernmental immunity, it will comply with all applicable infrastructure and building codes in the design and construction of the Project.

4.7.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

The following policies related to geology and soils, found in the Redwood City General Plan are applicable to the proposed Project:

<u>Goal PS-6:</u> Minimize the potential damage to structures and loss of life that result from earthquakes and other geologic hazards

<u>Policy PS-6.3:</u> Work to ensure that structures and the public in Redwood City are exposed to reduced risks from seismic and geological events.

4.7.2 Environmental Setting

This section describes the geologic and seismic conditions within the San Francisco Bay Area and soil conditions in the immediate Project area, which includes areas within and adjacent to the proposed Project sites.

4.7.2.1 *Geology and Soils*

The SVCW tunnel alignment is located on the western margin of San Francisco Bay that occupies a deep structural depression formed by subsidence of the San Francisco Bay structural block, which is bound by the San Andreas Fault on the west and the Calaveras and Hayward faults on the east. The structural trough comprises basement rock of the Franciscan Complex, which is overlain by marine, alluvial, and estuarine sedimentary deposits. This stretch of the bay margin is generally comprised of relatively flat-lying marshlands with low levees adjacent to tidal sloughs.

The Project site is situated within the Coast Ranges Geomorphic Province, a geologically young and seismically active region. This portion of San Mateo County is comprised of a complex sequence of Mesozoic and Cenozoic age sedimentary and volcanic rocks. The bedrock materials comprising this portion of the Coast Ranges have been extensively folded and faulted as a result of regional tectonic forces.

The Bay Area experienced uplift and faulting in several episodes during late Tertiary time (approximately 25 to two million years ago). This produced a series of northwest-trending valleys and mountain ranges, including the Berkeley Hills, the San Francisco Peninsula, and the intervening San Francisco Bay. Uplifted areas were eroded and Pleistocene and recent marine sediments were deposited in the San Francisco Bay. Stream and marshland sediments were deposited in low-lying areas adjacent to the Bay. The lowland deposits, which underlie most of the Project area, consist mostly of the deposits of Holocene age alluvium (less than 11,000 years old) consisting of a mix of clay, silt, sand and gravel.

A description of the earth materials associated with the geologic units are summarized in Table 4.7-1.

Table 4.7-1: Summary of Earth Materials				
Material Unit Name	**Approximate range of depth to top of deposit (feet bgs)**	**Typical Consistency/Relative Density**	**Typical Range of Compressive Strength**	**Plasticity and Compressibility**
Artificial Fill	0 (ground surface)	Loose to medium dense, quite heterogeneous	---	Low plasticity to non-plastic
Young Bay Mud	2-16	Very soft to soft	Typically about 500 psf or less	Highly plastic, highly compressible
Upper Layered Sediments	16-50	Mostly stiff to very stiff clays. Granular interbeds are dense to very dense	Typically over 2,000 psf to over 3,000 psf	Low plasticity, typically low compressibility
Older Bay Deposits	55-100	Medium stiff to very stiff clays	About 1,000 psf to 4,000 psf.	Moderate to high plasticity, moderate compressibility

4.7.2.2 *Subsurface Conditions*

According to the prior geotechnical reports done for the Project, as listed above, the following subsurface conditions are present at the various Project components:

SVCW WWTP: The site is underlain by soft and highly compressible Bay Mud (QHbm); however, it is anticipated that several locations within the plant are underlain by several feet of fill (af) over the Bay Mud. The Bay Mud is generally underlain by medium stiff to very stiff Old Bay Clay to a great depth (bedrock in the area is hundreds of feet below the surface), with lenses of loose to dense poorly graded sands with variable amounts of clay, silt and gravel.

Gravity Wastewater Interceptor Line (between SVCW WWTP and Gravity Intercept Tunnel Shaft): The area surrounding the pipe segment consists of surficial fills ranging in thickness from about five to 16 feet and over Bay Mud thicknesses ranging from about 15 to 45 feet (decreasing in thickness as the line moves westerly). The Bay Mud in this area is mapped by California Division of Mines and Geology (1966) as ranging in thickness from about 10 to 60 feet and, therefore, is in general agreement with the exploration data. The Bay Mud was underlain by about 25 to 45 feet of Old Bay Clay over medium dense to very dense older sand deposits, which were encountered to the maximum depth explored of about 150 feet.

Interceptor Line (between Tunnel Shaft and south of San Carlos Airport), Belmont Pump Station and Force Main, San Carlos Pump Station: Data from the previous geotechnical reports done for the area indicate two to 7½ feet of surficial fill over 5½ to 10½ feet of Bay Mud (mapped as thicknesses of 10 feet or less by California Division of Mines and Geology). The Bay Mud is underlain by Old Bay Clay that was encountered to the maximum depth explored of about 140 feet, which is also similar to mapped conditions.

Redwood City and Menlo Park Pump Stations: The areas surrounding both pump stations are underlain by five to 5½ feet of surficial fill. The fills were underlain by Basin Deposits (Qhb) that consisted of medium stiff to hard fat and lean clays with intermittent sand lenses that were encountered to the maximum depth explored of 50 feet, also in agreement with mapped conditions.

Ground Water: In the vicinity of the tunnel alignment, groundwater is generally characterized as shallow tide influenced groundwater within artificial fill that overlies estuarine deposits. Groundwater levels are generally less than ten feet below the ground surface and experience varying degrees of fluctuation coinciding with the tidal stage of the adjacent Steinberger Slough, Phelps Slough, and Pulgas Creek. Considering the local shallow groundwater regime is tidally influenced and hydraulically connected to the nearby sloughs, seasonal influences are not anticipated to exceed the tidal effects.

4.7.2.3 *Expansive and Corrosive Soils*

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. The soils in the Project area are predominately clays and silty clays with high shrink-swell potential. Clay and associated materials can result in weak, compressible, or expansive soils which are classified as expansive soils.

Soil corrosion is a geologic hazard that affects buried metals and concrete that is in direct contact with soil or bedrock. In the 2015 corrosion evaluation of the subsurface Bay Mud at the WWTP, *V&A Consulting Engineers* (V&A Consulting 2015) determined the Bay Mud was very highly corrosive to buried steel and concrete.

4.7.2.4 *Liquefaction and Lateral Spreading*

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes temporary loss of strength, which commonly causes ground displacement or ground failure to occur. Since saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. The San Mateo County Hazards Mitigations maps (San Mateo County 2005a) and the Association of Bay Area Governments' (ABAG) Liquefaction Hazard Maps indicate that the Project area has a moderate to high potential for liquefaction.

Lateral spreading is a type of ground failure related to liquefaction. It consists of the horizontal displacement of flat-lying alluvial material toward an open area, such as a steep bank of a stream channel. Most of the Project components are highly susceptible to liquefaction hazards, indicating that lateral movement to an open face is possible.

4.7.2.5 *Landslide*

Hillside areas with steep slopes are typically subject to landslides. The Project area is relatively flat. The Project area would not, therefore, be exposed to landslide or erosion related hazards.

4.7.2.6 *Seismicity and Seismic Hazards*

The Project site is located within the seismically active San Francisco Bay area. Dormant or active faults are not known to pass through the Project site. The active or potentially active faults of most significance to the Project area are the San Andreas, Hayward, and Calaveras Faults. The nearest fault to the Project sites is the Peninsula segment of the N. San Andreas Fault Zone, passing about 4.2 miles (6.8 kilometers) to the west of the alignment at its closest point and 6.5 miles (10.5 kilometers) west of the alignment at its most distant point (the northeast end). The Hayward Fault lies on the west side of the East Bay hills and is approximately 14 miles east of the Project area. The Calaveras Fault is located 20 miles southeast of the Project area. It is predicted that these faults could produce an earthquake with a maximum moment magnitude of 6.9 to 7.9. Earthquakes on these or other active faults (including unmapped faults) could cause strong ground shaking in the Project area. Earthquake intensities vary throughout the Bay Area depending upon the magnitude of the earthquake, the distance of the site from the causative fault, the type of materials underlying the site, and other factors.

4.7.2.7 *Surface Rupture*

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture is generally assumed to be along an active major fault trace. The active San Andreas Fault is oriented roughly parallel and 4.2 miles west of the Project alignment and pump station sites. According to the California Geologic Survey, the Project alignment is not located within a State-designated Alquist-Priolo Earthquake Fault Zone. Areas within the Alquist-Priolo Earthquake Fault Zone require special studies to evaluate the potential for surface rupture to ensure that no structures intended for human occupancy are constructed across an active fault. There are no active major faults within the Project area; therefore, the potential for a surface rupture in the Project area is low.

4.7.2.8 *Settlement and Differential Settlement*

Differential settlement or subsidence could occur if buildings or other improvements were built on low-strength foundation materials (including imported fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and fill). The majority of the proposed upgrades are located within an area that may be susceptible to differential settlement and settlement due to low strength native soils and potential unconsolidated fill.

4.7.3 <u>Geology and Soils Impacts</u>

4.7.3.1 *Thresholds of Significance*

For the purposes of this EIR, a geology and soils impact is considered significant if the Project would:

- 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;

- Result in substantial soil erosion or the loss of topsoil; or
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- 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;
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

4.7.3.2 *Geology and Soil Impacts*

Bay Mud Considerations

The majority of the proposed upgrades will either be constructed in or above compressible Bay Mud that can be compressible or weak. Additional concerns may consist of trench sidewall sloughing and bearing failure due to low Bay Mud shear strength, as well as subgrade instability due to the naturally high moisture content. As such, the proposed pipelines to be constructed over Bay Mud should be designed for variations in differential settlement, including oversteepening the gravity-flow lines to accommodate such variations, and trenches should be braced and backfilled with similar weight material to limit settlements (Bay Mud is generally not recommended as a backfill material due to difficult compaction conditions resulting from high moisture content). The proposed structures, such as the Headworks, flow diversion structure and Secondary Clarifiers for the WWTP, should be supported on piles. The proposed improvements overlying alluvial deposits may potentially be supported on shallow foundations; however, the layout, loading, and settlement should be evaluated during the design-level investigations. Implementation of these measures is proposed and would result in a less than significant impact to the geologic or soil impacts.

Undocumented Fill

All proposed improvement locations are located in areas where surficial fills are likely present. While it is anticipated that the proposed linear improvements will be constructed below the surficial fill materials, any undocumented fill encountered underlying proposed improvements should be removed and replaced as engineered fill to prevent differential settlement of the proposed upgrades.

Shallow Ground Water

It is anticipated that the design ground water level should be approximately five feet below current grades or at the top of the Bay Mud layer, whichever is shallower. The shallow ground water could significantly impact grading and underground construction. These impacts typically consist of potentially wet and unstable subgrade, difficulty achieving compaction, and difficult underground utility installation. Dewatering and shoring of utility trenches will be required.

Expansive and Corrosive Soils

Based on the prior Geotechnical Reports completed for the Project, the near surface soils within the proposed system improvements are highly expansive. To reduce the potential for damage to the planned structures from expansive soils, slabs-on-grade should have sufficient reinforcement and be supported on a layer of non-expansive fill; at-grade footings should extend below the zone of seasonal moisture fluctuation. In addition, it is important to limit moisture changes in the surficial soils by using positive drainage away from buildings as well as limiting landscaping watering.

As Bay Mud is very highly corrosive to buried steel and concrete, the prior geotechnical reports (V&A Consulting 2015) recommended corrosion protection be applied to any below-grade steel and concrete to reduce the impact to less than significant.

Impact GEO-1: The soil at the Project site is highly corrosive to buried steel and concrete. Therefore, buried reinforced concrete structure will require corrosion protection to reduce the impact to less than significant.

MM GEO-1: The following measures or equivalent measures are recommended for corrosion control and are proposed as part of the Project for the steel and concrete portions of the Project that are buried or are in direct contact with the soil.

- Buried reinforced concrete structures should be constructed of durable concrete such as described in ACI Standards 201.2R and 222R.
- The water/cement ratio should not exceed 0.45.
- The concrete cover applied over all steel reinforcement bars should generally be a minimum of two (2) inches thick.
- All concrete used in the area would be a mix of 50% Type II and 50% Type V cement.
- Sand and water used in concrete mixtures should contain a maximum of 100 ppm of water-soluble chloride ions and water-soluble sulfate ions and have a pH in the range of 6.5 to 8.0. Water used in concrete mixtures should be potable water.

Below-Grade Excavations

Mass excavations, such as for all the proposed Project components at the WWTP, should be shored; sloping back excavations in Bay Mud is not recommended due to the potential for slope instability and base heave resulting from the weak Bay Mud. Due to the weak Bay Mud in most of the areas within the proposed system improvements, conventional restrained shoring, such as tiebacks and soil nailing, will not be possible; therefore, braced, sheet piles or other restrained shoring types should be considered. Depending on the excavation type, adjacent structures may need to be underpinned or the shoring system should be designed for the surcharge loads from the existing structures.

4.7.3.3 *Seismic Impacts*

The proposed Project is located in a seismically active region. There is a potential for liquefaction-induced settlement throughout the Project area. Groundwater levels in the area also are relatively shallow and open cut trench areas may require temporary dewatering and subgrade stabilization.

Tunneling allows the Gravity Pipeline to be installed at greater depths than open cut trenching. The tunnel would be situated roughly 20 to 52 feet below the ground surface between the SVCW WWTP and the northern end of Inner Bair Island. The placement of the Gravity Pipeline in Inner Bair Island would be done in accordance with standard engineering techniques to avoid adversely affecting the structural integrity of the existing force main. Further, compliance with the IBC and CBC will ensure that impacts due to seismic hazards are less than significant.

Proposed facilities are not habitable structures and would not expose residents to potential substantial adverse effects of seismic risks. Those who would be exposed to seismic risks as a result of operation of the proposed Project would be employees working at the WWTP and occasional visitors.

The Project area is not located within an Alquist-Priolo Earthquake Fault Zone. As discussed in *Section 4.7.2.6*, an Alquist-Priolo zone is located approximately four miles west of the Project area, roughly parallel and west of Interstate 280. The likelihood of damage resulting from fault rupture within the Project area is considered remote and, therefore, would not result in a significant impact.

The San Mateo County Hazards Mitigations maps (San Mateo County 2005a) and ABAG's Liquefaction Hazard Maps indicate that the Project area has a moderate to high potential for liquefaction. Therefore, design of all structures and facilities associated with the proposed Project would be conforming to the measures specified above to reduce the impact to less than significant.

4.7.3.4 *Adequacy of Wastewater Disposal Systems*

The proposed Project consists of multiple components that in combination will convey sewage collected by the Member Agencies to the SVCW WWTP for treatment for disposal in the San Francisco Bay, or for reuse by Redwood City's Recycled Water Project. No septic systems would be developed under the proposed Project; therefore, no impacts related to septic systems would occur.

4.7.4 Conclusion

With the design recommendations included in the Project and the mitigation measures described above, the proposed Project would result in less than significant geology and soil impacts. **[Less Than Significant Impact with Mitigation]**

4.8 GREENHOUSE GAS EMISSIONS

The following discussion is based, in part, on an Air Quality and Greenhouse Gas Emissions Assessment prepared by *Illingworth & Rodkin* in November 2016. The report is provided in Appendix B of this report.

4.8.1 Regulatory Setting

4.8.1.1 *Federal*

The U.S. has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the U.S. Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the Federal CAA. There are currently no federal regulations that apply to GHG emissions from construction of the Project.

4.8.1.2 *State and Regional*

CARB is the lead agency for implementing climate change regulations in the state. Since its formation, the CARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problems.

California Assembly Bill 32

Assembly Bill 32 (AB 32), also known as the *Global Warming Solutions Act*, was passed in 2006 and established a goal to reduce GHG emissions to 1990 levels by 2020. The CARB has established the level of GHG emissions in 1990 at 427 million metric tons (MMT) of carbon dioxide equivalent (CO_2eq). The emissions target of 427 MMT requires the reduction of 169 MMT from the State's projected business-as-usual 2020 emissions of 596 MMT. Following the law, CARB approved a Scoping Plan December 11, 2008 that includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste (CARB 2008). Per AB 32, the Scoping Plan, must be updated every five years to evaluate the mix of AB 32 policies to ensure that California is on track to achieve the 2020 GHG reduction goal. The First Update to the Scoping Plan, was approved on May 22, 2014 and builds upon the previous plan with new strategies and recommendations. The First Update defines CARB's priorities over the next five years and lays the groundwork to reach long-term goals set forth in E S-3-05 (CARB 2008).

California Senate Bill 32

Senate Bill (SB) 32 and AB 197 were signed into law in September 2016. The recently signed SB 32 legislation amends provisions of AB 32, the California Global Warming Solutions Act of 2006 (Health and Safety Code Division 25.5), to require CARB to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by December 31, 2030. This legislation incorporates the Executive Order B-30-15 target discussed above into state law. CARB is charged with adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions to meet this new interim statewide GHG target. The framework for GHG emissions reductions will be provided through an update to the current Scoping Plan.

Changes to the Health and Safety Code under the companion AB 197 legislation call for each Scoping Plan update to identify each emissions reduction measure and include the range of projected

GHG emissions reductions, as well as the range of resulting projected air pollution reductions. CARB is currently holding workshops as part of development of a 2030 Target Scoping Plan Update.

Senate Bill 375

Senate Bill 375 (SB 375), known as the Sustainable Communities Strategy and Climate Protection Act, was signed into law in September 2008. It builds on AB 32 by requiring CARB to develop regional GHG reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035 in comparison to 2005 emissions. The per capita reduction targets for passenger vehicles in the San Francisco Bay Area include a seven percent reduction by 2020 and a 15 percent reduction by 2035.[17] The four major requirements of SB 375 are:

1. Metropolitan Planning Organizations (MPOs) must meet greenhouse gas emission reduction targets for automobiles and light trucks through land use and transportation strategies.
2. MPOs must create a Sustainable Communities Strategy (SCS), to provide an integrated land use/transportation plan for meeting regional targets, consistent with the Regional Transportation Plan.
3. Regional housing elements and transportation plans must be synchronized on eight-year schedules, with Regional Housing Needs Assessment allocation numbers conforming to the SCS.
4. MPOs must use transportation and air emissions modeling techniques consistent with guidelines prepared by the California Transportation Commission.

Metropolitan Transportation Commission (MTC) and ABAG adopted *Plan Bay Area* in July 2013. The strategies in the plan are intended to promote compact, mixed-use development close to public transit, jobs, schools, shopping, parks, recreation, and other amenities, particularly within Priority Development Areas (PDAs) identified by local jurisdictions. The Project site is not located within a PDA.

4.8.1.3 *BAAQMD CEQA Guidelines and 2010 Bay Area Clean Air Plan*

BAAQMD identifies thresholds of significance for operational GHG emissions from land-use development projects in its CEQA Air Quality Guidelines. These guidelines include recommended significance thresholds, assessment methodologies, and mitigation strategies for GHG emissions. Under the BAAQMD CEQA Guidelines, if a project would result in operational-related GHG emissions of 1,100 metric tons (MT) (also called the "bright line" threshold), or 4.6 metric tons per service population[18] of carbon dioxide equivalents (CO_2e) per year or more, it would make a cumulatively considerable contribution to GHG emissions and result in a cumulatively significant impact to global climate change. For permitted stationary sources that have their emissions regulated by BAAQMD, the threshold is 10,000 MT per year. In jurisdictions where a qualified Greenhouse Gas Reduction Strategy[19] has been reviewed under CEQA and adopted by decision-makers,

[17] The emission reduction targets are for those associated with land use and transportation strategies, only. Emission reductions due to the California Low Carbon Fuel Standards or Pavley emission control standards are not included in the targets.
[18] Service population is defined as the sum of the number of residents and the number of employees at the development.
[19] The required components of a "qualified" Greenhouse Gas Reduction Strategy or Plan are described in both the CEQA Guidelines (Section 15183.5 *Tiering and Streamlining the Analysis of Greenhouse Gas Emissions)* and the BAAQMD CEQA Air Quality Guidelines (Section 2.3 *Greenhouse Gas Reduction Strategies*) as amended in June 2010.

compliance with the Greenhouse Gas Reduction Strategy would reduce a project's contribution to cumulative greenhouse gas emission impacts to a less than significant level. The BAAQMD CEQA Guidelines also outline a methodology for estimating greenhouse gases.

The Bay Area 2010 Clean Air Plan (CAP) is a multi-pollutant plan that addresses GHG emissions along with other air emissions in the San Francisco Bay Area Air Basin. One of the key objectives in the CAP is climate protection. The 2010 CAP includes emission control measures in five categories: Stationary Source Measures, Mobile Source Measures, Transportation Control Measures, Land Use and Local Impact Measures, and Energy and Climate Measures. Consistency of a project with current control measures is one measure of its consistency with the CAP. The current CAP also includes performance objectives, consistent with the state's climate protection goals under AB 32 and SB 375, designed to reduce emissions of GHGs to 1990 levels by 2020 and 40 percent below 1990 levels by 2035.

4.8.1.4 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

Redwood City General Plan

The Public Safety (PS) Element of the Redwood City General Plan (October, 2010) includes the following goals, policies, and programs related to greenhouse gas emissions and the Project:

Goal PS-5. Mitigate against and adapt to climate change.

> Policy PS-5.2. Strive to reduce per capita greenhouse gas emissions and total municipal greenhouse gas emissions to 15 percent below 2005 levels by 2020.

City of Redwood City Climate Action Plan

Redwood City adopted a Community Climate Action Plan (CCAP) in March 2010 to provide residents, community groups, and local organizations with practical tools they can use to help reduce their own, and the community's, impact on climate change. The recommendations of the CCAP include encouraging "smart growth" and efficient land use development, standardizing green building practices in the City, maintaining a healthy urban forest, promoting sustainable landscaping, and increasing recycling in the community.

Belmont General Plan

The City of Belmont is in the process of updating the General Plan. The current General Plan is dated 1982. At the time of preparation, the update to the General Plan had not been adopted, so the 1982 General Plan is the most relevant plan. This General Plan does not include policies that apply to the Project.

San Carlos General Plan

The Environmental Management (EM) Element of the City of San Carlos 2030 General Plan (October, 2009) includes the following goals, policies, and actions related to greenhouse gas emissions and the Project:

Goal EM-6. Support atmospheric conditions that are clean, healthful, provide maximum visibility and meet air quality standards.

> Policy EM-6.1. Support and comply with the BAAQMD, State and federal standards and policies that improve air quality in the Bay Area.

Menlo Park General Plan

The City of Menlo Park Open Space, Conservation, Noise and Safety Elements (May 2013) contains goals to reduce GHG emissions.

Goal OSC4. Promote a sustainable energy supply and implement the City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and encouraging recycling, reduction and reuse programs.

4.8.2 Environmental Setting

Global temperatures are affected by naturally occurring and anthropogenic-generated (generated by humankind) atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide.[20] Gases that trap heat in the atmosphere are called greenhouse gases (GHG). Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. Greenhouse gases, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This is known as the greenhouse effect. The greenhouse effect helps maintain a habitable climate. Emissions of GHGs from human activities, such as electricity production, motor vehicle use, and agriculture, are elevating the concentration of GHGs in the atmosphere, and are reported to have led to a trend of unnatural warming of the earth's natural climate, known as global warming or global climate change. The term "global climate change" is often used interchangeably with the term "global warming," but

[20] Intergovernmental Panel on Climate Change, 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC*. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

"global climate change" is preferred because it implies that there are other consequences to the global climate in addition to rising temperatures. Other than water vapor, the primary GHGs contributing to global climate change include the following gases:

- Carbon dioxide (CO_2), primarily a byproduct of fuel combustion;
- Nitrous oxide (N_2O), a byproduct of fuel combustion; also associated with agricultural operations such as the fertilization of crops;
- Methane (CH_4), commonly created by off-gassing from agricultural practices (e.g. livestock), wastewater treatment and landfill operations;
- Chlorofluorocarbons were used as refrigerants, propellants and cleaning solvents, but their production has been mostly prohibited by international treaty;
- Hydrofluorocarbons are now widely used as a substitute for chlorofluorocarbons in refrigeration and cooling; and
- Perfluorocarbons and sulfur hexafluoride (SF_6) emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

4.8.3 Greenhouse Gas Emissions Impacts

4.8.3.1 *Thresholds of Significance*

For the purposes of this EIR, a greenhouse gas emissions impact is considered significant if the Project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may 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 greenhouse gases.

4.8.3.2 *Methodology*

CalEEMod

There are several models available for predicting emissions from construction projects. The BAAQMD CEQA Air Quality Guidelines recommend use of California Emissions Estimator Model (CalEEMod), the Roadway Construction Model or computations using CARB's Off-Road Emissions Inventory model for construction equipment and CARB's EMFAC2014 on-road motor vehicle emissions model.

The CalEEMod Version 2013.2.2 was used to predict emissions from construction of the Project. The Project land use types and size, construction schedule, assumptions of construction equipment usage and truck trips, and operational trip generation rate were input to CalEEMod. The modeling effort to predict annual criteria air pollutant emissions was comprised of 12 different model runs. These are listed in Table 4.3-2 of Air Quality section.

The model outputs along with lists of construction equipment, disturbed ground surface area, duration, and soil hauling volumes for each Project component are included as *Attachment 1* of Appendix B. Emissions from the Project would mainly result from on-site, off-road equipment and from trucks hauling soil or materials.

Exhaust emissions from on-highway trucks (e.g., pickup trucks, dump trucks) are accounted for in the model through the input of soil material to be hauled or the input of actual traffic projections. CalEEMod handles worker trips, vendor trips and haul truck trips with set travel distances. In addition, the model computed emissions from worker trips based on default values.

4.8.3.3 *Construction Greenhouse Gas Emissions (Short Term Emissions)*

GHG emission estimates related to construction of the proposed Project are discussed below and because there are no adopted thresholds for construction emissions, are quantified for informational purposes. These emissions were computed using CalEEMod the same way as emissions of criteria air pollutants. Construction activities also result in the temporary emissions of GHGs from the combustion of fossil-based fuels from equipment exhaust and other construction related vehicular activity. GHG emission levels for construction activities vary depending on the number and type of equipment, duration of use, operation schedules, and the number of construction workers. Exhaust emissions from construction activities on site would vary daily as construction activity levels change.

The proposed Project is under the jurisdiction of the BAAQMD, which has not adopted a recommended significance threshold for evaluating GHG emissions from construction projects; however, BAAQMD's guidance recommends implementation of Best Management Practices (BMPs) and emission quantification. Construction CO_2 emissions were estimated using the CalEEMod run, and the methodology used to estimate emissions is based on estimated construction operations by vehicle type and equipment emission factors developed by the CARB. Model results indicate that the estimated total Project construction emissions would be approximately 6,469 metric tons of CO_2 over the entire construction period and about 1,087 metric tons per average year as shown in Table 4.8-1 (ranging from 447 to 1,554 metric tons per year).

While the BAAQMD has not adopted a recommended significance threshold of GHG emissions resulting from construction projects, agencies are encouraged to incorporate BMPs to reduce emissions. These practices may include, but are not limited to:

- Using alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15 percent of the fleet, as feasible;
- Using local building materials (within 100 miles) of at least 10 percent; and
- Recycling at least 50 percent of construction waste or demolition materials.

With incorporation of these practices, construction GHG emissions will be less than significant.

Table 4.8-1:
Annual (tons) and Average Daily Emissions from Construction

Year	Project Description	GHG
2017	FoP Civil Improvements	351
2018	Gravity Pipeline – RLS & Flow Splitter Shaft	205
	WWTP Improvements-Headworks Facility*	317
	WWTP Improvements - Flow Diversion Facility	402
	FOP Civil Improvements	20
	Sum	944 Metric tons

Table 4.8-1:
Annual (tons) and Average Daily Emissions from Construction

Year	Project Description	GHG
2019	Gravity Pipeline – RLS & Flow Splitter Shaft	255
	Gravity Pipeline – San Carlos Drop Shaft	87
	Gravity Pipeline –Bair Island Inlet Structure	237
	WWTP Improvements – Headworks Facility*	140
	WWTP Improvements – Flow Diversion Facility	133
	WWTP Improvements – RLS Shaft	193
	FoP Civil Improvements	76
	San Carlos Pump Station Site Improvements	137
	Sum	1,258 Metric tons
2020	Gravity Pipeline – San Carlos Drop Shaft	102
	WWTP Improvements– Headworks Facility*	7
	Gravity Pipeline – Bair Island Inlet Structure	112
	WWTP Improvements– RLS Shaft	560
	Sum	781 Metric tons
2021	Gravity Pipeline – San Carlos Drop Shaft	10
	Gravity Pipeline – Bair Island Inlet Structure	43
	FoP Civil Improvements	67
	Redwood City Pump Station Replacement	1,080
	Menlo Park Pump Station Rehabilitation	354
	Sum	1,554 Metric tons
2022	Redwood City Pump Station Replacement	721
	Menlo Park Pump Station Rehabilitation	336
	Belmont Force Mains Rehabilitation	100
	San Carlos Odor Control Facility	27
	Sum	1,184 Metric tons
2023	Redwood City Pump Station Replacement	332
	Menlo Park Pump Station Rehabilitation	58
	Belmont Pump Station Rehabilitation	57
	Sum	447 Metric tons
	Maximum Annual in tons	1,554
	Federal Conformity Threshold	--
	Maximum Annual Average Daily in lbs.	--
	BAAQMD Significance Threshold	--
	Significant?	No
	Total in tons	6,519 Metric tons

Notes:
Based on 5-day/week construction from Jan 2018 through Dec 2023 = 1,550 days
PM10 and PM2.5 are exhaust emissions
* Includes construction of the Influent Connector Pipes Project
FOP = Front of the Plant, BAAQMD = Bay Area Air Quality Management District

Source: Illingworth and Rodkin, November 2016

4.8.3.4 *Operational Greenhouse Gas Emissions (Long Term Emissions)*

The Project is primarily a sewer pipeline replacement and pump station upgrade project. In addition, the Project is anticipated to include at a later date, subject to supplemental environmental review when sufficient Project detail is available, Nutrient Removal Facilities at the SVCW WWTP for wastewater discharged into the Bay per future SWRCB regulatory requirements. During operation of the Project, GHG emissions would change based on the change in electricity consumption for new pumps and facilities, minor changes to operational traffic and emissions from routine testing or maintenance of standby generators.

Electricity Consumption

The proposed Project would change electricity demand for the facility. The Project would change electrical consumption for conveyance of wastewater; there would be an increase for new project components such as the RLS and Headworks facility improvements. The increase in electricity consumption was computed based on the average daily demand for each of the Project features. SVCW's total annual electrical demand for the project is expected to increase from 10.7 gigawatt-hours to 13.5 gigawatt-hours.

Some of the reasons for the increase in electrical usage are the installation of a new RLS that would facilitate the new Gravity Pipeline. SVCW would also construct a new Headworks and odor control system with significantly improved odor control, reliability and additional worker safety. SVCW would also construct new odor control and HVAC systems at the San Carlos Pump Station site as well as improved HVAC and odor control at the remote pump stations to increase equipment reliability and worker safety at all of those locations. Future flows noted in the Member Agencies master plans for year 2022 when the proposed Project is expected to reach final completion could increase the overall energy usage by an additional five percent, but flow trends over the last four years have shown a decrease in flows due to continuing water conservation efforts by the SVCW Member Agencies.

GHG emissions associated with electricity consumption were computed using emission factors reported by PG&E (PG&E 2015). PG&E's latest five-year average reported to the Climate Registry is for 2009-2013, where the emissions were 0.2074 metric tons per megawatt hour. For 2016, PG&E uses forecasts by the California Public Utilities Commission that report emissions to be 0.168 metric tons/megawatt hour and in 2020, it would be 0.131 metric tons/megawatt hour. Since the forecasts only extend out to 2020 and the Project would not be fully operational until 2023, the year 2020 forecast emission factor was used. Because emissions are projected to decrease over time, this provides a more conservative analysis. Table 4.8-2 reports the GHG emissions associated with Project operation. *Attachment 5* of Appendix B includes the GHG emission calculations.

Table 4.8-2: Annual GHG emissions of CO_2e (MT/year)			
Source Category	**Existing Emissions**	**Proposed Project with Existing Conditions**	**Proposed Project with 2023 Conditions**
SVCW WWTP Improvements			
Receiving Lift Station	--	201	271
Headworks*	--	180	180
Flow Diversion Facilities	--	0	0
Stormwater Pump Station	--	2	2
Belmont Pump Station Rehabilitation	21	11	12
San Carlos Pump Station Odor Control	41	29	29
Redwood City Pump Station Replacement	67	69	80
Menlo Park Pump Station Improvements	37	41	48
Total	167	533	622
Net Project Total			455 MT of CO_2e/year
BAAQMD Threshold			1,100 MT CO_2e/year
Significant?			***No***

Note:
*Includes construction of Influent Connector Pipes Project

Source: Illingworth and Rodkin, November 2016

Traffic Emissions

The Project would add a minor amount of vehicle trips during operation of the Project. This is anticipated to be on the order of four new trips per day, which would have negligible GHG emissions; and therefore, were not computed.[21]

Standby Generator Use

The proposed Project would replace or add four new standby generators powered by diesel engines. These would range in size from 0.3 to 1.5 megawatts in size as shown in Table 4.8-3. These generators would only be operated for testing and maintenance purposes and during power outages. Construction-controlled emissions assume use of Tier 2 off-road construction equipment with Level 3 VDECS for particulate matter purposes and in the rare event of a power outage when pumps need to be operated. Typically, these generators are operated far less than 50 hours per year. As a result, they would have negligible emissions. Since these generators would have to be permitted by BAAQMD, their GHG emissions are based on thresholds for stationary equipment that is 10,000 metric tons per year. Emissions from routine testing and maintenance are anticipated to be less than 200 metric tons of CO_2e per year.

[21] Assuming a trip length of 20 miles and EMFAC2011 CO2 emission factor of 1 gram per mile, annual emissions would be less than 1 metric ton per year.

Table 4.8-3: Emissions from Generator Operation (50 hours per year)	
	Criteria Air Pollutant and GHG Emissions
Generator and Qty.	**CO_2**
	Emissions – tons per year
Nutrient Removal – Two 1-megawatt generators	76
Belmont Pump Station Rehabilitation – One 0.5- megawatt generators	New generators are a smaller replacement of existing generator
Redwood City Pump Station Replacement - One 1.5-megawatt generators	57
Menlo Park Pump Station Improvements - One 0.5- megawatt generators	New generators are a smaller replacement of existing generator
Total Project	133 mt
BAAQMD Threshold	*10,000 mt*
	Emissions – average daily in pounds/day
Total Project	--
BAAQMD Threshold	--
Exceed Threshold?	***No***
Notes: BAAQMD = Bay Area Air Quality Management District, CO_2 = Carbon dioxide, mt = Metric tons Source: Illingworth and Rodkin, November 2016	

Operation of the Project is predicted to increase emissions by 455 metric tons per year from indirect sources and 133 metric tons from standby generator use as shown in Table 4.8-2 and Table 4.8-3. This is primarily due to the increased electricity requirements to operate new facilities, pumps for the RLS and other modifications to the SVCW WWTP Headworks. These emissions would be less than the threshold of 1,100 metric tons per year. Therefore, the GHG emissions associated with the proposed Project would be less than significant.

Nutrient Removal Facilities – Programmatic Level

The Nutrient Removal Facilities are not addressed at this project-level (i.e. construction and operation) analysis. This is a program-level feature, with future project-level review to be completed when the RWQCB develops guidance and requirements for these facilities, and when SVCW develops designs and moves forward to construct them. This is anticipated to be well into the future, beyond the horizon year considered for completion of this Project. GHG emissions from Nutrient Removal Facility, which would mainly be the result of increased electricity use, were not quantified in this analysis, and will be evaluated according to the post-2020 regulatory requirements in place at the time the Nutrient Removal Facilities are proposed.

4.8.3.5 *Consistency with Plans and Policies*

In May 2011, BAAQMD adopted its updated CEQA Guidelines that contain methodology and thresholds of significance for evaluating GHG emissions from proposed Projects. The BAAQMD thresholds were developed specifically for the Bay Area after considering the latest Bay Area GHG inventory and the effects of AB 32 scoping plan measures that would reduce regional emissions.

BAAQMD intends to achieve GHG reductions from new land use developments to close the gap between projected regional emissions with AB 32 scoping plan measures and the AB 32 targets.

Because the Project would not create new regional vehicle or other substantial long-term GHG emissions it would not conflict with any plan or policy intended to reduce long-term GHG emissions, including AB 32, SB 375 or local goals.

4.8.4 Conclusion

Project construction and operational emissions would not conflict with adopted plans or policies adopted for the purpose of reducing GHG emissions, nor would Project construction or operational emissions have a significant impact on the environment. The Nutrient Removal Facilities discussed in this EIR are conceptual in nature, and will be subject to future project-level review at the time SVCW has developed plans and information sufficient to evaluate them according to the applicable GHG emissions thresholds in place at the time. [**Less Than Significant Impact**]

4.9 HAZARDS AND HAZARDOUS MATERIALS

Hazardous materials encompass a wide range of substances, some of which are naturally-occurring and some of which are man-made. Examples include motor oil and fuel, metals (e.g., lead, mercury, and arsenic), asbestos, pesticides, herbicides, and chemical compounds used in manufacturing and other uses. A substance may be considered hazardous if, due to its chemical and/or physical properties, it poses a substantial hazard when it is improperly treated, stored, transported, disposed of, or released into the atmosphere in the event of an accident. Determining if such substances are present on or near Project sites is important because exposure to hazardous materials above regulatory thresholds can result in adverse health effects on humans, as well as harm to plant and wildlife ecology.

The following discussion is based, in part, on the Screening Phase I Environmental Site Assessment (ESA) report prepared by *Cornerstone Earth Group* in May 2016. The report is attached as Appendix F.

4.9.1 Regulatory Setting

4.9.1.1 *Federal*

U.S. Environmental Protection Agency

The USEPA is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. The legislation includes the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly referred to as "Superfund"), the Superfund Amendments and Reauthorization Acts of 1986, and the Resource Conservation and Recovery Act of 1986. The USEPA provides oversight and supervision for site investigations and remediation projects, and has developed land disposal restrictions and treatment standards for the disposal of certain hazardous wastes.

Federal Aviation Administration

Subpart B, *Notice of Construction or Alteration*, of the Federal Aviation Regulations (FAR Part 77) regulations requires that the FAA be notified of any proposed construction or alteration of objects within 20,000 feet of a runway and having a height that would exceed a 100:1 imaginary surface (1 foot upward per 100 feet horizontally) beginning at the nearest point of the runway. This requirement applies to runways more than 3,200 feet in length. For shorter runways, like Runway 12-30 at San Carlos Airport, the notification surface has a 50:1 slope and extends 10,000 feet from the runway. Notification is required with regard to any public-use or military airport. Also requiring notification is any proposed structure or object more than 200 feet in height regardless of proximity to an airport.

Subpart C, Obstruction Standards, of FAR Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace, establishes the standards for determining obstructions to air navigation. This subpart defines a set of imaginary surfaces with relation to an airport's runway(s). The slope and dimension of each imaginary surface is based on the type of approach available or planned for each runway (e.g., visual, non-precision, precision).

4.9.1.2 *State and Regional*

California Environmental Protection Agency

The California Environmental Protection Agency (Cal/EPA) serves as the umbrella agency for the Department of Toxic Substances Control (DTSC), the Office of Environmental Health Hazard Assessment (OEHHA), and the SWRCB and its associated regional Water Boards.

Department of Toxic Substance Control

The DTSC regulates remediation of sites where discharges to land could potentially present a public health risk. California legislation, for which the DTSC has primary enforcement authority, includes the Hazardous Waste Control Act and the Hazardous Substance Account Act. The DTSC generally acts as the lead agency for soil and groundwater cleanup projects, and establishes cleanup and action levels for subsurface contamination that are equal to, or more restrictive than, federal levels.

Office of Environmental Health Hazard Assessment

The mission of the OEHHA is to protect and enhance public health and the environment by objective scientific evaluation of risks posed by hazardous substances.

State Water Resources Control Board

The SWRCB, through its nine regional boards, regulates discharge of potentially hazardous materials to waterways and aquifers and administers basin plans for groundwater resources in various regions of the State. The San Francisco Bay RWQCB is the regional board that has jurisdiction over the Project area. The SWRCB provides oversight for sites at which the quality of groundwater or surface waters is threatened, and has the authority to require investigations and remedial actions.

Regional Water Quality Control Board

San Francisco Bay RWQCB regulates discharges and releases to surface and groundwater in the Project area. The RWQCB generally oversees cases involving groundwater contamination. Within the San Francisco Bay RWQCB, the County of San Mateo Health Services Agency (CSMHSA) handles most leaking underground storage tank (LUST) cases, so the RWQCB may oversee cases involving other groundwater contaminants (i.e. Spills, Leaks, Incidents, and Clean-up (SLIC) cases). In the case of spills at a Project site, the responsible party would notify the CSMHSA, and then a lead regulator (either the CSMHSA, RWQCB or DTSC) would be determined.

4.9.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member

Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

County of San Mateo Health Services Agency

The CSMHSA, which includes the San Mateo County Environmental Health Division (SMCEHD), serves as the County Local Oversight Program within the County of San Mateo for hazardous materials and soil and groundwater contamination. This agency oversees several programs related to hazardous materials and releases. In general, LUST cases affecting groundwater within the project area are handled by the CSMHSA. Other groundwater contamination cases may also be handled by the CSMHSA, but can also be deferred to the SWRCB or DTSC, depending on the responsible party. The Hazardous Materials Division of the CSMHSA oversees hazardous materials permitting, hazardous materials oversight, and hazardous materials facility closures.

San Carlos Airport Land Use Plan

The San Carlos Airport Land Use Plan (ALUP), which is a chapter in the San Mateo County ALUP, establishes airport noise and land use compatibility standards for development in the airport vicinity of San Carlos Airport and its takeoff and approach zones. San Carlos Airport is located within the City of San Carlos and is owned and operated by the County of San Mateo. Land uses near the San Carlos Airport are regulated by the San Mateo City/County Association of Governments (C/CAG) ALUC. The ALUC maintains and implements the Comprehensive ALUP for San Carlos Airport (C/CAG ALUC 1996). The ALUP establishes two influence zones around San Carlos Airport, Area A and Area B. These zones are intended to prevent development that is incompatible with airport operations and include specific regulations, such as height restrictions based on proximity to the airport and flight patterns. Influence Area A is the larger of the two areas, and consists of a broad area around the airport, including from Hillsborough in the north to East Palo Alto in the south. The ALUP requires real estate transaction disclosures for all properties with Area A. Influence Area B is within Area A, occupying the area within a 9,000-foot radius around the airport. Any local land use policy actions, such as a General Plan or zoning amendment, within Area B requires formal review by the ALUC to ensure that the proposed allowable development is consistent with aviation safety requirements. Area B also requires real estate transaction disclosures.

The California Airport Land Use Planning Handbook, 2011 (Handbook) provides guidance on the delineation of safety zones and the application of land use policies in those zones. The 2011 Handbook identifies a series of six safety zones, which are defined as follows:

- Zone 1: Runway protection zone and within runway object free area adjacent to the runway;
- Zone 2: Inner approach/departure zone;
- Zone 3: Inner turning zone;
- Zone 4: Outer approach/departure zone;
- Zone 5: Sideline zone; and
- Zone 6: Traffic pattern zone.

4.9.2 Environmental Setting

4.9.2.1 *Site History*

Based on the information presented in the Phase I ESA report, the site appears to have historically consisted primarily of undeveloped marshland associated with San Francisco Bay. During the late 1940s or early 1950s, the current salt works levees on Inner Bair Island were constructed, and fill appears to have been placed in the vicinity of the San Carlos airport to accommodate construction of the airport and nearby roadways. Fill additionally was placed on-site in the vicinity of Redwood Shores Parkway beginning by the late 1960s; the roadway was completed mainly during the 1970s and 1980s.

The current on-site buildings on the Belmont and Redwood City pump station parcels were constructed by 1974. By 1981, fill was placed at the WWTP property and portions of the existing WWTP were constructed. By 1982, the existing San Carlos Pump Station and Menlo Park Pump Station buildings were constructed.

Wastewater treatment plants were previously located at two Project component locations. These include the former Redwood City treatment plant (constructed during the late 1940s) that was located on the City Owned Dealership Lot Staging Area at the northern terminus of Maple Street, and the former San Carlos-Belmont treatment plant (constructed during the early 1950s) that was located immediately west of the San Carlos Pump Station. The former on-site wastewater treatment plants appear to have been removed during the 1980s.

Shoreway Road appears to have been constructed during the 1950s and 1960s. Most of the planned Gravity Pipeline alignment follows Shoreway Road; the southeastern portion of the alignment traverses the former San Carlos-Belmont treatment plant property.

The Docktown Staging Area property was formerly part of a larger property occupied by Frank's Tannery. Frank's Tannery reportedly began its operation in 1874, before U.S. 101 was built, and continued operating until 1959. Facilities associated with Docktown Marina were constructed on the Docktown Staging Area by the late 1960s. Since the late 1990s, the City Owned Dealership Lot Staging Area appears to have been used periodically for exterior storage and/or vehicle parking.

On the WWTP property, the 5- and 10-acre ornamental ponds, which will be utilized for construction of various Project components and used as staging areas, appear to have been present since the 1990s. The Airport Access Shaft Staging Area does not appear to have historically been developed. The remaining staging areas similarly consist of undeveloped land; roadway and parking lot pavements and utilities are present on some of the parcels.

Currently, the Project area's developed land uses are predominately residential and commercial adjacent to the WWTP, and, in the vicinity of the pump stations and tunnel construction shaft sites, industrial and commercial including U.S. 101, roadways, San Carlos Airport, and commercial/industrial businesses.

4.9.2.2 *Database Records Search*

A database search was completed to determine whether the Project site is listed on any federal, state, local, historical, and/or brownfield databases as a known or suspected source of contamination, or a site that handles or stores hazardous materials. The database sources and the search distances are in general accordance with the requirements of ASTM E 1527-13.

Based on the information presented in the agency database report, hazardous material spill incidents were reported on several of the project sites and at several nearby locations.

The project sites are listed in several databases. The project sites are listed on the LUST database as having LUSTs at the WWTP location, at the Redwood City Pump Station, the San Carlos Airport and the Docktown Marina (a.k.a., Former Franks Tannery) staging area location. All cases are listed as closed. The Redwood City Pump Station site is also listed in Emergency Response Notification System (ERNS) database as a result of a sodium hypochlorite spill, and on the California Hazardous Material Incident Reporting System (CHMIRS) as a result of a sewage spill. Other on-site facilities including San Carlos Pump Station, Belmont Pump Station, Menlo Park Pump Station were identified on underground storage tank (UST) databases and were also listed as having an above ground storage tank (AST). The USTs at these locations have been removed.

Adjacent properties to the site include Golden Gate Aviation and BFI Waste Systems properties. They are identified as LUST properties and their case status is listed as closed. The potential for these facilities to significantly impact the site appears low. As identified in Table 1 of the Phase I Report (Appendix F), other identified nearby spill incidents include Tanklage Square, L3 Communications/Litton Electronics, G-C Lubricants/California Oil Recyclers, Inc and a former South County Fire property. These facilities are located along Industrial and Bransten Roads, southwest (up-gradient) of the planned tunnel alignment. Various contaminants including petroleum hydrocarbons, volatile organic compounds (VOCs) and PCBs have been detected at these facilities. GTE Lenkurt additionally operated an electronics manufacturing plant at 1105 Country Road and 1000 Howard Street from 1948 until its closure in 1983. Based on the data reviewed, the lateral extent of impacted ground water from these facilities has not been fully established. It appears possible that contaminants (predominantly VOCs) from these facilities could have migrated in ground water to the planned tunnel alignment. For additional details about the database search and results, refer to the Phase I Report included as Appendix F.

4.9.2.3 *Site Observations*

Above ground diesel storage tanks and pad mounted transformers were observed at each of the pump stations. No evidence of transformer oil leakage was readily apparent. No active USTs were observed. As noted above in *Section 4.9.2.2*, USTs were previously removed from each of the on-site pump stations. There is one 15,000 gallon UST for fuel oil in service at the WWTP site. On the WWTP property, the 5- and 10-acre ornamental ponds were observed, which will be utilized for construction of various Project components and used as staging areas. SVCW would be installing two (2) 4000 gallon ASTs, one for each new 2 megawatt generator that is presently installed onsite.

Several creeks and storm water drainages are present along the sewer alignment. High power transmission lines were also observed along portions of the sewer alignment.

The San Carlos Pump Station Staging Area consists of the pump station property, a paved section of Monte Vista Drive and a portion of a paved parking lot adjacent to Izzy's Steaks & Chops restaurant. The Belmont Conveyance System staging areas were observed to consist of paved sections of Sem Lane and Shoreway Road, pump station property, and undeveloped land. The Redwood City Pump Station staging areas were observed to consist of pump station property, a portion of Maple Street, a gravel covered lot used for parking of vehicles (i.e., the City Owned Dealership Lot staging area), and an undeveloped lot that was paved mainly with deteriorated asphalt (i.e., the Docktown staging area). The Menlo Park Pump Station staging areas were observed to consist of undeveloped land; various utilities appeared to be located on the southernmost staging area, which was otherwise not developed. The Airport Access Shaft and Bair Island staging areas were observed to consist of undeveloped land.

4.9.2.4 *Potential Sources of Contamination in Project Area*

Redwood City Pump Station

A 750-gallon diesel UST was removed from the Redwood City Pump Station in 1994. The UST was located at the western corner of the building. Low concentrations of petroleum hydrocarbons (TPHd), ethylbenzene and xylenes (less than residential screening levels) were detected in soil. A ground water monitoring well was installed near the former UST and sampled during four consecutive quarters. No TPHd or BTEX compounds were detected in the ground water samples. In 1992, a broken underground one-inch diameter PVC pipe containing sodium hypochlorite (commonly known as bleach) was identified on the northwest side of the building. In 1996, a gasoline spill onto asphalt pavement on the northeast side of the building was identified. In 2013, a 2,260-gallon sewage spill reportedly occurred from a force main and flowed to an under drain system in an air scrubber bed where it was captured and rerouted back to the pump station.

Belmont Pump Station

A 2,000-gallon diesel UST was removed from the northwest side of the Belmont Pump Station building in 1996. During the UST removal, ground water reportedly was encountered at a depth of approximately eight feet. Analysis of a soil sample collected from the UST excavation (at the soil-ground water interface) did not detect TPHd or BTEX compounds.[22] Analysis of a ground water sample collected from the UST excavation detected BTEX compounds; TPHd was not detected.

San Carlos Pump Station

A 12,000-gallon diesel UST was removed from the northeast side of the on-site San Carlos Pump Station building in 1994. Soil and ground water sampling performed during the UST removal did not identify petroleum hydrocarbon concentrations exceeding residential screening levels.

[22] BTEX is the term used for benzene, toluene, ethylbenzene, and xylene which are volatile aromatic compounds typically found in petroleum products such as gasoline and diesel fuel.

Menlo Park Pump Station

As discussed in Table 1 of the Phase I Report (Appendix F, page 8), USTs also were historically removed from the Menlo Park Pump Station property. No impacts to soil or ground water quality at the Menlo Park Pump Station were identified.

WWTP Property

One 15,000 gallon UST for fuel oil was found in service at the WWTP site. Releases from the UST and piping at the WWTP appear unlikely to have impacted the locations of planned earthwork on the WWTP property. As stated previously, SVCW would be installing two (2) 4000 gallon ASTs, one for each new two megawatt generator that is presently installed onsite.

San Carlos Airport

The planned tunnel alignment traverses the southwestern boundary of the San Carlos Airport property. As discussed in Table 1 of the Phase I report, (Appendix F, page 8), two LUST cases (identified as San Carlos Airport at 795 Skyway Road and Former Chevron Concession at 620 Airport Drive) are located along this border of the airport property. Residual contaminant concentrations remain in soil and ground water as a result of these LUST cases. Releases from 795 Skyway Road appear unlikely to significantly impact the deep tunnel alignment. However, the San Mateo County Health Department is required to be notified of any proposed change in land use.

4.9.2.5 *Potential Off-Site Sources of Contamination*

Several off-site spill incidents have been reported in the general site vicinity. The spill incidents that appear most likely to have impacted soil and/or groundwater at the Project sites are briefly discussed below.

During the 1960s and 1970s, Baron Blakeslee, Inc. (BBI) operated a solvent distribution and recycling business at 248 Harbor Boulevard and 511 O'Neill Avenue, on the opposite side of U.S. 101 from the Belmont Pump Station site and planned Gravity Pipeline alignment. Based on the information reviewed, VOCs from releases at the former BBI facilities have migrated in groundwater in an east-northeast direction and extend beneath U.S. 101 and Belmont Creek. The area of impacted groundwater extends onto the Project site, primarily beneath the Belmont Pump Station site and the northerly portion of the planned Gravity Pipeline alignment. The VOCs consist predominantly of trichloroethene (TCE) and cis-1,2-dichloroethene (DCE).

Underground fuel piping at the San Carlos Airport formerly extended from USTs on the eastern side of the runway to dispensers that were located on the western side of the runway near the northeastern terminus of Monte Vista Drive. This piping was located on airport property, adjacent to the northeast of the San Carlos Pump Station. Small amounts of gasoline were detected in soil and ground water along the piping during sampling in 2006. Based on the proximity of the fuel pipes and associated borings to the San Carlos Pump Station, it is possible that similar contaminants could be present in soil and/or ground water at planned earthwork locations.

Other identified up-gradient spill incidents include B&H Technical Ceramics and Peninsula Laboratories. These facilities are located southwest (up-gradient with respect to the anticipated groundwater flow direction) of the planned Gravity Pipeline alignment. Contaminants detected in groundwater at these facilities include VOCs, among others. Based on the data reviewed, the lateral extent of impacted groundwater from these facilities has not been fully established. As with the BBI facilities noted above, it appears possible that contaminants (predominantly VOCs) from these properties could have migrated in groundwater to the planned potential Gravity Pipeline alignment along Shoreway Road. However, the reported VOC releases at these facilities appear likely to be smaller in magnitude than those associated with the BBI facilities.

Some of the VOC spill incidents (e.g., Former Baron Blakeslee, Inc. Facilities) are known to have impacted ground water in the vicinity of planned earthwork activities. The down-gradient extent of VOC impacts to ground water at multiple other spill incident properties has not been fully established. It appears reasonable to assume that VOC impacted ground water could be encountered along most of the force main and tunnel alignments that extend from Inner Bair Island to the Belmont Pump Station, and below the Menlo Park Pump Station. Soil located near or in contact with underlying ground water could also contain VOCs; in addition, soil vapor also may be impacted with VOCs off-gassing from ground water.

4.9.2.6 *Other Hazards*

San Carlos Airport

The San Carlos Airport is a general aviation, single runway airport, owned and operated by the County of San Mateo. As shown in Figure 4.11-2, the Airport Access Shaft site, Bair Island Inlet Structure, San Carlos Pump Station, Belmont Pump Station and majority of the Gravity Pipeline alignment are located inside the boundaries of Area B influence zone of the airport. The WWTP, Redwood City Pump Station, Menlo Park Pump Station, and remainder of the Gravity Pipeline alignment are within Area A as defined by the ALUP (C/CAG ALUC 2004). Area B falls under FAA Part 77 regulations which establishes standards and notification requirements for objects affecting navigable space.

The San Carlos Pump Station, Airport Access Shaft site and Bair Island Inlet Structure are located within Zone 2 – Inner Approach/Departure Zone. The Belmont Pump Station and Redwood City Pump Station are located within airport safety Zone 6 – Traffic Pattern Zone. The Menlo Park Pump Station and WWTP are beyond the areas included in the San Carlos Airport Safety zones.

Emergency Response

The cities of Redwood City, Belmont, San Carlos and Menlo Park have emergency operations plans in coordination with the San Mateo County's natural disaster preparedness plan. There are no adopted emergency response plans or emergency evacuation plans applicable to the Project area.

Wildfires

According to CAL FIRE, the Project area is not located within an area subject to wildfires. The closest areas with high wildfire risks are located over one-and one-half miles west of the Project area.

Schools

Sandpiper Elementary, located at 801 Redwood Shores Parkway, Redwood City is approximately 0.7 miles south of the WWTP.

4.9.3 Hazards and Hazardous Materials Impacts

4.9.3.1 *Thresholds of Significance*

For the purposes of this EIR, a hazards and hazardous materials impact is considered significant if the Project would:

- Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.9.3.2 *Hazardous Materials Impacts*

Potential Sources of Contamination

As mentioned previously in *Section 4.9.2.4*, the potential for the former diesel USTs, sodium hypochlorite spill and/or gasoline spill to significantly impact the planned Gravity Pipeline and the pump stations improvements is low; however, excavation work (if any) near the former locations of these spills could encounter residual contaminants in soil and/or groundwater. If encountered, these materials should be appropriately handled and disposed as specified in MM HAZ- 1.1 and 1.2. Likewise, based on the planned earthwork activities near the San Carlos Pump Station and the proximity of the former Chevron Concession facilities to the San Carlos Pump Station, it appears possible that the residual contaminants associated with this LUST case could be encountered during the planned construction activities. If encountered, impacted soil and/or ground water should be appropriately handled and disposed.

Based on the documented plume of VOC-impacted ground water originating from the BBI release and the potential for other VOC sources up-gradient of Shoreway Road, it appears likely that groundwater encountered in the vicinity of the Belmont Pump Station and along portions of the planned Gravity Pipeline alignment will be impacted by VOCs. Soil located near or in contact with underlying groundwater could also contain VOCs; in addition, soil vapor also may be impacted with VOCs off-gassing from groundwater. If soils or groundwater are handled or disposed of improperly, construction workers and/or the public could be exposed to hazardous materials, which would be a significant impact.

Impact HAZ-1: Construction of the proposed Project could expose construction workers to risks from hazardous materials contamination or from the storage, use and/or disposal of hazardous materials.

Implementation of the following mitigation measures will reduce hazardous materials impacts to a less than significant level.

MM HAZ-1.1: Prior to initiating earthwork activities, sampling and laboratory analyses should be conducted at planned earthwork locations where spill incidents appear most likely to have impacted soil and/or groundwater, including at the Belmont Pump Station site, the northerly portion of the planned Gravity Pipeline alignment, and the northeastern portion of the San Carlos Pump Station site. This shall be done in order to establish specific, appropriate site management protocols, including handling and disposal alternatives for contaminated materials and health and safety protocols.

MM HAZ-1.2: This measure shall be implemented before and during construction of Gravity Pipeline and pump stations, as well as any demolition.

- A Site Management Plan (SMP) and Health Safety Plan (HSP) shall be prepared by the Project contractor(s) and submitted to SVCW for review.
- The SMP and HSP shall include the following:
  - Site control procedures to control the flow of personnel, vehicles, and materials in and out of the construction site;
  - Measures to minimize dust generation, storm water runoff, and tracking of soil off-site;
  - If excavation de-watering is required, protocols to evaluate water quality and discharge/disposal options;
  - Protocols for completing earthwork activities in areas where impacted soils, soil vapor, and/or groundwater are present or suspected;
  - Worker training requirements, health and safety measures and soil handling procedures;
  - Protocols to be implemented if buried structures, wells, debris, or unidentified areas of impacted soil are encountered during construction activities;
  - Protocols to evaluate the quality of soil suspected of being contaminated so that appropriate mitigation, disposal, or reuse options can be determined;

- Procedures to evaluate and document the quality of any soil imported to the construction site;
- Methods to monitor trenches for the potential presence of volatile chemical vapors;
- Protocols to reduce the potential for construction equipment and vehicles to release contaminated soil onto public roadways or other off-site transfer; and
- Stockpiling protocols for “clean” and “impacted” soil.

Airport Safety Hazards

As mentioned previously, the Belmont Pump Station, San Carlos Pump Station, majority of the Gravity Pipeline alignment, Airport Access Shaft, and Bair Island Inlet Structure are located within the Area B influence zone of the San Carlos Airport. This means that these components are subject to FAA Part 77 regulations which establishes standards and notification requirements for objects affecting navigable space.

The Airport Access Shaft, San Carlos Pump Station and Bair Island Inlet Structure and staging area are located within Sfety Zone 2 and the Belmont Pump Station and Redwood City Pump Station are located within airport safety Zone 6.

<u>Construction Impacts</u>

Any construction that penetrates the airspace under FAA jurisdiction (FAA Code of Federal Regulations (CFR) Title 14 Part 77.9) requires submittal of the appropriate FAA form 7460-1, *Notice of Proposed Construction or Alteration*, for both on- and off- airport construction. Height limits at each of the shaft sites were estimated based on review of San Carlos Airport Part 77 Airspace Protection Surface Elevations in the the San Carlos Airport Land Use Compatibility Plan [Airport Access Shaft: 62’, San Carlos Drop Shaft: 25’, Bair Island Inlet: 49’ (height represents lowest height within the preliminary anticipated crane working zone)]. Some of the Project components in Area B would exceed these height limits, therefore, SVCW will file Form 7460-1 with FAA and comply with any conditions that the FAA may identify as necessary to avoid obstructing air navigation.

Construction of shafts near the airport would likely require a crane and construction equipment that may require temporary extension into the airspace. Typical construction equipment such as trucks and backhoes would be utilized along with a crane as high as 75-feet. The 75-foot crane would be the tallest construction equipment within the FAA airspace. Efforts will be made during design to provide for construction methods that minimize the work above the airspace ceiling. That being said, construction equipment used for work at this location will certainly penetrate the FAA designated part 70 airspace from time to time and will require nighttime work necessitating airport shutdowns.

In order to comply with FAA regulations, the above described construction activities above the airspace ceiling would occur in the night hours during scheduled San Carlos Airport closures. Work above the airspace ceiling would be completed Monday through Thursday in order to avoid construction Friday through Sunday to the maximum extent possible; all construction and equipment staging areas would be lighted and SVCW would provide daily updates to the San Carlos Airport staff on the construction work progress and schedule.

Access to the airport would always be accessible by emergency vehicles during construction and the airport staff would be notified of any construction related activities in accordance with FAA regulations, prior to and during construction near the airport. Because Project construction would comply with FAA regulations and San Carlos Airport Land Use Compatibility Plan, implementation of the proposed Project would not result in an airport safety hazard.

Long-term Operational Impacts

After completion of construction, there would be no structures or stationary objects that would affect FAA airspace. This is in compliance with San Carlos Airport/FAA, local and state and federal restrictions and policies. Therefore, implementation of the proposed Project would not result in a long-term airport safety hazard.

Emergency Response

During construction of the proposed Project, temporary traffic detours would be required. During installation of the Belmont force main rehabilitation, areas along Shoreway Road may be needed for traffic detours. Some of the roadways like Monte Vista Drive, Skyway Road, Bair Island Road, and Maple Street, are dead-end roadways and not major throughways in and out of Redwood City and San Carlos and construction on these roads would not lead to any major congestion issues. During construction at the San Carlos Pump Station site, it is likely that half of the Monte Vista Drive roadway would require temporary closure to accommodate the construction. During construction of the 60-inch diameter interceptor project for Redwood City Pump Station and connections to City of Redwood City's existing force mains in Maple Street, it is likely that portions of Maple Street would require temporary closure to accommodate the open cut trench construction. While detours would be in place, emergency personnel would always have access throughout the Project area. The proposed Project would not substantially interfere with emergency response plans or emergency evacuation plans with the cities.

Wildfires

According to CAL FIRE, the Project area is not located within an area subject to wildfires. Implementation of the proposed Project would not, therefore, expose people to natural hazards from wildfire risk.

4.9.4 Conclusion

Construction of the proposed Project could result in significant impacts associated with hazardous materials at the Project site; however, all impacts can be reduced to a less than significant level by incorporating the mitigation measures described above. [**Less Than Significant Impact with Mitigation]**

4.10 HYDROLOGY AND WATER QUALITY

This section addresses surface and groundwater hydrology, surface and groundwater quality and flooding. Relevant water resources along the ROW and the environmental and regulatory settings are described. This section lists the criteria for determining significant environmental effects and assesses potential impacts on surface water and groundwater hydrology and quality.

4.10.1 Regulatory Setting

4.10.1.1 *Federal*

Clean Water Act

The Federal CWA was enacted by Congress in 1972 and amended several times since inception. It is the primary federal law regulating water quality in the United States, and forms the basis for several state and local laws throughout the nation. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA outlines the federal laws for regulating discharges of pollutants as well as sets minimum water quality standards for all "waters of the United States." Several mechanisms are employed to control domestic, industrial, and agricultural pollution under the CWA. At the federal level, the CWA is administered by the USEPA. At the state and regional level, the CWA is administered and enforced by the SWRCB and the nine RWQCBs. The State of California has developed a number of water quality laws, rules, and regulations, in part to assist in the implementation of the CWA and related federally mandated water quality requirements. In many cases, the federal requirements set minimum standards and policies and the laws, rules, and regulations adopted by the state and regional boards exceed the federal requirements.

CWA Section 303(d) lists polluted water bodies which require further attention to support future beneficial uses. San Francisco Bay is on the Section 303(d) list as an impaired water body for several pollutants. Important sections of the Act are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Act.
- Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the SWRCB.
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the United States Army Corps of Engineers and the USEPA.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) is an agency of the United States Department of Homeland Security. FEMA is responsible for the development and implementation of a comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation. FEMA also maintains Flood Insurance Rate Maps (FIRMs) that identify floodways and floodplains for the United States. A FIRM highlights the specific flood hazards, flood risk zones, and floodplains at a local level of detail.

Executive Order 11988 – Floodplain Management

Executive Order 11988 (Floodplain Management) requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. As such, each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural beneficial values served by floodplains.

4.10.1.2 *State and Regional*

State Water Resources Control Board Policies

Recycled Water Policy (Resolution No. 2009-0011): With Resolution No. 2009-0011, the SWRCB adopted the Recycled Water Policy for the State of California, which encourages increased use of recycled water and local stormwater. The policy specifically identifies the use of recycled water as having a beneficial impact because it supports the sustainable use of groundwater and/or surface water and substitutes for the use of potable water. It encourages local and regional water agencies to optimize their use of local water sources by emphasizing water recycling, water conservation, the maintenance of supply infrastructure and use of stormwater (including dry-weather urban runoff). In addition, the policy requires wastewater treatment entities to develop a Salt and Nutrient Management Plan for the groundwater basins in California. The Nutrient Removal Facilities and the Secondary Clarifiers components planned as part of this proposed Project would lead to reduction in the level of the nutrients from WWTP's outgoing wastewater flow.

Anti-Degradation Policy (Resolution No. 68-16): This policy requires the RWQCB, in regulating the discharge of waste, to: a) maintain existing high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses, and will not result in water quality less than that described in SWRCB or RWQCBs policies; and b) require that any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters, must meet WDRs which will result in the best practicable treatment or control of the discharge necessary to assure that: a) a pollution or nuisance will not occur; and b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

State Water Quality Control Board National Pollutant Discharge Elimination System Permit

The Porter-Cologne Water Quality Control Act of 1969 and Federal CWA require local municipalities to implement measures to control construction and post-construction pollution entering local storm drainage systems to the maximum extent practicable. To comply with the requirements of the Porter-Cologne Water Quality Control Act and Federal CWA, the SWRCB implemented a NPDES permit for San Mateo County. Two programs, the Nonpoint Source Pollution Program and the San Mateo Countywide Water Pollution Prevention Program have been implemented under the NPDES permit to control construction and post-construction runoff. The water in the ornamental pond is regulated by the State Porter-Cologne Act and Federal Clean Water Act via SVCW NPDES permit.

Nonpoint Source Management Plan

In 1988, the SWRCB adopted the Nonpoint Source Management Plan in an effort to control nonpoint source pollution in California. In December 1999, the Plan was updated to comply with the requirements of Section 319 of the CWA and Section 6217 of the Coastal Zone Act Reauthorization Amendment of 1990. The Nonpoint Source Management Plan requires individual permits to control discharge associated with construction activities. The Nonpoint Source Management Plan is administered by the RWQCB under the NPDES General Permit for Construction Activities. Projects must comply with the requirements of the Nonpoint Source Program if:

- The project disturbs one acre or more of soil; or
- The project disturbs less than one acre of soil but is part of a larger development that, in total, disturbs one acre or more of soil.

The NPDES General Permit for Construction Activities requires the developer to submit a Notice of Intent (NOI) to the RWQCB and to develop a Storm Water Pollution Prevention Plan to control discharge associated with construction activities.

4.10.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

San Mateo Countywide Water Pollution Prevention Program

The San Mateo Countywide Water Pollution Prevention Program was developed by the RWQCB to assist local jurisdictions within San Mateo County in implementing the provisions of the NPDES permit. This program was also designed to fulfill the requirements of Section 304(1) of the Federal CWA, which mandated that the USEPA develop NPDES application requirements for stormwater runoff. The Program's Municipal Regional NPDES stormwater permit replaces the formerly separate countywide municipal stormwater permits with one permit for all 76 Bay Area municipalities to standardize requirements throughout the region. It specifies actions necessary to reduce the discharge of pollutants in stormwater to the maximum extent practicable and effectively prohibits non-stormwater discharges into the municipal storm drainage system to protect local creeks and the Bay.

Applicable projects consist of all new public and private projects that create 10,000 square feet or more of impervious surface collectively over the entire project site and redevelopment projects that add or replace 10,000 square feet or more of impervious surface area on the project site. Additional requirements must be met by large projects that create one acre or more of impervious surfaces. These large projects must control increases in runoff peak flow, volume, and duration (referred to as hydromodification) caused by the project if the increase in stormwater runoff has the potential to cause erosion or other adverse impacts to receiving streams.

San Mateo County Health Services Division

Groundwater is regulated in San Mateo County by the Health Services Division; however, the Health Services Division is not a water district. It is a regulatory authority for the permitting of all environmental health programs within San Mateo County, some of which involve some component of protection of the surface or groundwater resources. The main focus of these activities is groundwater quality protection and cleanup, and a well permitting program.

Redwood City Municipal Code

Chapter 27A of the Redwood City Municipal Code (*Stormwater Management and Discharge Control Program*) outlines the City's policies that govern the quantity and quality of stormwater discharge within the City. This program discusses exempted activities, illicit discharge prohibitions, broad watercourse protection objectives, and best management practices for new and redevelopment projects.

Redwood City Zoning Ordinance

Section 32.12 of the City's Zoning Ordinance provides requirements related to stormwater treatment. The purpose of these requirements is to provide zoning standards that minimize the quantity of runoff and associated pollutants in stormwater runoff from developed sites to creeks, the stormdrain system, and ultimately, to the San Francisco Bay. According to the City's Zoning Ordinance, enhanced stormwater quality can be achieved through reduction of impervious surfaces, the protection of watercourses and riparian vegetation, providing for infiltration of stormwater on-site through vegetation and soils, and with engineered treatment systems. This section also requires that all new development, additions, and reconstruction are subject to the provisions of Chapter 27A of the City's Municipal Code.

City of San Carlos Municipal Code

Chapter 13.14 of the San Carlos Municipal Code (*Stormwater Management and Discharge Control*) contains the City's policies that govern the quantity and quality of stormwater discharge within the City. The chapter discusses discharge regulations and requirements, inspection and enforcement standards for new and existing projects. The Municipal Code also discusses water-efficient landscaping design guidelines, grading and excavation guidelines, stream development and maintenance provisions.

General Plan Policies

The following policies found in the Redwood City, San Carlos and Menlo Park General Plans are applicable to the proposed Project. Relevant policies were not found in the City of Belmont General Plan.

Redwood City

<u>Goal NR-5:</u> Protect, restore, and maintain creeks, sloughs, and streams to ensure adequate water flow, prevent erosion, provide for viable riparian plant and wildlife habitat and, where appropriate, allow for recreation opportunities.

<u>Policy NR-5.2:</u> Limit construction activities to protect water quality in creeks and streams.

<u>Policy NR-5.3:</u> Except for floating home communities, marinas, and the infrastructure necessary for the communities and marina, prohibit building and development activities to establish a creek buffer zone, based on the site and floodplain characteristics and/or where sensitive species, communities, or habitats occur within the creek or 100-year floodplain, unless construction methods or other methods can substantially minimize damage from potential flooding.

<u>Policy NR-5.5:</u> Except for floating home communities, marinas, and infrastructure necessary for the communities and marinas, regulate, and perhaps restrict, new development, grading, fills, and other land disturbances located immediately adjacent to a creek, stream, or in a 100-year floodplain, unless construction methods or other methods to minimize potential damage from flooding are implemented.

<u>Goal NR-7:</u> Reduce pollution from stormwater runoff in our creeks and the San Francisco Bay.

<u>Policy NR-7.1:</u> Support appropriate stormwater pollution mitigation measures.

<u>Policy NR-7.2:</u> Encourage the use of site and landscape designs that minimize surface runoff and retain or detain stormwater runoff, minimizing volume and pollutant concentrations.

San Carlos

<u>Goal EM-2:</u> Promote healthy streams and riparian corridors.

Policy EM-2.7: Retain Pulgas, Brittan, Cordilleras and Belmont Creek channels and their 100-year floodplains wherever possible as natural open space areas. These areas are to function as storm drainage facilities and as open space greenbelts to support natural habitat.

Goal EM-5: Assure a high level of domestic water quality, promote water conservation and reduce toxics in run-off, including stormwater and the sanitary sewer system.

Policy EM-5.1: Reduce the discharge of toxic materials into the city's sanitary sewer and stormwater collection system by promoting the use of Best Management Practices (BMPs).

Policy EM-5.5: Recycled water distribution system (purple pipe) should be used for landscaping and other non-potable water uses for residential, commercial and industrial customers, where technically and financially feasible.

Policy EM-5.9: Sewer service may be extended outside the city limit only as required to protect public health due to failing septic systems in accordance with the following policies:

- Extension of sewer service would be denied if there is insufficient capacity in the wastewater collection system.
- No change to the land use would occur.
- The extension of sewer service could not be used to enable further subdivision.
- The property owner would be required to annex as such time as a complete consolidation of properties could be annexed.
- The property owner would be required to complete all improvements necessary to meet City building and engineering standards.
- Applicant to assure payment of all sewer connection, plan checking and inspection fees.

Action EM-5.2: Utilize bioswales and other bio-filtration systems as applicable to cleanse run-off before it enters creeks and the San Francisco Bay.

Menlo Park

Policy OSC5.1: Continue to apply standards and policies established by the Bay Area Air Quality Management District (BAAQMD), San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), and City of Menlo Park Climate Action Plan through the California Environmental Quality Act (CEQA) process and other means as applicable.

Policy OSC5.2: Evaluate development projects in industrial areas for impacts to air and water resources in relation to truck traffic, hazardous materials use and production-level manufacturing per the California Environmental Quality Act (CEQA) and require measures to mitigate potential impacts to less than significant levels.

4.10.2 Environmental Setting

4.10.2.1 *Surface Water Hydrology*

This section includes an inventory and description of the watersheds, creeks, streams, water bodies, and other surface water features in the Project study area as shown in Figure 4.10-1. The Redwood Shores area contains a network of man-made saltwater lagoons, which drain into the surrounding sloughs and into San Francisco Bay.

Redwood Creek

Redwood Creek drains 9.3 square miles of a largely developed watershed, almost entirely within the limits of Redwood City. The U.S. 101 Bridge over Redwood Creek is well above the 100-year tide and allows for unrestricted passage of high flows as they drain to the Bay. Most of the flows from low-lying areas of the Redwood Creek watershed are collected by nine pump stations, eight of which discharge directly to Redwood Creek. The remaining pump station drains into a leveed storage basin between U.S. 101 and Inner Bair, and then through a culvert to the eastern Inner Bair borrow-ditch. A limited area drains to Redwood Creek via gravity drainage.

Cordilleras Creek

Cordilleras Creek drains a 3.6-square mile watershed and forms much of the border between Redwood City and San Carlos. Most of the channel remains in its natural state, without significant human alterations. The creek passes through three 12-foot by 6-foot concrete box culverts under U.S. 101 before discharging into the western Inner Bair borrow-ditch and Smith Slough. Tidal influence extends approximately 1,000 feet up the creek from the Bay to Redwood High School. Cordilleras Creek is not connected to the main storm drain systems of either Redwood City or San Carlos.

Pulgas Creek

Pulgas Creek collects surface runoff from a 3.6-square mile area in central San Carlos and a small part of Belmont. The creek is confined to culverts in its lower watershed, including three 12-foot by 6-foot concrete box culverts under U.S. 101. Portions of Pulgas Creek have been channelized or lined with levees to protect adjacent areas against tidal flooding. A pump station at Industrial Road pumps floodwaters from nearby street conduits into the creek, while the remainder of the watershed appears to be gravity-drained. The graviy pipeline connection between Airport Access Shaft and Inner Bair Island is located under Pulgas Creek. The crossing of Pulgas Creek will be approximately 30 feet below ground surface with construction completed using a TBM.

Belmont Creek

Belmont Creek is adjacent to the Belmont Pump Station site and originates in the hills above Hallmark Drive and flows from the western hills towards the San Francisco Bay. Within the vicinity of the Project area, Belmont Creek is channelized and discharges to the Belmont Slough. An open drainage ditch is also located adjacent to the northbound lane on ramp from Holly Street to northbound U.S. 101. The existing Belmont force main crosses beneath this open drainage ditch and the proposed rehabilitated force main would be encased within the existing force main. The drainage ditch eventually discharges to the Steinberger Slough. Both Belmont Creek and Steinberger Slough are tributaries to San Francisco Bay.

Steinberger Slough and San Francisco Bay

Three main drainage areas northwest of Bair Island discharge to Steinberger Slough or directly to San Francisco Bay. Steinberger Slough carries tidal waters through the WWTP Project Area and supports tidal marsh vegetation along the Redwood Shores peninsula to the west and Bair Island to the east. This slough is fed by Pulgas Creek, which carries storm water from urban Redwood City, as discussed above. Storm water runoff from San Carlos Airport is accommodated by several on-site pump stations that drain directly to Steinberger Slough. Runoff from northern San Carlos and Belmont drains to a holding pond in Phelps Slough, before being pumped into Steinberger Slough. Runoff from Redwood Shores is routed to a controlled interior lagoon, from which flows are collected by pump stations or stored until they can be released via gravity drainage at low tide to Steinberger Slough or to the Bay.

Phelps Slough

The Phelps Slough begins south of Shoreway Road, across from the Public Storage facility adjacent to the Airport Access Shaft site. The Phelps Slough runs northeasterly to a holding pond south of Spar Drive and west of the Steinberger Slough.

Flood Slough adjacent to Menlo Park Pump Station

The Flood Slough is north of the Menlo Park Pump Station, to the west of Marsh Road and Bedwell Bayfront Park. The slough continues westerly in channels bordering the marshland to the north. The slough empties into the Westpoint Slough to the north, on the western side of Greco Island.

Ornamental Pond

The proposed Project area contains man-made ornamental ponds used by SVCW for recycled water storage. Water present in the ornamental ponds is pumped into the area from the SVCW Recycled Water facilities located in the existing WWTP. Water drains from the ornamental ponds into the SVCW stormwater system. From there, it enters the WWTP for treatment and is either used for further recycled water production, or discharged into the Bay. Thus, all water present in the ornamental ponds is regulated by the State Porter-Cologne Act and Federal Clean Water Act via SVCW's NPDES permit.

4.10.2.2 *Groundwater Hydrology*

The proposed Project overlies the San Mateo Plain groundwater sub-basin. The San Mateo Plain Groundwater Basin is located along the southeastern edge of San Mateo County, bordering San

Francisco Bay. The basin covers approximately 40 square miles, with a depth ranging from 20 feet to more than 1,250 feet.

According to the geotechnical study prepared by Kennedy/Jenks consultants in December 2015 for the Project (see Appendix E), the groundwater in the vicinity of the tunnel alignment is generally characterized as shallow tide influenced groundwater within artificial fill that overlies estuarine deposits. Groundwater levels are generally less than ten (10) feet below the ground surface and experience varying degrees of fluctuation coinciding with the tidal stage of the adjacent Steinberger Slough, Phelps Slough, and Pulgas Creek. On Inner Bair Island, groundwater is at varying depths (two to four feet and five to seven feet bgs). Fluctuations in groundwater levels are expected to occur because of factors such as seasonal fluctuation, underground drainage patterns, perched water conditions, and regional fluctuation.

4.10.2.3 *Surface Water Quality*

Water quality varies throughout the San Francisco Bay Estuary due to variability in discharges of pollutants, tidal stage, and hydrodynamic circulation. Salinity and the concentrations of total suspended sediment (TSS) are two of the most fundamental water quality parameters that describe basic habitat and water chemistry. These parameters also influence chemical and physical processes, such as density stratification and vertical mixing of bay waters. Long-term monitoring has shown that South San Francisco Bay experiences large variability in surface salinity, with levels fluctuating between nearly zero to nearly marine values (about 32 parts per thousand (ppt)). Variations in salinity occur on seasonal and inter-annual time scales, largely in response to freshwater inputs derived from local watersheds, as well as the Delta. Large river flows have a strong effect on TSS in Suisan and San Pablo Bays, but a weaker influence on concentrations in South Bay, where inputs from the local watersheds affect TSS values. In general, large gradients in salinity and TSS are observed during the wet season due to intense watershed inputs, but are damped during the dry season when discharge from the watersheds are reduced. Impacts to water quality result from runoff during dry and wet weather events, direct discharge associated with industrial/commercial activities, automobiles, and herbicides. Changes from dry to wet conditions may occur rapidly. For example, salinities in the South Bay dropped from 28-30 ppt to about 10 ppt between January 1 and February 8, 1998, in response to a series of El Nino-driven storms (SFEI 2000).

4.10.2.4 *Groundwater Quality*

According to the RWQCB, saltwater intrusion has occurred to groundwater within the San Mateo Plain sub-basin. The state Department of Water Resources found that groundwater quality in the sub-basin contains high concentrations of sodium; samples from wells in the area also found concentrations of nitrates/nitrogen in excess of maximum contaminant levels established by the California Department of Health Services and the USEPA (California Department of Water Resources, 2004). The San Francisco RWQCB identifies existing beneficial uses for groundwater in the San Mateo Basin as municipal and domestic water supply (MUN), industrial process water supply (PROC), industrial service water supply (IND) and a potential beneficial use as agricultural water supply (AGR) (SFRWQCB 2003).

4.10.2.5 *Flooding*

Current flood mapping by FEMA shows the entire Project area, except for the Skyway Road and Monte Vista Drive area, as being within the 100-year floodplain (FEMA 2012). The Belmont Pump Station site is located in Zone A[23] and the Redwood City Pump Station and Menlo Park Pump Station sites are located in Zone AE (See Figure 4.10-1). Shoreway Road and the connection to the San Carlos Pump Station site are within Zone X[24] except for where the Gravity Pipeline alignment crosses under the open drainage ditch which is located is Zone AE. The Front of the Plant area is currently protected from tidal flooding and tsunami or seismically induced tidal waves by a network of levees that ring the Redwood Shores peninsula. The SVCW plant is vulnerable to 55 inches of sea-level rise and key components have been elevated to protect against possible levee failure (Heberger 2012).

Tidal flooding has been documented in portions of Redwood City and San Carlos, especially in areas east of U.S. 101 (FIA 1977). Prior to the 1967 storm drain project, flood events along Redwood Creek seem to have been caused by high creek flows and overtopping of channel banks. Later flood events along this creek appear to be caused by limited culvert capacity and debris blockage in the storm drain system. Flooding along Cordilleras Creek is exacerbated by erosion in the upper watershed, resulting in deposition and blockage in the flat, low-lying areas. Overflow from Pulgas Creek causes flooding in the industrial area between U.S. 101 and El Camino Real. Due to persistent minor flooding, Caltrans has recently improved the culverts under U.S. 101 along Pulgas Creek, and other improvements along surface streets further upstream are planned.

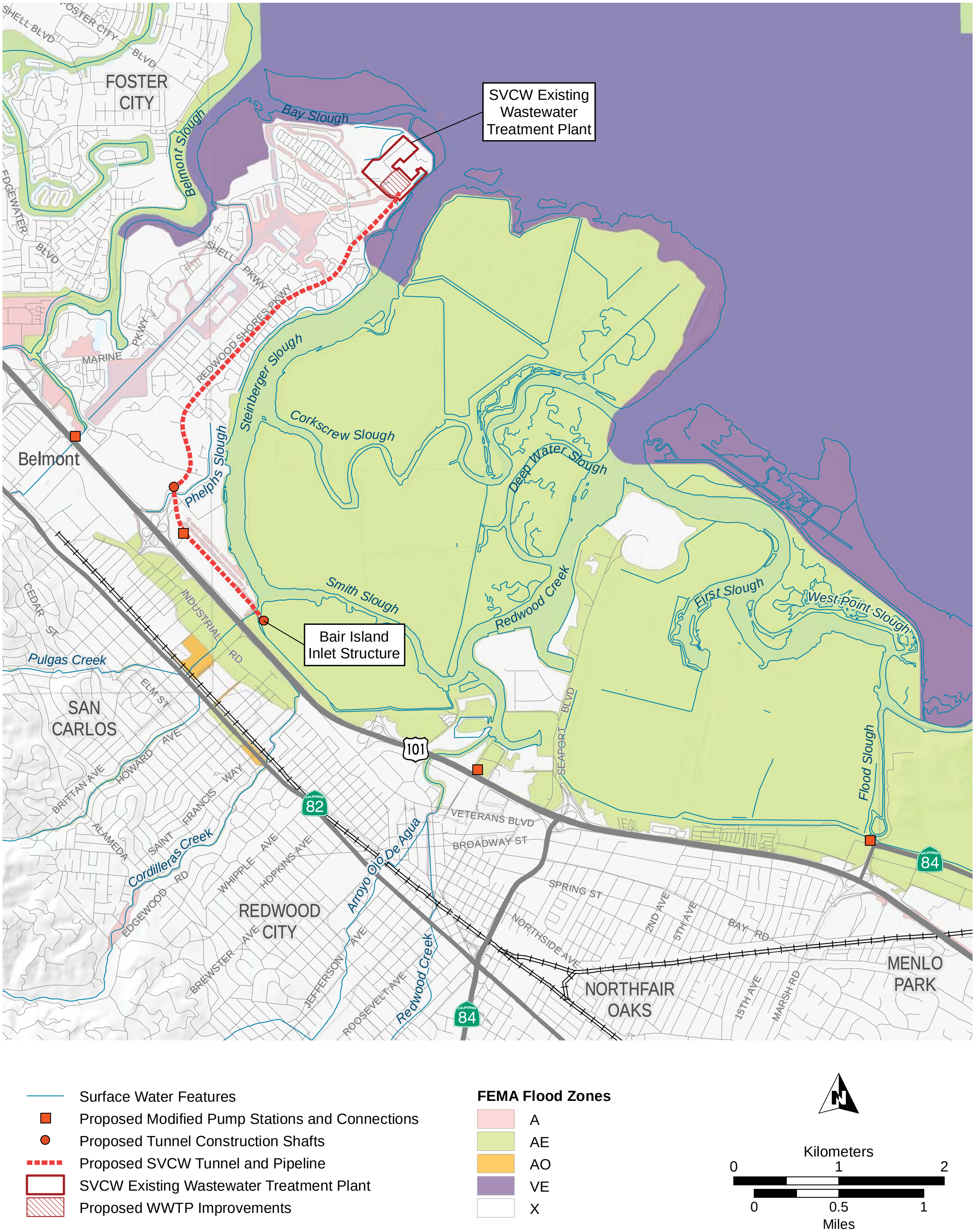
4.10.2.6 *Seiches, Tsunamis, and Mudflows*

Large earthquakes can generate seismic sea waves, or tsunamis, which can cause damage along the coastline. The Project area is located about 12 miles east of the Pacific Ocean shoreline, and is not within the County of San Mateo Tsunami Evacuation Planning area (San Mateo County 2005b).

Seiches are oscillating waves in a lake or partly-enclosed body of water caused by an earthquake or landslide which displaces part of the water body. Four enclosed water bodies in San Mateo County are believed to be large enough to pose significant seiche potential: Upper Crystal Springs Reservoir; Lower Crystal Springs Reservoir; San Andreas Lake; and Pilarcitos Lake. Most of the lands immediately adjacent to the San Francisco Bay are at a higher risk of seiche. The Project area is not near any of these four water bodies and not within the dam inundation zone (San Mateo County 2005b).

A mudflow is a large rapid mass of mud formed by loose earth and water. Hillsides and slopes of unconsolidated material are typically at risk for mudflows if these areas become saturated. Usually, a mudflow occurs as a result of a dual condition of loss of brush cover, and the subsequent accumulation of water on the ground preceded by a period of heavy or sustained rain. The Project area is relatively flat and would not be subject to mudflows.

[23] Areas subject to inundation by the 1-percent-annual-chance (or 100-year) flood event.
[24] Areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood.



SURFACE WATER FEATURES

FIGURE 4.10-1

4.10.3 Hydrology and Water Quality Impacts

4.10.3.1 *Thresholds of Significance*

For the purposes of this EIR, a hydrology and water quality impact is considered significant if the Project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impeded or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Inundation by seiche, tsunami, or mudflow.

4.10.3.2 *Surface Water Impacts*

<u>Construction</u>

Construction of the proposed Project would involve ground-disturbing activities, including trenching, grading, and excavating, that could increase the risk of ground and surface water contamination and temporary changes in site drainage patterns. These activities would result in bare soil that could be eroded by wind and rainfall, potentially leading to sediment-laden runoff. The new Gravity Pipeline pipeline would be installed completely underground and below all nearby waterways. As a result, no existing drainages or waterways would be altered by the installation of the Gravity Pipeline and no additional erosion or surface runoff would occur on- or off-site.

Construction activities could also cause water quality violations in the event of an accidental fuel or hazardous materials leak or spill. Discharge of sediment and hazardous materials such as gasoline, engine oil, and lubricants could occur via stormwater runoff leaving the construction area and flowing to adjacent drainages. In addition, discharge of construction-related dewatering (groundwater) effluent could result in the release of contaminants, such as sediment or elevated total dissolved solids to nearby surface waters.

While construction activities would be temporary in nature, the potential impacts to water quality could last beyond the duration of construction, depending on the extent of degradation.

Impact HYD-1: Construction of the proposed Project could increase contaminants in stormwater runoff, which could adversely affect the water quality of the San Francisco Bay.

For all Front of the Plant construction activities, storm water is not discharged but treated by SVCW and then discharged under the WWTP's NPDES permit, and therefore SVCW does not need a Storm Water PPP as identified below for other system component locations. Implementation of the following mitigation measures will reduce or avoid water quality impacts during construction to a less than significant level:

MM HYD-1.1: Prior to the commencement of any ground disturbing activities outside the fenced WWTP site, the Project will comply with the State Water Resources Control Board's NPDES General Construction Activities Permit, to the satisfaction of the SVCW construction manager, as follows:

- SVCW will develop, implement, and maintain a Stormwater Pollution Prevention Plan to control the discharge of stormwater pollutants including sediments associated with construction activities;
- Permitting for stormwater treatment could be obtained by one of two methods. The first option would be to obtain an Industrial Stormwater General Permit by filing a NOI with the SWRCB. The second option would be to reissue the existing individual permit that expires in December 2017 and file an application with revised storm drain discharge into wetlands or the bay.

MM HYD-1.2: The Project will include Best Management Practices (BMPs) to control the discharge of stormwater pollutants including sediments associated with construction activities. Prior to installation, the contractor shall be required to prepare an Erosion Control Plan. The Erosion Control Plan may include BMPs as specified in the Manual of Standards Erosion & Sediment Control Measures for reducing impacts on the storm drainage system from installation activities. The following specific BMPs will be implemented to prevent stormwater pollution and minimize potential sedimentation during construction:

- Utilize on-site sediment control BMPs to retain sediment on the project sites;
- Utilize stabilized construction entrances and/or wash racks;
- Implement damp street sweeping;
- Provide temporary cover of disturbed surfaces to help control erosion during installation;
- Provide permanent cover to stabilize the disturbed surfaces after installation has been completed;
- Store, handle, and dispose of construction materials and wastes properly, so as to prevent their contact with stormwater;
- Control and prevent the discharge of all potential pollutants, including solid wastes, paints, concrete, petroleum products, chemicals,

washwater or sediments, and non-stormwater discharges to storm drains and watercourses;
- Utilize sediment controls or filtration to remove sediment from dewatering effluent;
- Avoid cleaning, fueling, or maintaining vehicles on-site, except in a designated area in which runoff is contained and treated.
- Delineate clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses with field markers.
- Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.
- Limit and time applications of pesticides and fertilizers to prevent polluted runoff.

Additional stormwater impacts discussion can be found in *Section 4.16 Utilities and Service Systems.*

Operation

Under operational conditions, the proposed Project improvements would represent an improvement in the water quality as it would reduce the likelihood of spills and discharges of untreated sewage to the surrounding environment, which has occurred numerous times with the existing 45 year old concrete sewer force main that operates above its design pressure. In addition, the long-term plans for installing Nutrient Removal Facilities and clarifiers would meet regulatory requirements imposed by the RWQCB for nutrients discharged into the San Francisco Bay. Moreover, the tunnel is not pressurized like a force main, and thus would be in negative pressure relative to any groundwater around it. Therefore, the Gravity Pipeline would be designed to withstand breakage under most foreseeable conditions. Compliance with SVCW's NPDES Permit would ensure that San Francisco Bay water quality and associated beneficial uses are protected and operational water quality impacts therefore would be less than significant. Please refer to *Section 4.16 Utilities and Service Systems* for stormwater and drainage impacts discussion

4.10.3.3 *Groundwater Impacts*

Groundwater levels in the Project area are generally less than ten (10) feet below the ground surface. Installation of the Tunnel and Gravity pipeline through a TBM would involve construction at depths up to 20 to 52 feet. Rehabilitation work at the Belmont Pump Station, Redwood City Pump Station and San Carlos Pump Station would have vertical impact from eight to 35 feet. The rehabilitation of Menlo Park Pump Station would not have any vertical impact. Several improvements would be made to the WWTP, including a RLS, Headworks and screening facility, Flow Diversion Facilities, Influent Connector Pipe, Nutrient Removal Facilities, Secondary Clarifiers, a short pipeline between the flow-diversion structure and the drying bed, and a sStormwater Pump Station. Vertical impacts up to 88 feet below the ground surface are anticipated. Therefore, it is anticipated that shallow groundwater may be encountered during Project construction. Construction activities and equipment that encounter groundwater could adversely impact water quality in the Project through localized soil disruption and equipment fuels and oils that could contaminate groundwater, which represents a potentially significant water quality impact. The implementation of the measure below will reduce and/or avoid this water quality impact.

Impact HYD-2: Water quality impacts from shallow groundwater encountered during construction could occur under the proposed Project.

The following mitigation measure will reduce or avoid shallow groundwater impacts during construction to a less than significant level:

MM HYD-2: A detailed, design-level geotechnical investigation shall be completed and shall address the need for dewatering during construction. Project construction shall follow the recommendations of the investigation.

Implementation of MM HYD-1.1 and MM HYD-1.2 would also reduce or avoid any water quality impacts associated with encountering groundwater during construction.

4.10.3.4 *Flooding Impacts*

As discussed previously, most of the Project area is within a 100-year flood zone. The proposed Project does not involve placement of housing with the 100-year flood zone. While the new Gravity Pipelinewould be installed within a 100-year flood zone, this would be located underground and thus would not impede or redirect flood flows. The new pump station buildings would be constructed within the same location as the existing facilities and thus would not impede or redirect flood flows. The pump stations, shafts and WWTP are located behind a flood control levee system that provides protection in the event of a 100-year flood. The flood control levee system is adjacent to Steinberger Slough. Therefore, the proposed Project components would not lead to flooding on- and off-site.

4.10.3.5 *Seiches, Tsunamis, and Mudflows*

The proposed Project area is not within the County of San Mateo Tsunami Evacuation Planning area, is not located near any of the four water bodies that pose seiche potential, and is not within a dam inundation zone. The Project area is also not subject to mudflows. Therefore, none of the Project facilities would be exposed to a significant risk related to flooding from a dam or levee failure or a seiche.

4.10.4 <u>Conclusion</u>

The proposed Project would not result in significant hydrological impacts to surrounding development. The proposed Project includes measures to reduce or avoid impacts associated with water quality during construction. **[Less Than Significant Impact with Mitigation]**

4.11 LAND USE

4.11.1 Regulatory Setting

4.11.1.1 *Federal*

Federal Aviation Administration

Subpart B, *Notice of Construction or Alteration*, of the FAR Part 77 regulations requires that the FAA be notified of any proposed construction or alteration of objects within 20,000 feet of a runway and having a height that would exceed a 100:1 imaginary surface (1 foot upward per 100 feet horizontally) beginning at the nearest point of the runway. This requirement applies to runways more than 3,200 feet in length. For shorter runways, like Runway 12-30 at San Carlos Airport, the notification surface has a 50:1 slope and extends 10,000 feet from the runway. Notification is required with regard to any public-use or military airport. Also requiring notification is any proposed structure or object more than 200 feet in height regardless of proximity to an airport.

Subpart C, Obstruction Standards, of FAR Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace, establishes the standards for determining obstructions to air navigation. This subpart defines a set of imaginary surfaces with relation to an airport's runway(s). The slope and dimension of each imaginary surface is based on the type of approach available or planned for each runway (e.g., visual, non-precision, precision).

4.11.1.2 *State and Regional*

San Francisco Bay Conservation and Development Commission

Enacted in 1965, the McAteer-Petris Act (California Government Code Section 66600 et seq.) established the San Francisco BCDC as a state agency charged with preparing a plan for the long-term use of the Bay. The BCDC has the regulatory jurisdiction over the Bay and its shoreline which generally consists of the area between the Bay shoreline and a line 100 feet landward of and parallel to the shoreline. The Belmont and Menlo Park Pump Stations, WWTP and Inner Bair Island sites are within the BCDC Shoreline Band jurisdiction. A permit is required from BCDC for work done within the Shoreline Band jurisdiction. BCDC shall grant a permit if it finds and declares that the project is either (1) necessary to the health, safety or welfare of the public in the entire bay area, or (2) of such a nature that it will be consistent with the provisions of this title and with the provisions of the San Francisco Bay Plan then in effect (California Government Code 66632(f)).

4.11.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

San Carlos Airport Land Use Plan

The San Carlos ALUP, which is a chapter in the San Mateo County ALUP, establishes airport noise and land use compatibility standards for development in the airport vicinity of San Carlos Airport and its takeoff and approach zones. San Carlos Airport is located within the City of San Carlos and is owned and operated by the County of San Mateo. Land uses near the San Carlos Airport are regulated by the San Mateo City/County Association of Governments (C/CAG) ALUC. The ALUC maintains and implements the Comprehensive ALUP for San Carlos Airport (C/CAG ALUC 1996). The ALUP establishes two influence zones around San Carlos Airport, Area A and Area B. These zones are intended to prevent development that is incompatible with airport operations and include specific regulations, such as height restrictions based on proximity to the airport and flight patterns. Influence Area A is the larger of the two areas, and consists of a broad area around the airport, including from Hillsborough in the north to East Palo Alto in the south. The ALUP requires real estate transaction disclosures for all properties with Area A. Influence Area B is within Area A, occupying the area within a 9,000-foot radius around the airport. Any local land use policy actions, such as a General Plan or zoning amendment, within Area B requires formal review by the ALUC to ensure that the proposed allowable development is consistent with aviation safety requirements. Area B also requires real estate transaction disclosures.

The California Airport Land Use Planning Handbook, 2011 (Handbook) provides guidance on the delineation of safety zones and the application of land use policies in those zones. The 2011 Handbook identifies a series of six safety zones, which are defined as follows:

- Zone 1: Runway protection zone and within runway object free area adjacent to the runway;
- Zone 2: Inner approach/departure zone;
- Zone 3: Inner turning zone;
- Zone 4: Outer approach/departure zone;
- Zone 5: Sideline zone; and
- Zone 6: Traffic pattern zone.

Redwood City General Plan and Zoning Ordinance

Redwood City's General Plan is an adopted statement of goals and policies for the future character and quality of development in the community as a whole (Redwood City 2010). All development in the city must conform to the land use designations outlined in the General Plan. The Redwood City Zoning Ordinance serves as the primary implementation tool of the General Plan. The Zoning Ordinance is a regulatory document that establishes specific standards for the use and development of all properties in the City and regulates the development intensity. The Zoning Ordinance also indicates permitted land uses, conditionally permitted uses, and establishes parking and open space standards.

City of San Carlos General Plan and Zoning Ordinance

The City of San Carlos General Plan is an adopted statement of goals and policies that provides guidance on how land use designations should be developed to contribute to the overall character of San Carlos (San Carlos 2009). All development in the city must conform to the land use designations outlined in the General Plan. Under State law, the City's General Plan is the primary planning document and all other City plans and policies must be consistent with the adopted General Plan. The Zoning Ordinance of the San Carlos Municipal Code regulates land use in the city. The Zoning Ordinance is the mechanism used to implement the goals, objectives, and policies of the General Plan and to regulate all land use within the city.

City of Belmont General Plan and Zoning Ordinance

The City of Belmont's General Plan is a long range, general, comprehensive guide to the future development of the City and lands outside its boundaries which are related to its planning. It describes the desired character and quality of the community, sets forth the goals of the City, and states the policies that City government will follow to achieve these goals (City of Belmont 1982). All development in the city must conform to the land use designations outlined in the General Plan. The Zoning Ordinance is a regulatory document that provides a precise guide for the physical development of the City.

Menlo Park General Plan and Zoning Ordinance

The City of Menlo Park's General Plan is the guiding document for the future development for Menlo Park. All development must conform to land use designations as outlined in the General Plan, and must conform to the City's Zoning Ordinance which serves to implement the General Plan.

Inner Harbor Specific Plan

The Inner Harbor Specific Plan, incorporated into Redwood City's 2010 General Plan is a guiding document for future development and growth of the Inner Harbor Area of Redwood City (City of Redwood City 2015). The Plan establishes detailed land use, urban design circulation, and infrastructure for the Inner Harbor Planning area of Redwood City. The Redwood City Pump Station is within the regulatory boundaries of the Inner Harbor Specific Plan and is identified as *Public Facilities* in the Plan's land use map. The purpose and intent of the *Public Facilities* land designation is to accommodate governmental, public utilities, and educational facilities. One of the objectives used to guide future redevelopment within the Public Facilities district is to, "Facilitate government, civic, and infrastructure uses and activities that contribute to and support community needs".

Redwood Shores Bayfront Specific Plan

The City of Redwood City adopted the Redwood Shores Bayfront Specific Plan in April 2002 to guide the location, character, and intensity of land uses to be permitted for the 69.7 acres near the WWTP. The Plan establishes a circulation pattern and infrastructure program, proposes organization and design features for land uses, and recommends implementation actions and responsibilities necessary for the realization and long-term maintenance of each element of the Plan. The 34.8 acres of land surrounding the WWTP site, including the ornamental ponds where the Front of the Plant improvements are planned, is included in the Plan, however, the 16.5-acre WWTP site itself is not included in the Plan (City of Redwood City 2002).

4.11.2 Environmental Setting

4.11.2.1 *Land Use Conditions*

The proposed Project is located within the cities of Redwood City, San Carlos, Belmont, and Menlo Park, as shown in Figure 2.2-1. The Project would be located within lands under a variety of ownerships: local jurisdiction (cities of Belmont, Menlo Park, Redwood City, and San Carlos) public rights-of-way; San Mateo County airport land, California State Lands, and USFWS lands.

Wastewater Treatment Plant

The WWTP facility, located in Redwood Shores is surrounded by residential uses approximately 500 feet to the west, office and commercial buildings to the southwest, and the Steinberger Slough to the south. The San Francisco Bay forms the site's eastern border.

The 34.8-acres of undeveloped land surrounding the existing WWTP, considered the "buffer property" is contiguous on two sides, but does not include, the approximately 16.5-acre WWTP site. The Redwood Shores Bayfront Specific Plan includes the buffer property.

Redwood City Pump Station

The 0.55-acre developed site is located on the south side of Maple Street in the city of Redwood City. Land uses surrounding the site include residential boats approximately 600 feet or further to the northwest, commercial, public facility (police building), and northbound U.S. 101.

San Carlos Pump Station

The 0.92-acre site is located on the north side of Monte Vista Drive in the city of San Carlos. The site includes the existing 0.48-acre pump station site and a 0.44-acre paved parking lot adjacent to a restaurant use building (Izzy's). The San Carlos Pump Station fronts on Monte Vista Drive. Land uses along Monte Vista Drive include commercial buildings that house a hotel (Fairfield Inn and Suites) and the Hiller Aviation Museum. The San Carlos Odor Control facility falls within Zone 2 (Inner Approach/Departure) of the San Carlos ALUP (See Figure 4.11-1).

Belmont Pump Station

The Belmont Pump Station is located on a 0.1-acre developed site on the east side of Shoreway Road in the city of Belmont. Land uses surrounding the Belmont Pump Station include commercial/office buildings to the north, a paved trail along the Belmont Creek channel to the east, and mobile homes over 500 feet to the northwest. There is also another trail on the southeast side of the creek channel and industrial buildings beyond. Shoreway Road and U.S. 101 are located to the west and south of the site.

Menlo Park Pump Station

The 0.5-acre developed site is located on the north of the intersection of Marsh Road and the Bayfront Expressway in the City of Menlo Park. The building is adjacent to the Menlo Atherton Self Storage Facility to the west and adjacent to the Bedwell Bayfront Park to the north. Haven Avenue forms the southern border and the road leading to Bedwell Bayfront Park forms the eastern border of the site.

Gravity Pipeline Alignment

The 17,600-foot Gravity Pipeline would be aligned between the SVCW WWTP and the north end of Inner Bair Island. Pipeline alignment would generally be along existing rights of way within the Redwood Shores area and along the edge of the San Carlos Airport property (not within the airport operations zone). Surrounding land uses in Redwood Shores are primarily residential with commercial uses primarily occurring around the airport.

Bair Island Inlet Structure

Bair Island Inland Structure is located within the tidal plain of Redwood City, adjacent to the Steinberger Slough. Surrounding land uses include U.S. 101 to the west, and commercial land uses to the south. Portions of Inner Bair Island contain trails used by the public. Part of Inner Bair Island is owned by the San Carlos Airport and is maintained as a safety area for emergency landings. The site falls under Zone 2 (Inner Approach/Departure) of the San Carlos ALUP (Figure 4.11-1). The east side of the Bair Island Inlet Structure and Staging Area borders Zone 1 (Runway protection Zone).

Airport Access Shaft

The Airport Access Shaft site is currently undeveloped and vacant. The site is bordered by Shoreway Road to the south, a public storage facility, laboratory, gardening supply facility, the Shoreway Environment Center, and the Recology San Mateo County facility to the west. Parking lots associated with commercial uses are to the site’s northern and eastern boundaries.

As shown in Figure 4.11-1, the site falls within Zone 2 (Inner Approach/Departure) and Zone 4 (Outer Approach/Departure) of the San Carlos ALUP. The west side of the site staging area borders Zone 1 (Runway protection).

4.11.2.2 *General Plan and Zoning Designations*

Redwood City Pump Station

The Redwood City Pump Station site has a General Plan designation of *Public Facility* and is zoned *Industrial Restricted*. According to the Redwood City Zoning Ordinance, permitted uses for *Industrial Restricted* include, “public utility buildings, substations, and service yards.” Therefore the pump station is a permitted use. All other land uses along Maple Street, north of the pump station site, have a General Plan designation of *Mixed Use Waterfront Neighborhood (40 dwelling units per acre maximum)*. The zoning designation on the north side of Maple Street is *Tidal Plain.*

Belmont Pump Station

The Belmont Pump Station site has a General Plan designation of *Commercial* and is zoned *M1-Limited Manufacturing.* In accordance with the City of Belmont Zoning Ordinance, permitted uses within the *Limited Manufacturing (M1)* district include "public utility, substation, public service structure, shop or storage facility including service yards." Therefore, the pump station is a permitted use. Land uses along Shoreway Road have a General Plan land use designation of *Commercial* and are zoned *Limited Manufacturing (M1)*.

San Carlos Pump Station

The San Carlos Pump Station and the San Carlos Airport property have a General Plan designation of *Airport* and are zoned *Airport*. The *Airport* zoning designation permits public and quasi-public uses and facilities, including fire protection, policing, and the furnishing of utility services, as a use within this district. Therefore, the pump station is a permitted use. However, the regulations for this district note that these uses are permitted after review and approval of a minor use permit by the Zoning Administrator when uses will be located within an existing building, but requires review and approval of a conditional use permit by the Planning Commission when proposed to be located within a newly constructed building.

The office and commercial land uses on Skyway Road have a General Plan designation of *General Commercial/Industrial* and are zoned *General Commercial/Industrial*.

Menlo Park Pump Station

The Menlo Park Pump Station site is designated as *Limited Industry* and zoned *M2-General Industrial.* The *Limited Industry* designation provides for light manufacturing and assembly, distribution of manufactured products, research and development facilities, industrial supply, incidental warehousing, offices, limited retail sales, public and quasi-public uses, and similar and compatible uses. The *M2-General Industrial* zoning designation is subject to specific regulations including a minimum lot area of 25,000 sf, a structural height restriction of 35 feet unless approved by a conditional development permit, and a floor area ratio not to exceed fifty-five percent for general industrial uses, including but not limited to, warehousing, manufacturing, printing, assembling, related office and laboratory uses, and shipping and receiving, and forty-five percent for offices.

Bair Island Inlet Structure

Bair Island Inlet Structure is designated as *OS-Open Space – Preservation*, and is zoned as *TP – Tidal Plain.*

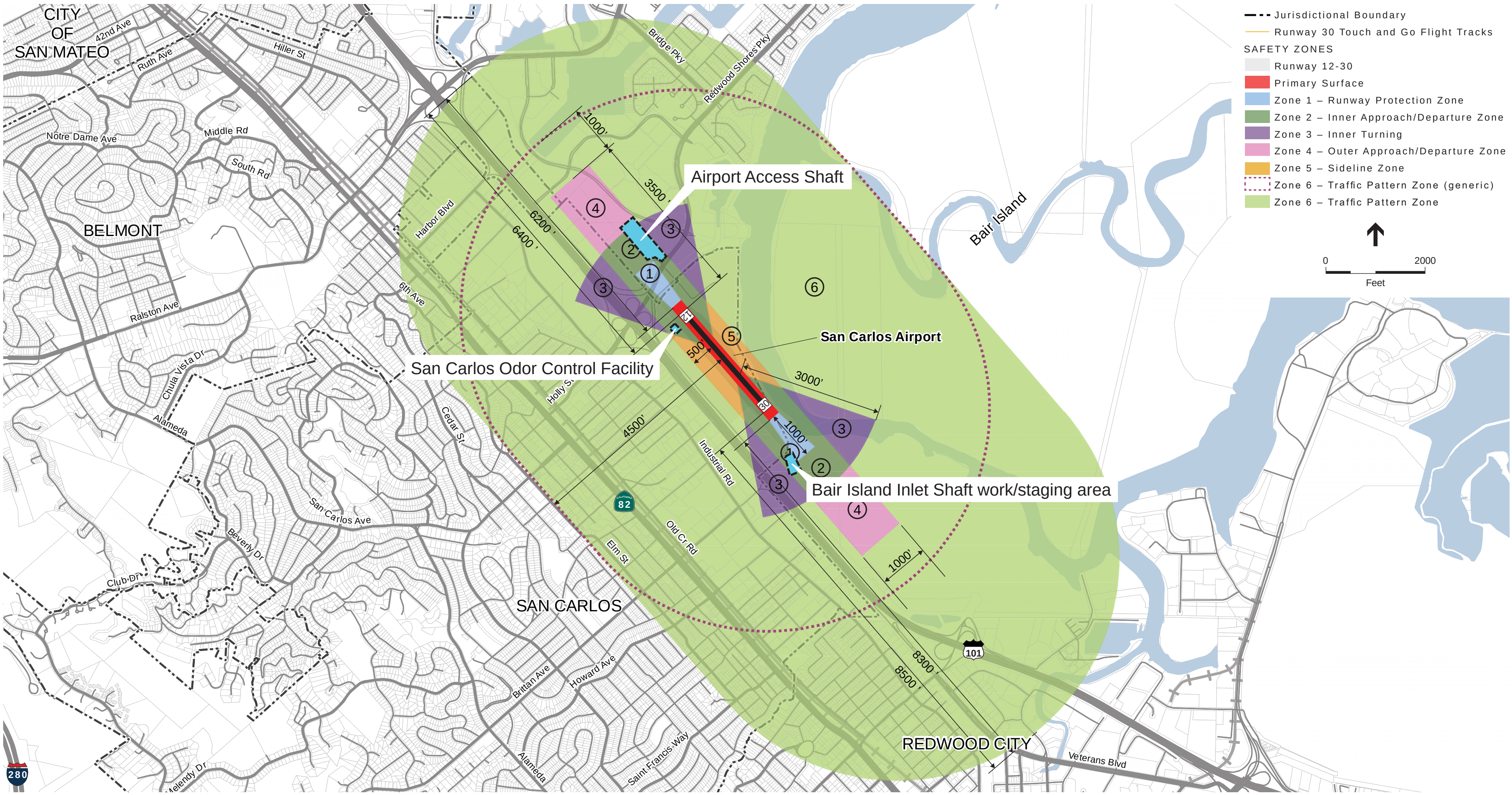
Airport Access Shaft

The Airport Access Shaft site is located in Redwood City, and is designated as *OS – Open Space – Preservation*, and is zoned as *CP – Commercial Park.*

Wastewater Treatment Plant

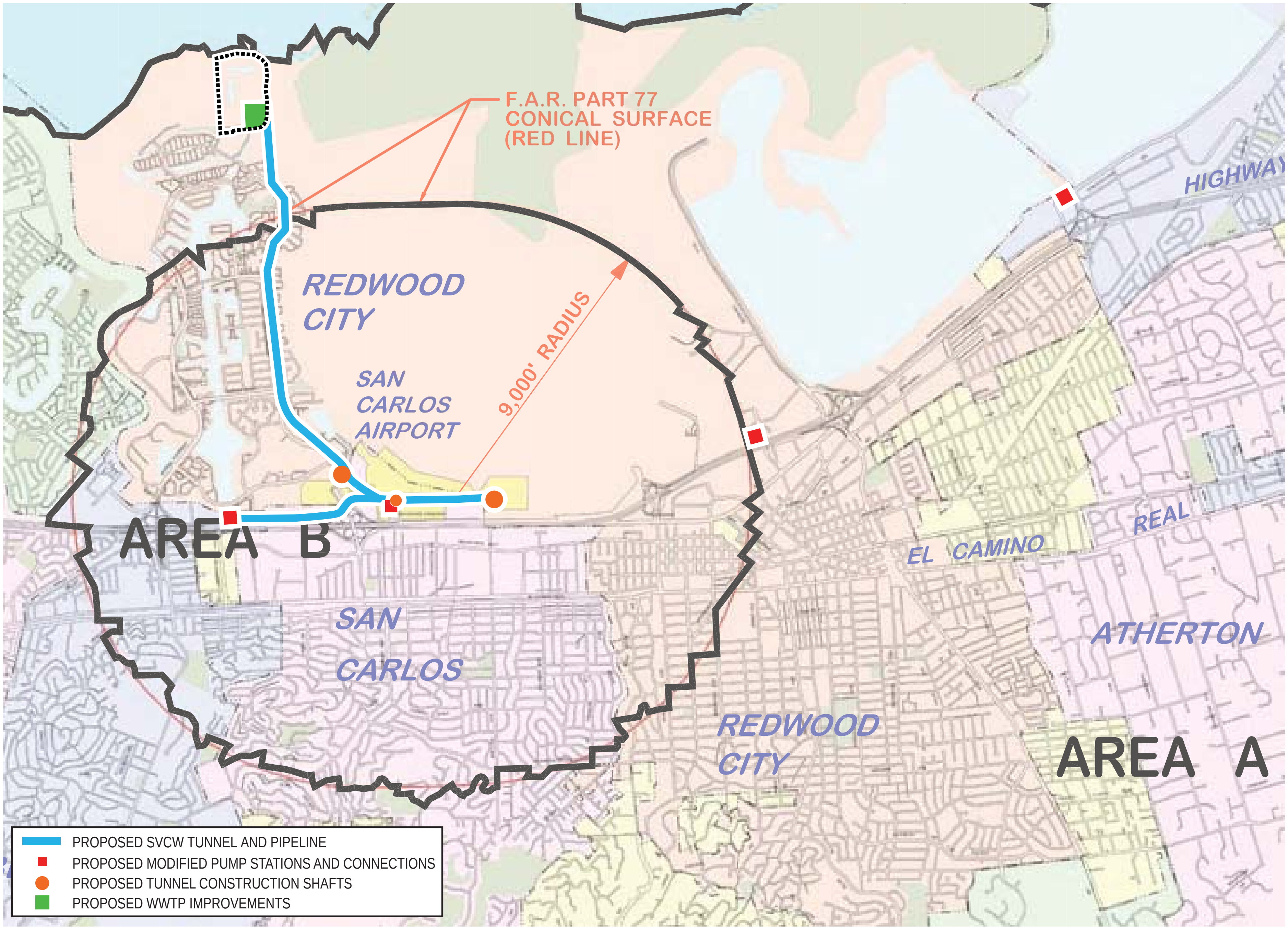
The WWTP site has a General Plan designation of *Public Facility* and is zoned *Tidal Plain.* The *Public Facility* designation encompasses government, civic, cultural, health, and infrastructure uses and activities that contribute to and support community needs. SVCW is a joint powers authority, a public agency, formed for the purpose of providing public wastewater treatment services to its individual Member Agencies, including the City of Redwood City. Pursuant to Article 20, TP (Tidal Plain) District, Section 20.4 of the Redwood City Zoning Code, conditionally permitted uses include 1) public uses; and 2) public sewage disposal plants. SVCW is a joint powers authority, duly authorized under the Joint Exercise of Powers Act (Governmentt. Code Sections 6509, et. seq.) that operates a public sewage disposal plant and related transmission facilities pursuant to the common powers of its Member Agencies (i.e., the Cities of Redwood City, San Carlos, Belmont and the West Bay Sanitary District).

The Front of the Plant area, currently occupied by 10-acre and 5-acre ornamental ponds, where the majority of the proposed Project components are located has a General Plan designation of *Open Space* and is zoned *Redwood Shores Bayfront Specific Plan.*



PROJECT COMPONENTS LOCATED IN THE SAN CARLOS AIRPORT SAFETY ZONES

FIGURE 4.11-1



SAN CARLOS AIRPORT INFLUENCE ZONES

FIGURE 4.11-2

4.11.3 Land Use Impacts

4.11.3.1 *Thresholds of Significance*

For the purposes of this EIR, a land use impact is considered significant if the Project would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan or natural community conservation plan;
- 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;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract; or
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).

4.11.3.2 *Impacts to an Established Community*

The proposed upgraded or repurposed pump stations would be located in the cities of Redwood City, San Carlos, Belmont and Menlo Park at the sites of the existing pump stations, and pipeline replacement would occur along the same alignment as the existing pipeline. The proposed replacement of the pump stations would occur on the same sites as the existing pump stations and would provide the same function as the existing pump stations. The proposed tunnel construction shafts would be located in the City of San Carlos along the Redwood Shores Parkway. The civil improvements proposed for the Front of the Plant facility in Redwood Shores would be constructed within the existing WWTP site boundaries. The proposed improvements to the Front of the Plant area would involve development of WWTP related infrastructure on an area that currently acts as vacant buffer land between the WWTP and the Redwood Shores residential neighborhood. While the Project would develop some of these lands that act as a buffer, the proposed equipment and facilities would not intrude upon or substantially impact the nearby residential neighborhood, as there will still be adequate physical buffer and separation between the proposed facilities and residential uses. The air quality and noise impacts of these facilities upon residential areas are discussed in *Sections 4.3* and *4.13*, respectively, of this EIR.

The Project does not propose to remove any residential units or introduce any new incompatible land uses to the sites (in this context, the improvements to the Front of Plant are considered an expansion of that facility and not a new land use replacing the ornamental ponds). The Project does not propose to construct new infrastructure that would physically divide the community, as the new pipeline will be at depth, with no impacts to land uses at the surface. Based on these conditions, the proposed Project does not include any new structures or features that would divide existing communities within the Project area, and therefore, would have no impact on established communities.

4.11.3.3 *Consistency with Applicable Land Use Plan, Policy, or Regulation*

As discussed above in *Section 4.11.1 Regulatory Setting,* the San Carlos ALUP establishes two influence zones around San Carlos Airport, Area A and Area B. The Airport Access Shaft site, Bair Island Inlet Structure, San Carlos Pump Station, Belmont Pump Station and majority of the Gravity Pipeline alignment are located inside the boundaries of Area B influence zone of the airport. The WWTP, Redwood City Pump Station, Menlo Park Pump Station, and remainder of the Gravity Pipeline alignment is within Area A as defined by the ALUP (C/CAG ALUC 2004) (see Figure 4.11-2). These components of the proposed Project would not require formal review by the ALUC because they do not involve or require a land use policy action (e.g., General Plan amendment, rezoning, specific plan amendment, etc.) within the Area A and B influence zone.

The proposed Project would be consistent with the ALUP Safety Zones. The San Carlos Pump Station, Airport Access Shaft site and Bair Island Inlet Structure are located within Safety Zone 2 and the Belmont Pump Station and Redwood City Pump Station are located within Airport Safety Zone 6. According to the Safety Compatibility Criteria of the San Carlos Airport Land Use Compatibility Plan, water treatment facilities are conditionally compatible in Safety Zones 2 and 6. While operation of the proposed Project would not result in the placement of any permanent objects within FAA regulated airspace, construction of the Airport Access Shaft and the RLS at the WWTP facility would likely require a crane and other construction equipment that may require temporary extension into the airspace. SVCW would be required to obtain necessary approvals from the airport and/or FAA for any anticipated encroachments into the airspace, as discussed in *Section 4.1* and *Section 4.9.*

The proposed Project is located within the jurisdictions of Belmont, San Carlos, Redwood City and Menlo Park. The proposed pump stations and pipeline alignment would not require General Plan or zoning amendments as part of the Project. The repurposed facilities would not conflict with any of the land use designations and are consistent with the General Plan land use policies of each jurisdiction. For these reasons, the proposed Project would not conflict with the Belmont, San Carlos, Redwood City and Menlo Park General Plans or zoning ordinances. While the pump station at San Carlos would be repurposed as an Odor Control Facility, the Project would not result in land use changes or impacts to adjacent land uses.

The Front of the Plant area, currently occupied by 10-acre and 5-acre ornamental ponds, where the majority of the proposed Project components are located has a General Plan designation of Open Space and is zoned Redwood Shores Bayfront Specific Plan. The Project components proposed to be built at the Front of the Plant area are not allowable uses under the current Zoning and General Plan designation. As stated above in *Section 4.11.1.3*, SVCW as a JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of intergovernmental immunity. Since the Project intends to build the Project components in this area, SVCW intends to comply with the substantive requirements of the General Plan and Zoning designations, while not formally obtaining a General Plan Amendment and rezoning from the City of Redwood City, which is a Member Agency of the SVCW JPA.

As stated above, the Front of the Plant area including the ornamental ponds was historically categorized as a *Buffer Property* by the Redwood Shores Bayfront Specific Plan. This was intended to provide distance between the WWTP and residences, and to protect the WWTP from future residential development locating near the Plant and creating land use compatibility problems. Over the past ten years, this area has been primarily used for dust control by SVCW. Although the 10-acre ornamental pond that serves as a buffer would be lost due to proposed Project improvements, given the nature of the proposed improvements in this area, along with the distance and separation between the WWTP and the residential areas in Redwood Shores, development of WWTP equipment within this area would not present a significant land use compatibility impact. The analysis of the Project's operational impacts (noise, air quality, etc.) in this EIR documents that no significant unavoidable impacts would result despite the loss of the 10-acre ornamental pond as a buffer area and therefore, the Project, would not result in a significant land use impact.

4.11.3.4 *Habitat Conservation Plans and Natural Community Conservation Plan*

There are currently no locally- or State-established habitat or natural community conservation plans applicable to the Project area. Therefore, the proposed Project would not conflict with any applicable habitat conservation plan or natural community conservation plan (CDFW 2016).

4.11.4 Conclusion

As proposed, the Project is in conformance with the General Plan and compatible with the surrounding land uses and would not result in significant land use compatibility impacts. The Project would have no adverse impact on agricultural or forest land or agricultural or timber activities and would have a less than significant impact on population and housing. Therefore, the Project will have a less than significant land use impact. **[Less Than Significant Impact]**

4.12 MINERAL RESOURCES

4.12.1 Regulatory Overview

4.12.1.1 *Federal*

There are no applicable federal regulations related to mineral resources that would apply to this Project.

4.12.1.2 *State and Regional*

Surface Mining and Reclamation Act

Surface mining in California is regulated through the Surface Mining and Reclamation Act (SMARA), a state law adopted in 1975 to address the dual goals of protecting the state's need for a continuing supply of mineral resources, while protecting public and environmental health. SMARA is administered jointly at the state level by the Department of Conservation's Office of Mine Reclamation and the State Mining and Geology Board. SMARA mandates that land be reclaimed after mining has ceased. At the local level, local agencies adopt ordinances for land use permitting and reclamation procedures, review permit applications and reclamation plans, and annually inspect mining operations for compliance. The Project alignment is not located within an area used for mineral extraction; therefore, this Act does not apply to the Project.

4.12.1.3 *Local*

The cities of Redwood City, San Carlos, Belmont, and Menlo Park General Plans do no identify any mineral resources within their jurisdictions; therefore, there are no applicable plans or policies relating to mineral resources.

4.12.2 Existing Conditions

The proposed Project is not located within an area used for mineral extraction.

4.12.3 Mineral Resources Impacts

4.12.3.1 *Thresholds of Significance*

For the purposes of this EIR, a mineral resource impact is considered significant if the Project would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state; or
- Result in the loss of availability of locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

4.12.3.2 *Impacts to Mineral Resources*

As mentioned above in *Section 4.12.2*, there are no known mineral resources located within or adjacent to the existing Project components. The cities of Redwood City, San Carlos, Belmont, and Menlo Park General Plans do not identify mineral resources within their jurisdictions and there are no applicable policies in the General Plans related to mineral resources. The proposed Project, therefore, would not contribute to the loss of availability of a known mineral resource or a locally-important mineral resource recovery site.

4.12.4 Conclusion

Implementation of the proposed Project would not result in adverse effects to mineral resources. **[No Impact]**

4.13 NOISE AND VIBRATION

The following discussion is based, in part, on the Noise and Vibration Assessment report prepared by *Illingworth & Rodkin, Inc.* in November 2016 <u>and the report on Results of Noise and Vibration Monitoring of Heavy Trucks prepared by *Illingworth & Rodkin, Inc.* in February 2017</u>. The report<u>s</u> ~~is~~ <u>are</u> attached as Appendix G <u>and Appendix I of this IFEIR respectively.</u>

4.13.1 <u>Regulatory Overview</u>

4.13.1.1 *Federal and State*

There are no applicable federal and state regulations related to noise that would apply to this Project.

4.13.1.2 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

The City of Redwood City Municipal Code

Chapter 24 of the Redwood City Municipal Code (the Noise Ordinance) sets allowable noise limits for different types of receiving land uses. The noise levels allowed by the Noise Ordinance depend primarily on the background noise level in the area and the zone district. Section 24.32 of the Noise Ordinance prohibits, without prior authorization, noise above ambient levels from construction and other activities between the hours of 8:00 p.m. and 7:00 a.m. weekdays, or at any time on Saturdays, Sundays, and holidays. During these periods, no noise above the local ambient level in residential districts shall be generated by construction work or activities within 500 feet of any residential neighborhood in or near residential districts. In addition, Section 24.31 of the Noise Ordinance prohibits, without prior authorization, noise levels from exceeding 110 dBA for any item of machinery, equipment, or device used during construction measured at any point within a residential district of the City and outside of the plane of said property.

Redwood City does not have any established vibration criteria or vibration limitations.

The City of Belmont Municipal Code

The City of Belmont Municipal Code (Chapter 15, Article 8, Section 15-102-c) establishes the following limits that cannot be exceeded by all sources of sound emitted and measured at any non-residential building: “Nighttime hours” – 55 dBA; “Daytime hours” – 65 dBA (where daytime is defined to be the period from 8:00 a.m. to sunset, Monday through Friday; and 10:00 a.m. to sunset, Saturday, Sunday and Holidays; and, nighttime means the period outside the hours of “daytime” as herein defined). Any source of sound, including operational or construction, in excess of the sound level limits shall constitute a noise disturbance. For purposes of determining sound levels from any source of sound, sound level measurements shall be made at a point on the receiving property nearest where the sound source at issue generates the highest sound level. The code further specifies measurement methods.

The City of Belmont Municipal Code (Chapter 15, Article 8, Section 15-102-f) exempts construction activities from quantitative noise limits but establishes allowable hours of construction: “All construction and related activities, which require a city permit, including the use of powered equipment in connection with such activities, shall be allowed only during the hours of 8:00 a.m. to 5:00 p.m. Monday through Friday, and 10:00 a.m. to 5:00 p.m. on Saturdays. No construction activity or related activities shall be allowed outside of the aforementioned hours or on Sundays and holidays. All gasoline-powered equipment shall be equipped with an operating muffler or baffling system as originally provided by the manufacturer, and no modification to these systems is permitted.”

The City of San Carlos Municipal Code

The City of San Carlos Municipal Code (Chapter 18.21.050) establishes the following exterior noise limits as measured from a residential property line: “Nighttime hours” – 45 dBA L_{50} and 60 dBA L_{max}; “Daytime hours” – 55 dBA L50 and 70 dBA Lmax (where daytime is defined to be the period from 7:00 a.m. to 10:00 p.m., and nighttime is defined as the period from 10:00 p.m. to 7:00 a.m.). The City of San Carlos Municipal Code (Chapter 9.30.070) exempts construction activities from the above quantitative noise limits during the allowable hours of construction.

Construction activities are limited to the hours of 8:00 a.m. to 6:00 p.m, Monday through Friday and 9:00 a.m. to 5:00 p.m on Saturdays and Sundays. Construction is prohibited without prior authorization on the following holidays: New Year’s Day, Martin Luther King Jr. Day, President’s Day, Memorial Day, 4th of July, Labor Day, Veteran’s Day, Thanksgiving Day and Christmas Day. All gasoline-powered construction equipment shall be equipped with an operating muffler or baffling system as originally provided by the manufacturer, and no modification to these systems is permitted.

The Building Official shall have the authority to grant exceptions to construction noise-related activities. Public works and public utilities activities are exempt from the provisions of the San Carlos Noise Ordinance. Such activities, however, are limited to the hours described above.

The City of San Carlos does have a vibration ordinance, but all vibration activities related to construction and demolition activities are exempt from the provisions of the ordinance; therefore, the Project would not be subject to this ordinance.

The City of Menlo Park Municipal Code

The City of Menlo Park Municipal Code (Chapter 8.06.030) establishes the following noise regulations for all sources of sound measured from any residential property: "Nighttime hours" – 50 dBA and "Daytime hours" – 60 dBA.

The City of Menlo Park Municipal Code (Chapter 8.06.040) states that the following are exceptions to the noise limitations set forth in Chapter 8.06.030. These activities may occur at other times provided they meet the noise levels set forth in Chapter 8.06.030.

a) Construction activities between the hours of between 8:00 a.m. and 6:00 p.m. Monday through Friday. Residents/property owners personally undertaking construction activities to maintain or improve their property on Saturdays, Sundays, and holidays between the hours of 9:00 a.m. and 5:00 p.m. A sign, containing the permitted hours of construction activities exceeding the noise limits set forth in Section 8.06.030, shall be posted at all entrances to a construction site upon the commencement of construction, for the purpose of informing contractors and subcontractors and all other persons at the construction site of the basic requirements of this chapter. The sign shall be at least five (5) feet above ground level and shall consist of a white background with black letters. Notwithstanding any other provision set forth above, all powered equipment shall comply with the limits set forth in Section 8.06.040(b).

b) Powered equipment used on a temporary, occasional or infrequent basis operated between the hours of 8:00 a.m. and 6:00 p.m. Monday through Friday. No piece of equipment shall generate noise in excess of eighty-five (85) dBA at fifty (50) feet. Residents/property owners personally using powered equipment to maintain their property and/or residence on Saturdays, Sundays or holidays between the hours of 9:00 a.m. and 5:00 p.m. No piece of equipment shall generate noise in excess of eighty-five (85) dBA at fifty (50) feet;

c) Deliveries to other commercial and industrial businesses between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and 9:00 a.m. to 5:00 p.m. Saturdays, Sundays and holidays.

The City of Menlo Park Municipal Code (Chapter 8.06.050) states that the following noise disturbances shall be exempt from the noise limitations set forth in Section 8.06.030:

d) City and State Projects. City and state construction work performed by the city and/or the state, their respective agents or contractors, for city and/or state maintenance, repair or construction projects which cannot be performed from 7:00 a.m. to 6:00 p.m. Monday through Friday.

4.13.2 Environmental Setting

4.13.2.1 *Noise*

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear.

Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 4.13-1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 4.13-2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration. Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 p.m. - 10:00 p.m.) and a 10 dB addition to nocturnal (10:00 p.m. - 7:00 a.m.) noise levels. The Day/Night Average Sound Level (L_{dn}) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

Table 4.13-1:
Definition of Acoustical Terms

Term	Definition
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m.to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Table 4.13-2: Typical Noise Levels in the Environment		
Common Outdoor Activities	**Noise Level (dBA)**	**Common Indoor Activities**
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	Threshold of human hearing
Source: Technical Noise Supplement (TeNS), Caltrans, November 2009		

4.13.2.2 *Vibration*

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints.

The annoyance levels shown in Table 4.13-3 and 4.13-3A should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. The rattling sound of windows, doors, or stacked dishes can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

Table 4.13-3:
Reaction of People and Damage to Buildings for Continuous Vibration Level

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.02	Barely perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Source: Transportation- and Construction-Induced Vibration Guidance Manual, California Department of Transportation, June 2004.

Table 4.13-3A: Reactions of People to Transient Vibration Levels	
Maximum PPV (in/sec)	**Human Reaction**
0.04	Barely perceptible
0.25	Distinctly perceptible
0.9	Strongly perceptible
2.0	Severe - Vibrations considered unpleasant
Source: Transportation- and Construction-Induced Vibration Guidance Manual, California Department of Transportation, June 2004.	

4.13.2.3 *Existing Noise Environment*

The primary sources of noise along the Project alignment include vehicular traffic along Redwood Shores Parkway, U.S. 101, and State Route 84 (SR 84). Traffic on local streets, overhead aircraft from San Carlos Airport and San Francisco International Airport, and industrial sources along the Project alignment also contribute to the noise environment.

4.13.3 Noise and Vibration Impacts

The discussion of Project impacts follows the noise- and vibration-related CEQA checklist questions, as summarized below. The primary noise issues associated with the proposed Project would result from temporary demolition and construction activities along the pipeline alignment and at the SVCW WWTP, the Airport Access Shaft location, the Belmont Pump Station, the San Carlos Drop Shaft, the Redwood City Pump Station, and the Menlo Park Pump Station; and permanent new and replacement equipment at each facility. Construction activities would also have the potential to result in excessive ground-borne vibration levels.

4.13.3.1 *Thresholds of Significance*

For the purposes of this EIR, a noise and vibration impact is considered significant if the Project would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

4.13.3.2 *Methodology*

Illingworth & Rodkin, Inc. performed ~~four~~ five noise monitoring surveys in 2012, 2013, 2014~~, and~~ 2016, and 2017 to quantify ambient noise and vibration levels along the proposed Project alignment. In 2012, a noise monitoring survey was completed during preparation for a noise and vibration assessment for the 48-inch force main project. Noise levels were measured on Thursday, January 5, 2012 and Tuesday, January 17, 2012. Additional noise measurements were made on Tuesday, November 5, 2013 and Thursday, November 7, 2013 at the Menlo Park Pump Station and on Tuesday, January 28, 2014 at the San Carlos Pump Station. These results were supplemented with additional measurements made specifically for the proposed Project, which started on Thursday, June 2, 2016 and concluded on Monday, June 6, 2016. To assess the noise and vibration concerns raised by the residents received during the comment period of the DEIR, a noise and monitoring survey was conducted on Thursday, January 26, 2017 between 9:50 a.m. and 2:00 p.m.

This 2017 noise and vibration monitoring survey was a controlled study that included five heavy-duty trucks travelling at speeds of 25 mph. Testing conditions of loaded and unloaded heavy trucks traveling in the right and left lanes were measured as part of this study, and noise and vibration measurements were made at two locations along Redwood Shores Parkway. The first location was outside of 587 Martinique Drive at the setback of the residential structure, which was approximately 30 feet from the centerline of the nearest northbound lane. The second location was positioned on the dead-end curb adjacent to 1 Avocet Drive. This measurement was taken approximately 75 feet from the centerline of the nearest southbound lane. Figure 4.13-3A shows the measurement locations along Redwood Shores Parkway. At both locations, continuous one (1)-minute noise data were made throughout the measurement period, while isolated vibration data was collected during each individual vehicle pass-by.

Ambient conditions were measured at both locations when no vehicles were driving by, no persons were affecting the measurements, no airplanes were flying overhead, and no landscaping equipment was being operated. The ambient vibration levels at both the locations was 0.003 in/sec PPV. Table 4.13-4A summarizes all noise and vibration measurements made during the controlled heavy truck pass-bys. The first testing condition consisted of the five heavy trucks traveling in the right through lane under loaded conditions. Two pass-bys of each of the five trucks were measured at each location when trucks were under these conditions. The second condition, which consisted of one pass-by measurement of each truck at each location, consisted of the five heavy trucks traveling in the left lane under loaded conditions. The third and fourth conditions, which were both tested once at each location for each truck, consisted of unloaded trucks traveling in the right and left through lanes, respectively.

In addition to the five heavy trucks measured under controlled conditions that are summarized in Table 4.13-4A, other vehicle pass-bys were also measured. At each location, a heavy truck driving faster than the controlled 25 mph was measured, as well as medium trucks, light vehicles, city buses, and a fire truck. The range of vibration and noise results for each vehicle type tested are summarized in Table 4.13-4B.

The 2016 noise monitoring survey, which included two long-term (LT) noise measurements and nine short-term (ST) noise measurements, began on Thursday, June 2, 2016 and concluded on Monday, June 6, 2016. The locations of the long- and short-term noise measurements were selected to quantify baseline noise levels at representative sensitive receptor locations along the Project alignment and are shown in Figure 4.13-1. Sensitive receptors were identified through a review of aerial photos and during field reconnaissance. The primary sensitive receptors in the Project vicinity are residential land uses in Redwood Shores and the Fairfield Inn and Suites hotel located along the U.S. 101 corridor near the San Carlos Pump Station.

Long-term noise measurement, LT-1, was made in Mariner Park, approximately 220 feet southeast of the centerline of Tiller Lane (See Figure 4.13-1). LT-1 was placed in a tree near the shared property line of the nearby residences. Hourly average noise levels at this location typically ranged from 45 to 57 dBA L_{eq} during the daytime hours, and from 36 to 53 dBA L_{eq} during nighttime hours. The day-night average noise level from Thursday, June 2, 2016 through Monday, June 6, 2016 ranged from 54 to 57 dBA L_{dn}. LT-2 was positioned in a tree between the commercial parking lot along Radio Road and the single-family residences along Rockport Avenue. LT-2 was approximately 180 feet east of the centerline of Rockport Avenue. Hourly average noise levels at this location typically ranged from 48 to 61 dBA L_{eq} during the day, and from 35 to 53 dBA L_{eq} at night. The day-night average noise level from Thursday, June 2, 2016 through Monday, June 6, 2016 ranged from 55 to 57 dBA L_{dn}. The daily trends in noise levels at LT-1 and LT-2 are shown in Figures 4 through 13 of Noise Technical Report (attached as Appendix G).

Measurements at locations ST-1 through ST-4 were made on Thursday, June 2, 2016, and measurements at locations ST-5 through ST-9 were made on Monday, June 6, 2016. Short-term noise measurements were made adjacent to sensitive uses bordering the proposed Project alignment for periods of ten minutes; measurements were made during the mid-day hours between 11:00 a.m. and 4:00 p.m. Figure 4.13-1 shows the Project vicinity and the noise monitoring locations. Data collected during these measurements are summarized in Table 4.13-4.

Measurements at ST-1 were taken at a dog park along Radio Road near SVCW WWTP at the north end of the Project alignment as shown in Figure 4.13-1. Opposite Radio Road from ST-1 was a commercial office building. The ten-minute average noise level at ST-1 was 56 dBA L_{eq} (Table 4.13.-4). Measurement locations ST-2, ST-3, and ST-4 were made in residential neighborhoods near the Steinberger Slough between Shell Parkway and the WWTP. While these receptors were shielded from traffic along Redwood Shores Parkway by the intervening residences, each short-term measurement represented the local neighborhood traffic noise of the area. The ten-minute average noise levels at ST-2, ST-3, and ST-4 were 54, 51, and 47 dBA L_{eq}, respectively. At each of these short-term measurement locations, noise levels due to overhead aircraft was observed to range between 64 and 67 dBA L_{max} during the ten-minute measurements.

Short-term measurements ST-5 and ST-6 were both made along the U.S. 101 corridor in the vicinities of the San Carlos Booster Pump Station and the Belmont Pump Station, respectively. Location ST-5 was along a walking path southeast of the MarkLogic Corporation office building.

ST-5 was located approximately 150 feet northeast of the walking trail parking lot and approximately 265 feet northeast of the centerline of the nearest through lane along northbound U.S. 101. The average mid-day noise level was 64 dBA L_{eq}. ST-6 was made along the walking trail adjacent to the Jameco Electronics office building, approximately 220 feet northeast of the centerline of Skyway Road and approximately 265 feet northeast of the centerline of the nearest through lane along northbound U.S. 101. The ten-minute average noise level at ST-6 was 63 dBA L_{eq}.

The final three short-term measurements were taken along the Redwood Shores Parkway corridor between the existing SVCW WWTP and U.S. 101. ST-7 was made along Redwood Shores Parkway near the proposed staging area for the Airport Access Shaft. The Adobe Systems office building was located to the north of ST-7, and ST-7 was positioned approximately 110 feet northwest of the centerline of Redwood Shores Parkway. The ten-minute average noise level at this location was 64 dBA L_{eq}. ST-8 was made at the northwest corner of Redwood Shores Parkway/Marlin Drive intersection, and the noise measurement at this location was dominated by traffic noise along Redwood Shores Parkway. ST-8 was approximately 50 feet from the centerline of Redwood Shores Parkway, and the ten-minute average noise level at this location was 62 dBA L_{eq}. To better represent the residential noise environment a block from Redwood Shores Parkway, ST-9 was made at the southeast corner of the Dory Lane/Marlin Drive intersection. ST-9 was approximately 25 feet from the centerlines of both roadways, and the ten-minute average noise level at ST-9 was 57 dBA L_{eq}.

One of the measurements in 2014 (ST-10) was taken to quantify ambient noise levels near the Belmont Pump Station and along the pipeline that extended along Shoreway Road from the Belmont Pump Station to the Holly Street/U.S. 101 interchange. Nearby land uses include office/R&D, public storage, and a recycling facility. ST-10 was approximately 160 feet from the edge of U.S. 101 at the approximate setback of office buildings along Shoreway Road. The average noise level during the early afternoon measurement (taken between 2:00 p.m. and 2:10 p.m.) was 66 dBA L_{eq}. Traffic noise from U.S. 101 was the primary contributor to the noise environment, and levels ranged from 59 to 76 dBA L_{eq}. The second measurement location (ST-11), taken at 1:20 p.m., was made behind the Fairfield Inn and Suites hotel, at 555 Skyway Road in San Carlos, on the east side, oriented away from U.S. 101. Noise levels at ST-11 were shielded from U.S. 101 traffic noise by the hotel building. This measurement location was the same location used during the 2012 measurements, as discussed below, and the average mid-day noise level was re-confirmed to be 56 dBA L_{eq}. There was no aircraft activity during these measurements. The 2014 measurement locations are shown in Figure 4.13-1. Data collected during these measurements are summarized in Table 4.13-4.

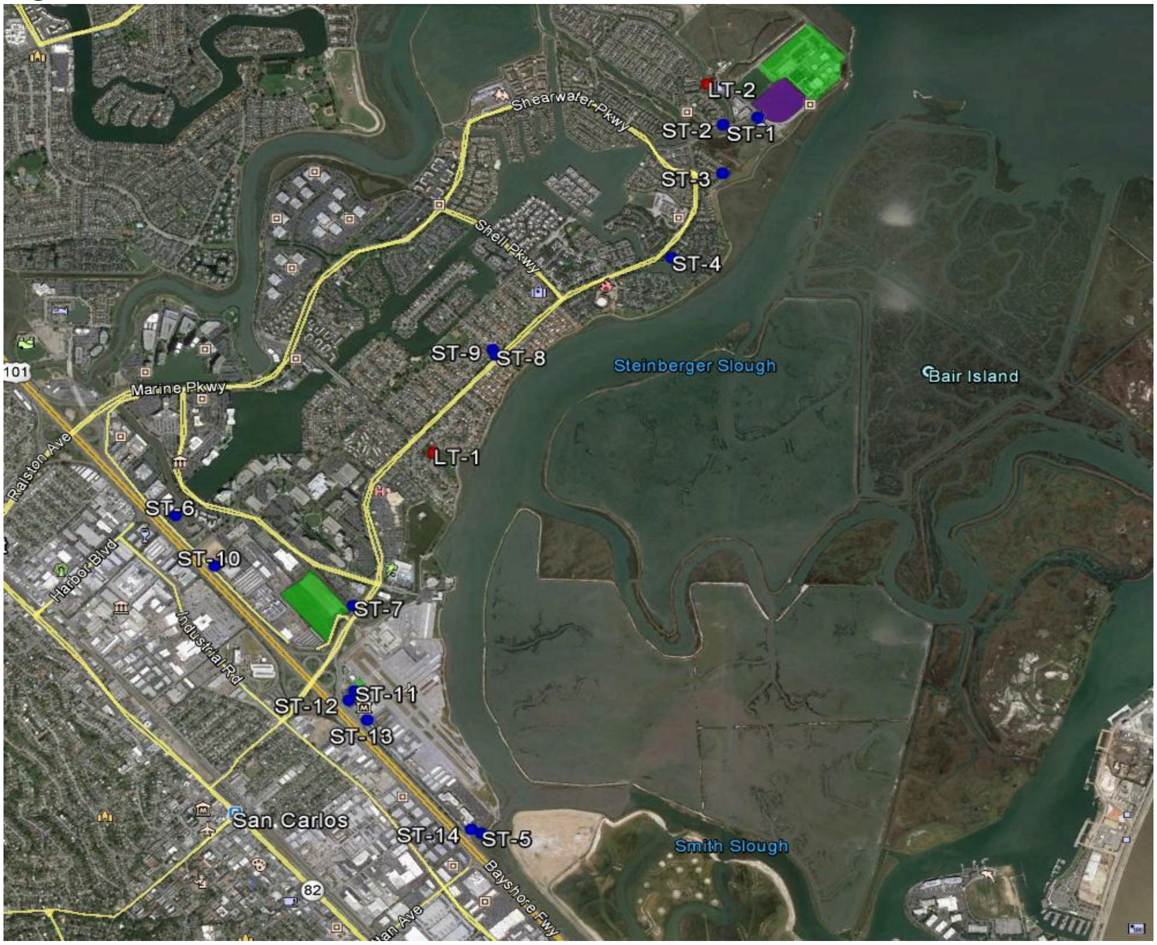
The 2012 noise monitoring survey included 12 short-term (ST) noise measurements selected to quantify baseline noise levels at representative sensitive receptor locations along the 48-inch force main project alignment. Measurement sites ST-11 and ST-12 are near San Carlos Pump Station. As stated above, ST-11 was made at the rear of the Fairfield Inn and Suites hotel, away from U.S. 101 and adjacent to the San Carlos Pump Station. The average mid-day noise level at ST-11 was 56 dBA L_{eq}. During the measurement, noise levels ranged from 53 to 63 dBA L_{eq}. ST-12 was in front of the Fairfield Inn and Suites hotel on the west side, oriented towards U.S. 101 in the pool area. The average noise level at ST-12 was 64 dBA L_{eq}. Noise levels ranged from 60 to 75 dBA L_{eq}. Measurement location ST-13 was at the Hiller Aviation Museum, located at 601 Skyway Road in San Carlos. The noise environment at this location was similar to the pool at the Fairfield Inn. The average noise level at ST-13 was 65 dBA L_{eq}, and noise levels during the measurement ranged from 61 to 79 dBA L_{eq}.

Measurement location ST-14 was made at the turnaround at the south end of Skyway Road, adjacent to Pulgas Creek. The measurement is used with others to characterize levels along the U.S. 101 corridor. Vehicular traffic on U.S. 101 was again the dominant source of noise at this location. The average mid-day noise level was 66 dBA L_{eq}. Noise levels ranged from 63 to 73 dBA L_{eq} during the measurement.

Measurement sites ST-15 and ST-l6 are near Redwood City Pump Station. Measurement location ST-15 was made in front of the Maple Street Homeless Shelter on Maple Street in Redwood City. The average noise level during the early afternoon measurement was 56 dBA L_{eq}. Traffic noise from U.S. 101 was the primary contributor to the noise environment, and levels ranged from 52 to 72 dBA L_{eq}. Measurement location ST-16 was in the Docktown Marina area, at end of Marina Road, near the houseboats moored on Redwood Creek. These houseboats are residences. Noise sources included traffic from U.S. 101 and typical sounds in a marina, including rigging and anchoring, clanking, and boat maintenance activities. The average noise level during the measurement was 59 dBA L_{eq}. Noise levels ranged from 56 to 63 dBA L_{eq}. Measurement location ST-17 was also in the Docktown Marina area, between the Peninsula Yacht Club and the harbor office. During the measurement, there was general aviation aircraft activity overhead. The average noise level was 56 dBA L_{eq}. Noise levels ranged from 46 to 77 dBA L_{eq} during the measurement period.

The noise monitoring survey conducted in 2013 included three short-term noise measurements selected to quantify baseline ambient noise levels in the vicinity of Menlo Park Pump Station. The measurements were made between 11:50 a.m. and 1:20 p.m. on Tuesday, November 5, 2013 and Thursday, November 7, 2013 in ten-minute intervals. The selected noise monitoring locations are shown in Figure 4.13-3. ST-18 was positioned at the rear of the Menlo Park Pump Station, just behind the property's fence line. Exhaust noise and a constant electric buzz dominated this noise measurement. The ten-minute average noise level at ST-18 was 61 dBA $L_{eq(10)}$. Without traffic, the noise levels ranged from 58 to 59 dBA L_{eq}, and with truck traffic, the noise levels ranged from 60 to 62 dBA L_{eq}. ST-19 was made approximately 120 feet to the northeast of the Menlo Park Pump Station building at the entrance to the nearby park. Two consecutive ten-minute average noise measurements were made at ST-19, and these ranged from 53 to 55 dBA $L_{eq(10)}$. ST-20 was made from the front of the Menlo Park Pump Station building, approximately 45 feet from the centerline of Haven Avenue. The ten-minute average noise level at ST-20 was 59 dBA $L_{eq(10)}$. Table 4.13-~~4~~5 summarizes the short-term measurements.

Figure 4.13-1 Noise Measurement Locations near WWTP, BPS and SCPS



Source: Illingworth and Rodkin, November 2016

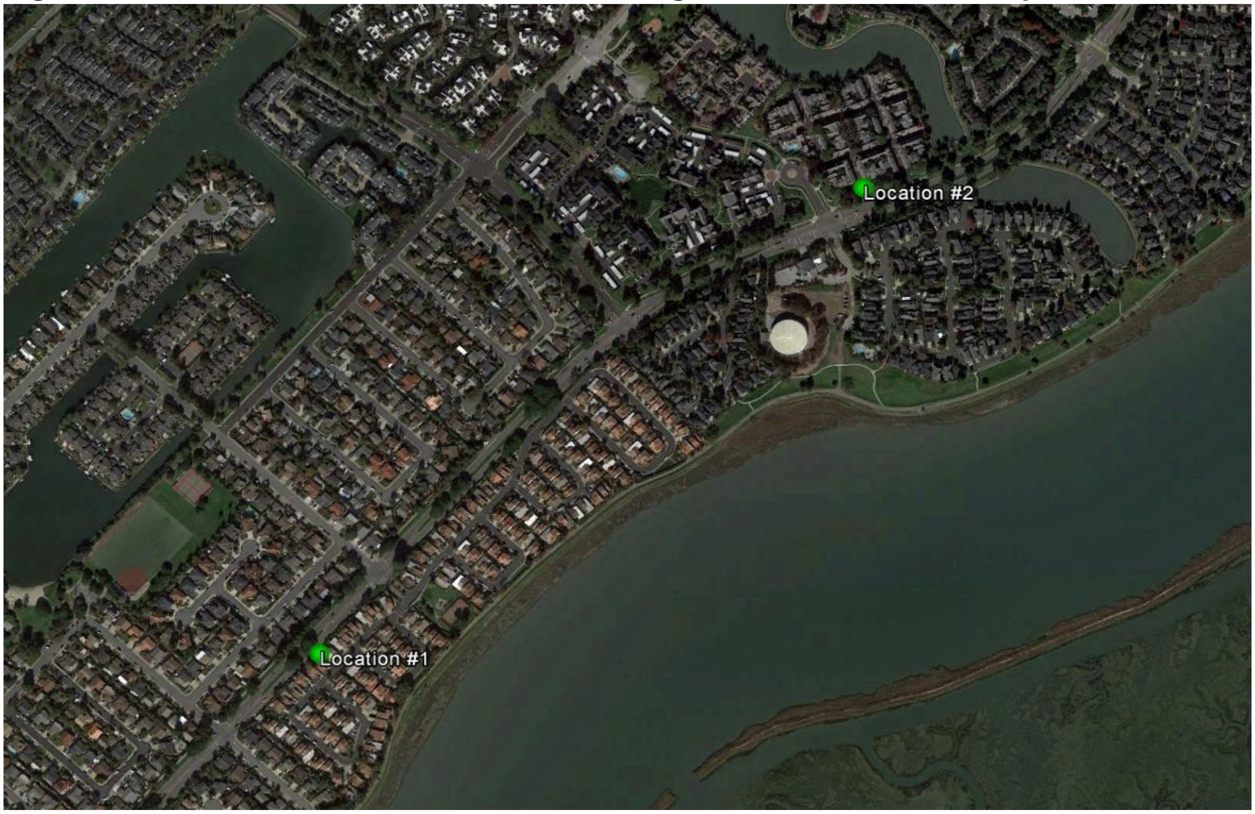
Figure 4.13-2 Noise Measurement Locations near Redwood City Pump Station

Source: Illingworth and Rodkin, November 2016

Figure 4.13-3 Noise Measurement Locations near Menlo Park Pump Station

Source: Illingworth and Rodkin, November 2016

Figure 4.13-3A Measurement Locations along Redwood Shores Parkway



Source: Illingworth and Rodkin, January 2017

Table 4.13-4: Summary of Short-Term Noise Measurements (dBA)						
Noise Measurement Location (Date, Time)	**L_{max}**	**$L_{(1)}$**	**$L_{(10)}$**	**$L_{(50)}$**	**$L_{(90)}$**	**$L_{eq(10)}$**
ST-1: Dog park near existing SVCW WWTP (6/2/2016, 2:50-3:00 PM)	67	66	59	53	51	56
ST-2: Nearest residence to existing SVCW WWTP (6/2/2016, 3:10-3:20 PM)	66	63	57	50	46	54
ST-3: Front yard of 970 Governors Bay Drive (6/2/2016, 3:30 – 3:40 PM)	64	63	55	47	43	51
ST-4: End of Southport Drive and Bay Harbour Drive (6/2/2016, 3:50 – 4:00 PM)	58	55	50	46	43	47
ST-5: End of Skyway Road on walking path (6/6/2016, 12:40 – 12:50 PM)	72	67	66	63	60	64
ST-6: Waling path near BPS (6/6/2016, 1:00 – 1:10 PM)	70	67	64	62	61	63
ST-7: ~110 ft. from centerline of Redwood Shores Parkway near Airport Access Shaft Staging Area (6/6/2016, 1:20 – 1:30 PM)	80	77	64	58	55	64
ST-8: Southwest corner of Redwood Shores Parkway/Marlin Drive intersection (6/6/2016, 1:40-1:50 PM)	75	71	66	60	52	62
ST-9: Southeast corner of Dory Lane/Marlin Drive intersection (6/6/2016, 2:00 – 2:10 PM)	70	68	61	53	48	57
ST-10: Approximate setback of offices along Shoreway Road (1/28/2014, 2:00 – 2:10 PM)	76	73	67	65	62	66
ST-11: Rear (east side) of Fairfield Inn (1/28/2014, 1:20 – 1:30 PM)	70	67	58	55	54	56
ST-12: Front (west side) of Fairfield Inn (1/5/2012, 11:40 – 11:50 AM)	75	72	66	63	60	64
ST-13: Front (west side) of Hiller Aviation Museum (1/5/2012, 11:20 – 11:30 AM)	79	71	66	64	61	65
ST-14: Turn around at the end of Skyway Road (1/5/2012, 11:00 – 11:10 AM)	73	61	68	66	63	66
ST-15: 1580 Maple Street, Maple Street Shelter (1/5/2012, 1:00 – 1:10 PM)	72	68	58	53	50	56
ST-16: End of Marina Road, Docktown Marina (1/17/2012, 1:10 – 1:20 PM)	63	63	61	59	56	59
ST-17: Between Peninsula Yacht Club and harbor office, Docktown Marina (1/17/2012, 1:50 – 2:00 PM)	77	68	54	49	46	56
ST-18: Rear of MPPS at fence line (11/5/2016, 11:50 AM – 12:00 PM)	68	65	62	60	59	61
ST-19: At the south end of nearby park (11/7/2013, 12:50 – 1:00 PM & 1:00 – 1:10 PM)	74	67	54	38	37	53
	59	58	57	54	50	55
ST-20: Front of MPPS, ~45 feet from Haven Avenue (11/7/2013, 1:10 – 1:20 PM)	67	66	63	57	52	59
Source: Illingworth and Rodkin, August 2016.						

Table 4.13-4A:
Summary of Maximum Vibration Levels and Maximum Noise Levels During Heavy Truck Pass-by Events

Truck No.	Event Conditions	Maximum Vibration Levels, in/sec PPV And Maximum Noise Levels, dBA L_{max}			
		Location 1 (30 feet setback)		Location 2 (75 feet setback)	
		PPV, in/sec	L_{max}, dBA	PPV, in/sec	L_{max}, dBA
Truck #1	Loaded in the Right Lane	0.012	75	0.006	67
Truck #2	Loaded in the Right Lane	0.012	77	0.007	68
Truck #3	Loaded in the Right Lane	0.014	75	0.015	60
Truck #4	Loaded in the Right Lane	0.014	78	0.014	66
Truck #5	Loaded in the Right Lane	--[a]		0.009	70
Truck #1	Loaded in the Right Lane	0.026	77	0.010	65
Truck #2	Loaded in the Right Lane	0.014	70	0.025	71
Truck #3	Loaded in the Right Lane	0.015	78	0.006	68
Truck #4	Loaded in the Right Lane	0.019	78	--[a]	
Truck #5	Loaded in the Right Lane	0.013	86	0.010	70
Truck #1	Loaded in the Left Lane	0.014	75	0.020	62
Truck #2	Loaded in the Left Lane	0.011	75	0.021	72
Truck #3	Loaded in the Left Lane	0.012	74	--[a]	
Truck #4	Loaded in the Left Lane	0.014	76	0.009	66
Truck #5	Loaded in the Left Lane	0.018	74	0.016	72
Truck #1	Unloaded in the Right Lane	0.019	75	0.008	66
Truck #2	Unloaded in the Right Lane	0.015	76	0.007	71
Truck #3	Unloaded in the Right Lane	0.024	78	0.017	74
Truck #4	Unloaded in the Right Lane	0.019	76	0.011	71
Truck #5	Unloaded in the Right Lane	0.018	76	0.007	67
Truck #1	Unloaded in the Left Lane	0.019	75	0.026	67
Truck #2	Unloaded in the Left Lane	0.017	76	0.019	70
Truck #3	Unloaded in the Left Lane	0.012	75	--[a]	
Truck #4	Unloaded in the Left Lane	0.031	75	0.026	76
Truck #5	Unloaded in the Left Lane	0.025	72	0.017	74

Notes: [a] Data point was missed.
Source: Illingworth and Rodkin, January 2017.

Table 4.13-4B: Summary of all Maximum Vibration Levels and Maximum Noise Levels				
Vehicle Type	**Maximum Vibration Levels, in/sec PPV And Maximum Noise Levels, dBA L_{max}**			
	Location 1 (30 feet setback)		**Location 2 (75 feet setback)**	
	PPV, in/sec	**L_{max}, dBA**	**PPV, in/sec**	**L_{max}, dBA**
Controlled Heavy Trucks	0.011 to 0.031	70 to 86	0.006 to 0.026	60 to 76
Heavy Trucks traveling faster than 25 mph	0.021	73	0.006	65
Medium Trucks	0.007	75	0.007 to 0.016	59 to 71
Light Vehicles (e.g., sedans, SUVs, pickup trucks)	0.004 to 0.005	72 to 78	0.003 to 0.008	57 to 69
City Buses	--[a]		0.005	62 to 69
Fire Truck	0.015	76	--[a]	
Notes: [a] No vehicles of this type traveled passed this location. Source: Illingworth and Rodkin, January 2017.				

4.13.3.3 *Noise Impacts*

While CEQA does not specifically define what noise level increase is considered substantial, generally in high noise environments, a Project is considered to have a significant impact if the Project would permanently increase existing noise levels by more than 3 dBA (which is the minimum increase generally perceptible by the human ear) or would cause noise levels to exceed established local guidelines. Where the existing noise level is lower, a somewhat higher increase of 5 dBA can occur before the impact is considered significant. Temporary noise increases, such as those resulting from Project construction activities, are treated somewhat differently because the increase is not permanent. In such situations, applicable local noise limits for construction and activity interference thresholds are used to define what constitutes a substantial increase in noise.

Construction Noise in relation to Applicable City Local Limits

The proposed Project alignment would be located within four jurisdictions (Belmont, San Carlos, Redwood City, and Menlo Park), each of which has established noise regulations within their Municipal Codes. The City ordinances generally prohibit construction noise at night and on holidays as discussed in Section 4.13.1 above, but exceptions are made in some cases. The City of Belmont prohibits construction noise on Sundays and holidays. The City of Menlo Park only permits construction noise exceptions on weekdays but allows construction on weekends and holidays if specific noise limitations are satisfied. The City of Redwood City focuses their noise ordinance on residential districts and within 500 feet of a residential district. The City of Redwood City also prohibits construction noise in residential areas on Saturdays and Sundays if such noise would exceed ambient noise levels. The City of Redwood City also has a quantitative noise limit for construction activities. The City of San Carlos prohibits construction on specific holidays.

As noted at the introduction of this section, SVCW, as a Joint Powers Authority, is not subject to the noise regulations or policies of other public agencies, including those of its Member Agencies, under the doctrine of intergovernmental immunity. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, SVCW will consult with local agencies regarding work hours outside the above-described ordinances allowable hours. SVCW will generally follow typical local agency requirements, where feasible. Night time work will be limited to activities that cannot be done during the day due to traffic interruptions, airport interruptions, or to accomplish tie-ins and connections during early morning low sewage flows. SVCW will consult with local agencies and generally follow standard night work protocols, as feasible.

Construction Noise

Project work hours will generally be completed in between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday, except where noted below by specific Project components.

Gravity Pipeline

Work at the Airport Access shaft during the Gravity Pipeline construction phase is expected to be completed in two, ten-hour shifts from Monday through Saturday, with some equipment maintenance occurring outside these shifts. Work at other shafts (RLS, San Carlos, and Bair Island) would generally be completed in 11-hour shifts from 7:00 a.m. to 6:00 p.m., Monday through Friday. As discussed in the construction noise discussion related to ambient conditions below, construction noise levels generated by the Gravity Pipeline Project within the City of Redwood City are not expected to exceed the City's 110 dBA standard applicable private construction activities at the nearest residences to the Project site, and all construction activities would occur within the City's allowable hours for private construction activities.

Nighttime construction is necessary at the Airport Access Shaft. While no residential land uses are in the vicinity of the Project site, the Fairfield Inn and Suites hotel would be considered a sensitive land use. Due to U.S. 101 and Holly Street traffic noise, the existing ambient noise levels at the hotel is 52 dBA Leq during nighttime hours. As discussed in construction noise discussion related to ambient conditions below, construction noise levels at the nearest façade of the hotel to the Airport Access Shaft would be up to 50 dBA Leq during nighttime hours, which would not exceed the nighttime ambient noise level of 52 dBA Leq.

WWTP Improvements

Construction for the WWTP Improvements would generally be completed in 11-hour shifts from 7:00 a.m. to 6:00 p.m., Monday through Friday. When advance approval is provided by SVCW, construction may be extended to include weekends and holidays but be limited to the hours between 9:00 a.m. and 6:00 p.m., unless otherwise approved by SVCW in writing. Additionally, some 24-hour workday requirements or emergency work would likely be required.

Belmont Conveyance System Improvements

All construction activities associated with the Belmont Conveyance System Improvements would be completed in three phases starting in 2019 (after the Gravity Pipeline and RLS are in operation) and continuing through 2024, each occurring during the dry season (April to October). With the

exception of the access/insertion pits located at the Belmont and San Carlos Pump Stations, all pit construction would occur at night, generally between 9:00 p.m. and 6:00 a.m., to avoid disrupting normal daytime traffic patterns. Nighttime traffic operations would take into account the additional noise abatement required by local agencies. Both cured-in-place pipe (CIPP) and sliplining activities would require continuous construction (24-hours a day, seven days a week) for key components of the installations.
The nearest receptors to the Belmont Conveyance System Improvements would be commercial office buildings, which would only be sensitive to noise during daytime hours. Construction activities are not expected to result in exposure of persons to disruptive noise levels.

As stated in the Project Description, access/insertion pits at the San Carlos Pump Station would be constructed during daytime hours only. However, all other pit work would occur at night, and during this work, the Fairfield Inn and Suites hotel would be subjected to noise levels up to 50 dBA Leq. As discussed above, 52 dBA Leq is the nighttime ambient level at this location, and since construction noise would not exceed the ambient conditions, this would be consistent with the City's noise standard.

San Carlos Pump Station Repurposing

The Project description did not provide any special case construction hours for the San Carlos Pump Station Repurposing. Therefore, it is assumed that for this Project component, the contractor shall adhere to the general Project construction hours of between 7:00 a.m. and 7:00 p.m., Monday through Saturday.

Redwood City Pump Station

The Redwood City Pump Station would be constructed over a 24-month period. Tie-ins and the last part of construction would need to be done during low-flow conditions (i.e., generally April to October). Construction activities would occur between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, with the exception of some work, such as electrical switchovers and piping connections completed at night during low flow periods.

Menlo Park Pump Station

Menlo Park Pump Station would be constructed over a 24-month period, with the majority of the construction taking place during the dry weather seasons during those two years. Construction activities at the pump station would occur between the hours of 7:00 a.m. and 6:00 p.m. on weekdays, with the exception of some work such as electrical switchovers and piping connections completed at night.

Construction Noise in relation to Ambient Noise Conditions

Noise impacts from Project construction activities are a function of the level of noise generated by individual pieces of construction equipment, the amount of equipment operating at any given time, the distance and sensitivities of nearby land uses, the presence of noise barriers or other structures that provide acoustical shielding, and the timing and duration of the noise-generating activities. CEQA or local agencies (i.e., City of Belmont, City of San Carlos, City of Redwood City, and the City of Menlo Park) do not define what constitutes a substantial temporary or periodic increase in ambient noise levels. There are no residential land uses in the immediate vicinity of the Airport Access Shaft and staging area, the Belmont Pump Station, the San Carlos Pump Station, the Redwood City Pump Station, or the Menlo Park Pump Station, but along the Gravity Pipeline alignment and in the vicinity of the WWTP there are several residential developments. Additionally, a Fairfield Inn and Suites hotel is located adjacent to the San Carlos Pump Station. The threshold used to define what constitutes a substantial increase in noise at residential and non-residential receptors potentially affected by noise is a noise level in excess of 60 and 70 dBA L_{eq}, respectively, and that exceeds the ambient noise environment by at least 5 dBA L_{eq}, for a period of at least one year. These thresholds assume that interior noise levels within residences and commercial buildings could be maintained at or below 45 dBA L_{eq} with the windows closed to control noise.

Construction noise would primarily consist of the operation of vehicles and equipment during the construction of the Gravity Pipeline, the WWTP Improvements, and the rehabilitations and updates to each pump station. Specific construction activities would include pavement removal, excavation, shoring, pipeline installation via tunneling, backfill operations, the repaving of the portion of the street disturbed by the Project, construction of pump station and wastewater treatment facility buildings. Table 4.13-5 presents the typical range of hourly average noise levels generated by different phases of construction measured at a distance of 50 feet. Hourly average noise levels generated by public works-type projects typically range from 79 to 88 dBA L_{eq}, measured at a distance of 50 feet from the center of a busy construction site.

During construction activities, maximum instantaneous noise levels would vary depending on the specific pieces of equipment operating on site. The typical range of maximum instantaneous noise levels would be 74 to 83 dBA L_{max} from an individual piece of equipment at a distance of 50 feet. Impact and vibratory pile driving would be the exception. Noise levels during impact and vibratory pile driving are calculated to be up to 105 and 101 dBA L_{max}, respectively, at a distance of 50 feet.

Table 4.13-5: Typical Ranges of Exterior Noise Levels at 50 Feet from Construction Sites (dBA L_{eq})								
	Type of Typical Construction Project							
	Domestic Housing		**Office Building, Hotel, Hospital, School, Public Works**		**Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station**		**Public Works Roads & Highways, Sewers, and Trenches**	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

Notes:
I - All pertinent equipment present at site.
II - Minimum required equipment present at site.
These are exterior noise levels at a distance of 50 feet from a construction site assuming different types of construction (e.g. domestic housing, etc.)
Source: United States Environmental Protection Agency, 1973, Legal Compilation on Noise, Vol. 1, p. 2-104.

In addition to the typical range of noise levels shown above, representative sound levels for the most common types of construction equipment and usage factors, contained in the Federal Highway Administration (FHWA) Roadway Construction Noise Model, were used to calculate noise levels related to planned construction activities for the equipment planned to be used at the proposed Project components. The cumulative noise level would assume all pieces of construction equipment operating simultaneously at the site and represents a conservative worst-case prediction of site construction noise levels during each construction phase within each project.

Gravity Pipeline

Equipment lists for the Gravity Pipeline Project were provided for six phases of the Airport Access Shaft, for three phases of the RLS and Flow Splitter Shaft, for three phases of the San Carlos Drop Shaft, and for four phases of the Bair Island Inlet Structure Shaft. At each shaft location, different receptors would be affected by construction noise. The construction noise modeling results for each of these phases at the nearest receptors are summarized in Table 4.13-6, as well as the equipment list provided for the model, the time duration estimated for each phase, and the ambient noise levels measured at the receptors. All distances summarized in the table for each receptor were measured from the active construction zone for each project and these could somewhat vary during different construction phases.

Staging areas, equipment storage, or light use of trucks may be used at other parts of the construction area, but for modeling the worst-case scenario, all distances were estimated at the location of highest concentration of construction activities. The pool area at the Fairfield Inn and Suites hotel was identified as a receptor for construction work occurring at the San Carlos Drop Shaft. Since the pool is located at the front of the hotel, on the opposite façade as the pump station, the pool area would be shielded by the hotel building from most construction activities. Therefore, the noise levels at this receptor in Table 4.13-6 reflect a 15 dBA reduction in construction noise levels from the intervening building.

The results shown in Table 4.13-6 were calculated for each individual construction phase and for any overlapping phases. For instance, during the Shaft Access Way Finish out Work phase for the Airport Access Shaft, a range in noise levels are shown for each receptor. The range reflects this phase alone and when this phase overlaps with the Gravity Pipeline Placement phase. Each overlap scenario that was modeled is shown in the footnotes of the table. Two construction nighttime scenarios were also evaluated. The contours for these scenarios, as well as the correlating daytime contours, are shown in Figures 4.13-4 through 4.13-6. For nighttime activities during the Tunnel Construction phase for the Airport Access Shaft, the difference between the construction activities at night and during the daytime was 0.1 dBA, which is negligible. Figure 4.13-4 shows the contours for both daytime and nighttime scenarios. As shown in the figure, daytime and nighttime levels at the noise-sensitive hotel could reach 55 dBA Leq, which would exceed ambient nighttime conditions by up to 3 dBA. Figures 4.13-5 and 4.13-6 show the daytime and nighttime contours for the Gravity Pipeline Placement phase, respectively. Nighttime activities during the Gravity Pipeline Placement phase for the Airport Access Shaft would result in a 1 dBA reduction from daytime activities. Under the worst-case scenario, which includes the operation of every piece of equipment identified to operate during daytime and nighttime construction, ambient conditions at the Fairfield Inn and Suites hotel would not be exceeded during the day but would potentially be exceeded at night. Daytime and nighttime estimates during both of these phases are summarized in Table 4.13-6.

During construction of the Airport Access Shaft, the offices located north of the Project site would be exposed to construction noise levels in excess of the 70 dBA L_{eq} threshold, and ambient levels would be exceeded by 5 dBA L_{eq} or more at this location for a period of more than one year. This would be a significant impact. The RLS and Flow Splitter Shaft would exceed the residential thresholds at the nearest residence to the WWTP site during the Removal Shaft Phase (from 10/18/2018 to 5/6/2019). This would be a less-than-significant impact since the temporary construction noise level thresholds would be exceeded for less than one year. The temporary construction noise level thresholds would be exceeded at the rear façade of the Fairfield Inn and Suites hotel during all three phases of the San Carlos Drop Shaft (from 9/30/2019 to 4/22/2020 and from 1/7/2021 to 3/8/2021) and at all other adjacent commercial uses during the Shaft Construction phase (from 9/30/2019 to 4/22/2020). However, the cumulative construction time for the San Carlos Drop Shaft is less than one year, which would make this a less-than-significant impact. The Bair Island Inlet Structure Shaft would not result in noise levels exceeding 60 dBA L_{eq} at residential land uses or 70 dBA L_{eq} at commercial land uses and would not increase noise levels by 5 dBA L_{eq} above ambient conditions at any of the surrounding receptors. Since construction at the Airport Access Shaft would exceed temporary construction noise level thresholds at nearby commercial land uses for a period of more than one year, the Gravity Pipeline component of the Project would result in a significant impact.

WWTP Improvements

Tables 4.13-7 through 4.13-9 summarize the construction noise modeling results for the WWTP Civil Improvements, the Headworks, ICP and the RLS and shaft interior projects. Table 4.13-10 shows the results for the Flow Diversion Facilities. Prior to construction of these Project components, a 12-foot permanent or temporary sound wall is to be erected along the site's perimiter. Due to the distance between the construction noise sources and the sound wall at the site's perimeter, the estimated noise levels shown in each of the tables reflects the assumed 5 dBA reduction this wall would provide. Similar to the Gravity Pipeline, when phases within projects overlap, a range of noise levels is provided in the table to reflect the scenario for the specific phase alone and when overlapped with another phase. Each of these overlapping scenarios are identified in the tables.

Impact and vibratory pile driving would occur during construction of the Headworks Facility, the RLS Pump Station and Shaft Interior, and the Flow Diversion Facility. However, in each case, pile driving would only be conducted for a limited number of days. The summary tables show what the noise levels would be during worst-case impact and vibratory pile driving scenarios, as well as worst-case construction noise levels without pile driving, for those phases. One phase during construction of the Flow Diversion Facility is called Pile Driving, and since the only other equipment specified during this phase was a crane, the only scenario shown in the table includes both pieces of equipment. The distances shown in the tables for each receptor were estimated to the location of each individual project. Since the Civil Improvements include lighting and paving activities, the distances were estimated from the property line of the WWTP area.

The contours for the loudest pile driving results from the WWTP Improvements Project are shown in Figure 4.13-7. Pile driving activities are expected to exceed the commercial use threshold of 70 dBA Leq at the nearest office building and to exceed the residential threshold of 60 dBA Leq at the nearest residences within 1,675 feet. However, pile driving activities would occur for a limited number of days in this phase. The contours for the same phase without pile driving are shown in Figure 4.13-8, and at the nearest residence, levels are expected to be 61 dBA Leq, which would exceed the temporary construction threshold by 1 dBA.

Noise levels at the nearest commercial office building would be below the 70 dBA Leq threshold. Construction phases for the WWTP Improvements Project that would exceed the temporary construction noise thresholds of 60 dBA Leq at residential land uses or 70 dBA Leq at commercial land uses and that would increase ambient levels by more than 5 dBA Leq include Phase 1: Stabilization and Grading (from 7/13/2017 to 9/20/2017), the overlap period of Phase 1: Interim Storm Drain System, Phase 1: Utility Crossing, and Phase 1: Lighting (from 11/28/2017 to 12/25/2017), Phase 1: Preliminary Paving on Roadways (from 12/25/2017 to 1/12/2018, which includes the overlap period with Phase 1: Concrete Curb), Phase 2: SD Pump Station (from 5/24/2018 to 6/20/2018), Phase 2: SD System (from 6/20/2019 to 7/24/2019), Phase 3: Final Grading (from 5/25/2021 to 6/3/2021), Phase 3: Full Paving (from 6/9/2021 to 7/22/2021), Phase 3: Concrete Rolled Curb (from 7/22/2021 to 7/29/2021), and Phase 3: Frontage Wall (from 8/2/2021 to 8/20/2021) for the Civil Improvements Project at the nearest office building.

During Headworks construction, pile driving activities, which would last for a period of 30 days or less, would exceed the noise level thresholds at the nearest commercial office building and at the residences with direct line-of-sight to the Project site. Additionally, the nearest residence (located at receptor location ST-2) would be exposed to construction noise levels in excess of the noise level thresholds during the period of overlap of the Screen & Grit and Site Work & Piles phases (from 5/24/2018 to 6/7/2018). Pile driving activities for the RLS and Shaft Interior Project, which would last for a period of 30 days or less, would produce noise levels that would exceed the temporary construction noise level thresholds at the nearest commercial office building and at all residences with direct line-of-sight to the Project site. The nearest residences would also be exposed to construction levels in excess of the 60 dBA Leq threshold during the non-pile driving activities of the Construct Top Slab of Wet Wall and Piping Gallery phase (from 7/1/2020 to 10/31/2020), but considering this phase would be less than one year in duration, this would be a less-than-significant impact. All pile driving activities during the Flow Diversion Facilities construction would produce noise levels that would exceed the temporary construction noise level thresholds at the nearest commercial office building and at the nearest residence with direct line-of-sight to the WWTP.

While the temporary construction noise level thresholds for the entire WWTP Improvements Project would not be exceeded for a period of more than one consecutive year, construction activities would expose surrounding residences to elevated noise levels over an extended period of time. This is conservatively considered a significant impact.

<u>Belmont Conveyance System</u>

The Belmont Conveyance System has been divided into three main parts: San Carlos Pump Station Improvements, Force Main Construction, and Belmont Pump Station Construction. Each of these components included three phases, three phases, and four phases, respectively. Tables 4.13-11 through 4.13-13 show the construction noise modeling results for each phase based on the equipment lists provided. A temporary sound wall is not planned for any of these projects; therefore, the results shown in the tables are unmitigated levels, with the exception of the pool area at the Fairfield Inn and Suites hotel during the San Carlos Pump Station Improvements construction, which assumes a 15 dBA reduction due to the intervening hotel building.

All construction work conducted for the San Carlos Pump Station Improvements Project would be completed prior to construction of the San Carlos Drop Shaft discussed above for the Gravity Pipeline. Therefore, no overlapping construction phases would occur. For this Project, construction would start on 1/1/2019 and would be completed on 9/30/2019, which is less than one year. Despite temporary noise thresholds being exceeded at each of the surrounding hotel and commercial uses for the duration of the Project, the impact would be considered to be less-than-significant.

Construction noise levels shown in Table 4.13-12 for the Force Main Construction would occur at night. While the temporary construction noise thresholds would not be exceeded for a period of more than one year, the City of Belmont nighttime noise standards of 55 dBA Leq would be exceeded. However, the receptors located in Belmont that would potentially be affected by construction noise are offices only, which are predominantly used during the daytime. Therefore, these receptors would not be disrupted or annoyed by the construction activities occurring at night. This would be a less-than-significant impact. Belmont Pump Station construction would occur from 4/1/2023 and conclude on 9/31/2023, which is less than one year. While the estimated noise levels generated by the construction activities would temporarily exceed the construction noise threshold of 70 dBA Leq and exceed ambient levels by more than 5 dBA Leq at the nearest office building adjacent to the Belmont Pump Station, levels would only be elevated for a limited time. This impact would be considered to be less-than-significant.

San Carlos Pump Station Repurposing

The San Carlos Pump Station Repurposing Project would consist of three phases, and a temporary sound wall is not planned during construction. Table 4.13-14 summarizes the construction noise levels for each phase at the nearest receptors. Similar to the San Carlos Drop Shaft construction modeling discussed for the Gravity Pipeline, construction levels for the pool area of the hotel are assumed to be 15 dBA lower due to the shielding provided by the intervening hotel building. All other receptors are unmitigated. During Pump Station Demo (from 1/24/2022 to 3/24/2022) and Odor Control Facility construction (from 3/24/2022 to 7/24/2022), the rear façade of the hotel and the aviation museum would be exposed to construction levels in excess of the temporary noise thresholds. Additionally, during Civil Site Work (from 7/24/2022 to 9/28/22), the hotel, the aviation museum, and the nearby restaurants would be exposed to construction levels in excess of the temporary noise thresholds. However, these thresholds would be exceeded for a period of less than one year. This would represent a less-than-significant impact.

Redwood City Pump Station Replacement

While the Redwood City Police Station, San Mateo Sheriff's Office, and women's jail are located in the vicinity of the Redwood City Pump Station, these institutional land uses are not considered to be noise-sensitive uses and are not shown in the Table 4.13-15 results. The noise-sensitive receptors shown in the table include the Maple Street Shelter, two Docktown live-aboard residential locations, and the offices located opposite U.S. 101. The Docktown live-aboard residences would receive shielding from the construction at Redwood City Pump Station by intervening buildings; therefore, a 15 dBA reduction was applied to all construction noise levels modeled at these locations. This project would include pile driving during the Construct Wet Walls, Screening Building, and New Yard Piping phases, and construction noise levels were estimated with and without the inclusion of pile driving activities.

As the results show in Table 4.13-15, the shelter and the offices are exposed to noise levels in excess of the temporary construction noise thresholds during multiple phases and for a period of more than one year. This would be a significant impact.

Menlo Park Pump Station Rehabilitation

The surrounding land uses at the Menlo Park Pump Station include offices buildings and a park. Construction noise levels at the office building to the south of the pump station would exceed the temporary construction thresholds, as shown in Table 4.13-16, from 2/4/2021 to 11/2/2021, from 3/2/2022 to 10/29/2022, from 3/29/2023 to 6/27/2023, and from 8/30/2022 to 10/29/2022. During the last construction period listed, all of the surrounding receptors would be exposed to temporary construction noise levels in excess of the thresholds. While the cumulative time for these phases adds up to over one year, construction would not be continuous at this location. Therefore this would represent a less-than-significant impact.

Summary

Of the individual projects, Airport Access Shaft construction and the Redwood City Pump Station Replacement Project would expose receptors to construction noise levels exceeding 60 dBA Leq at residences or exceeding 70 dBA Leq at commercial properties and exceed the ambient noise environment by at least 5 dBA Leq for a period longer than one year. While the construction of each of the San Carlos Drop Shaft and Belmont Conveyance San Carlos Pump Station Improvements would not exceed the temporary construction thresholds for more than one year, the Projects are scheduled concurrently. The combination of the two Projects would expose the nearby receptors to levels exceeding 60 dBA Leq at residences or exceeding 70 dBA Leq at commercial properties and exceeding the ambient noise environment by at least 5 dBA Leq for a period longer than one year.

Impact NOI-1: Construction activities in relation to the ambient noise conditions over extended periods could result in a potentially significant impact.

MM NOI-1: The following measures will be required for all construction sites to ensure the exterior noise levels at sensitive receptor locations stay within these thresholds when feasible:

- Daytime (7:00 AM to 10:00 PM)
  - Residential District: 60 dBA Leq(hr)
  - Commercial District: 70 dBA Leq(hr)
  - Locations with ambient noise near thresholds: 5dBA Leq higher than ambient noise

- Nighttime (10:00 PM to 7:00 AM)
  - Residential District: 45 dBA Leq(hr)
  - Commercial District: 52 dBA Leq(hr)
  - Locations with ambient noise near thresholds: 5dBA Leq higher than ambient noise.

- Noise due to extreme noise-generating construction activities, such as pile driving activities which are necessary for the proposed project, shall be minimized to the extent feasible.[25] Pile driving activities and other noisy construction activities shall be completed as quickly as possible to limit noise exposure. Where conditions allow, vibratory pile drivers shall be used to drive sheet piles. Pile holes shall be pre-drilled to minimize the number of blows required to seat the pile.

- All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment. Quieter internal combustion equipment or equipment powered by electrical motors shall be selected to reduce noise levels, where feasible.

- The construction contractor shall utilize "quiet" models of air compressors, ventilation fans, and other stationary noise sources where technology reasonably exists.

- Unnecessary idling of internal combustion engines shall be prohibited.

[25] It has already been established that pile driving activities would exceed these thresholds, and with the understanding that pile driving would occur for 30 days or less at any one time, pile driving would be exempt from these thresholds.

- Construction staging areas shall, where practical, be established at locations that will create the greatest distance between the construction-related noise sources and receptors nearest the project site during all project construction.

- Locate stationary noise sources as far from receptors as feasible. If they must be located near receptors, adequate muffling (with screens and enclosures where feasible and appropriate) will be used as necessary to stay within the above noise level thresholds. Any enclosure openings or venting will face away from sensitive receptors.

- Locate material stockpiles, as well as maintenance/equipment staging and parking areas, as far as feasible from residential receptors.

- Neighbors located adjacent to the construction site shall be notified of the construction schedule in writing and of significant changes to the schedule.

- Designate a project liaison that will be responsible for responding to noise complaints during the construction phase. The name and phone number of the liaison will be conspicuously posted at construction areas and on all advanced notifications. This person will take steps to resolve complaints, including periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generated excessive noise levels to the extent feasible.

- Require a reporting program that documents complaints received, actions taken to resolve problems, and effectiveness of these actions.

- Hold a preconstruction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed.

- Implement a construction noise monitoring plan which includes a provision for noise monitoring at the nearby receptors to confirm that daytime and nighttime construction noise levels meet daytime and nighttime noise level thresholds at residential and commercial land uses. Construction monitoring shall occur weekly during the first month of general construction at a given site and on a monthly basis, thereafter, to show compliance with the construction noise level thresholds. Additional noise monitoring shall be completed on a more frequent basis if needed, in response to complaints. In the event of noise complaints, the contractor will provide information to SVCW within 48 hours of being notified of the complaint, regarding the noise levels measured and activities that correspond to the complaints, as well as the proposed changes at the site to reduce the noise levels to below the thresholds.

- In the event the above noise thresholds are not being met, additional noise mitigation measures will be implemented to further reduce noise from construction activities. A site-specific noise control plan shall be developed to identify the specific construction noise control features that will be implemented at the construction site(s). These additional noise mitigation measures could include, but not be limited to, the following:

    - Erecting permanent or temporary noise barriers (at least 12 feet in height) and other noise control features at the perimeter of the construction site(s) between the construction activity and sensitive receptors and/or around major construction noise sources (i.e., noisy equipment) to provide shielding for nearby sensitive receptors. Permanent or temporary noise barriers could include, but would not be limited to, concrete, plywood noise barriers, noise control blankets, cargo containers, or hay bales. The exact material, height, and configuration of these barriers shall be decided in consultation with the acoustical consultant, based on the specific equipment or activity that is causing the excessive noise.

    - Scheduling specific high noise-generating construction activities for the middle of the day.

Additional noise monitoring shall be completed after the installation and completion of such measures, to confirm their effectiveness at achieving the above thresholds. If the noise thresholds are still not being met, an acoustical consultant shall make further recommendations to be implemented immediately to reduce noise levels at the construction site(s).

The implementation of all feasible physical and administrative controls would reduce temporary construction noise impact at each site to a less-than-significant level.

Table 4.13-6:
Estimated Gravity Pipeline Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Airport Access Shaft: Mobilization/Site Preparation	2/27/2018-5/25/2018 (64 days)	Rubber-Tired Dozer (1) Front End Loader (1) Flatbed Truck (1) Pickup Truck (1) Backhoe (1) Water Truck (1) Dump, Hauling Truck (1)	Offices south of Airport Access Staging Area (2014)	66	57 dBA at 850ft	No
			ST-7 offices north of Airport Access Staging Area	64	65 dBA at 350ft	No
			ST-7 offices east of Airport Access Staging Area	64	60 dBA at 635ft	No
			ST-7 offices west of Airport Access Staging Area	64	56 dBA at 1,025ft	No
			Fairfield Inn & Suites	62	51 dBA at 1,345ft	No
Airport Access Shaft: Shaft Construction	5/29/2018-12/18/2018 (143 days)	Service Crane (1) Excavating/Drilling Rig (1) Air Compressor (1) Backhoe (1) Dewatering Pump (2) Port. Water Treatment Unit (1) Water Truck (1) Concrete Pump/Boom Truck (1) Concrete Truck (2) Emergency Generator Set (1) Dump, Hauling Truck (3) Front End Loader (1) Flatbed Truck (1) Pickup Truck (1) Slurry Separation Plant (1)	Offices south of Airport Access Staging Area (2014)	66	65 dBA at 850ft	No
			ST-7 offices north of Airport Access Staging Area	64	73 dBA at 350ft	**Yes**
			ST-7 offices east of Airport Access Staging Area	64	68 dBA at 635ft	No
			ST-7 offices west of Airport Access Staging Area	64	64 dBA at 1,025ft	No
			Fairfield Inn & Suites	62	59 dBA at 1,345ft	No

Table 4.13-6: Estimated Gravity Pipeline Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Airport Access Shaft: Tunnel Construction	12/19/2018-6/15/2020 (446 days)	400/500 Ton Crane (1) Service Crane (1) Locomotive (2) Tunnel Boring Machine (1) Dewatering Pump (2) Ventilation Equipment (1) Air Compressor (1) Muck Conveyor (1) Misc. Motor (1) Site and Tunnel Lighting (1) 30-Ton Crane (1) Backhoe (1) Front End Loader (3) Dump, Hauling Truck (8) Generator Set (1) Water Treatment Unit (1) Water Truck (1) Maintenance Truck (1) Flatbed Truck (1) Pickup Truck (3) Forklift (1)	Offices south of Airport Access Staging Area (2014)	66	65[a] dBA at 850ft	No
			ST-7 offices north of Airport Access Staging Area	64	73[a] dBA at 350ft	**Yes**
			ST-7 offices east of Airport Access Staging Area	64	68[a] dBA at 635ft	No
			ST-7 offices west of Airport Access Staging Area	64	64[a] dBA at 1,025ft	No
			Fairfield Inn & Suites	62	59[a] dBA at 1,345ft	No
Airport Access Shaft: Gravity Pipeline Placement	9/18/2020-4/6/2021 (207 days)	Service Crane (1) Pipe Carrier (1) Locomotive (2) Concrete Truck (8) Grout Mixer/Pump Unit (2) Flatbed Truck (1)	Offices south of Airport Access Staging Area (2014)	66	64 dBA (day) 63 dBA (night) at 850ft	No
			ST-7 offices north of Airport Access Staging Area	64	72 dBA (day) 71 dBA (night) at 350ft	**Yes**

Table 4.13-6: Estimated Gravity Pipeline Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
		Pickup Truck (2) Generator Set (1) Ventilation Equipment (1) Air Compressor (1) Water Truck (1) Forklift (1)	ST-7 offices east of Airport Access Staging Area	64	67 dBA (day) 66 dBA (night) at 635ft	No
			ST-7 offices west of Airport Access Staging Area	64	63 dBA (day) 62 dBA (night) at 1,025ft	No
			Fairfield Inn & Suites	62	58 dBA (day) 57 dBA (night) at 1,345ft	No
Airport Access Shaft: Shaft Access Manhole Finish Out Work	1/7/2021-3/8/2021 (43 days)	Service Crane (1) Concrete Truck (2) Flatbed Truck (1) Pickup Truck (1) Water Truck (1)	Offices south of Airport Access Staging Area (2014)	66	56-64[b] dBA at 850ft	No
			ST-7 offices north of Airport Access Staging Area	64	64-72[b] dBA at 350ft	**Yes**
			ST-7 offices east of Airport Access Staging Area	64	59-67[b] dBA at 635ft	No
			ST-7 offices west of Airport Access Staging Area	64	55-63[b] dBA at 1,025ft	No
			Fairfield Inn & Suites	62	50-58[b] dBA at 1,345ft	No
Airport Access Shaft: Demobilization/Site Restoration	3/18/2021-6/7/2021 (64 days)	Backhoe (1) Front End Loader (1) Grader (1) 15-Ton Crane (1) Flatbed Truck (1) Pickup Truck (2) Water Truck (1)	Offices south of Airport Access Staging Area (2014)	66	59-64[c] dBA at 850ft	No
			ST-7 offices north of Airport Access Staging Area	64	67-72[c] dBA at 350ft	**Yes**
			ST-7 offices east of Airport Access Staging Area	64	62-67[c] dBA at 635ft	No
			ST-7 offices west of Airport Access Staging Area	64	58-63[c] dBA at 1,025ft	No

Table 4.13-6: Estimated Gravity Pipeline Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			Fairfield Inn & Suites	62	53-58[c] dBA at 1,345ft	No
RLS & Flow Splitter Shaft: Mobilization/Site Preparation	8/30/2018-10/11/2018 (30 days)	Rubber-Tired Dozer (1) Front End Loader (1) Backhoe (1) Grader (1) Water Truck (1) Dump, Hauling Truck (1)	ST-1 nearest commercial office	56	61 dBA at 420ft	No
			ST-2 nearest residence	54	54 dBA at 890ft	No
			ST-3 Governors Bay Dr. residence	51	50 dBA at 1,375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	43 dBA at 3,205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	37 dBA at 6,490ft	No
			ST-9 Dory Ln. residence	57	37 dBA at 6, 500ft	No
RLS & Flow Splitter Shaft: Removal Shaft	10/18/2018-5/6/2019 (140 days)	Service Crane (1) Excavating/CSM Rig (1) Air Compressor (1) Hydr. Backhoe/Excavator (1) Concrete Pump/Boom Truck (2) Concrete Truck (1) Dump, Hauling Truck (1) Front End Loader (1) Pickup Truck (3) Slurry Mixing/Pump Station (1) Dewatering Pump (3) Generator Set (1) Flatbed Truck (1)	ST-1 nearest commercial office	56	69 dBA at 420ft	No
			ST-2 nearest residence	54	62 dBA at 890ft	**Yes**
			ST-3 Governors Bay Dr. residence	51	58 dBA at 1, 375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	51 dBA at 3, 205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	45 dBA at 6, 490ft	No
			ST-9 Dory Ln. residence	57	45 dBA at 6, 500ft	No

Table 4.13-6: Estimated Gravity Pipeline Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
		Slurry Separation Plane (1)				
RLS & Flow Splitter Shaft: Demobilization/Site Restoration	5/7/2018-6/5/2018 (21 days)	Hydr. Backhoe/Excavator (1) Front End Loader (1) Water Truck (1) Flatbed Truck (1) Pickup Truck (1) Grader (1)	ST-1 nearest commercial office	56	61 dBA at 420ft	No
			ST-2 nearest residence	54	54 dBA at 890ft	No
			ST-3 Governors Bay Dr. residence	51	50 dBA at 1, 375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	43 dBA at 3, 205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	37 dBA at 6, 490ft	No
			ST-9 Dory Ln. residence	57	37 dBA at 6,500ft	No
San Carlos Drop Shaft: Mobilization/Site Preparation	9/30/2019-10/11/2019 (10 days)	Flatbed Truck (1) Pickup Truck (1) Forklift (1)	Izzy's Steak & Chops (2014)	56	60 dBA at 295ft	No
			Burger King (2014)	64	57 dBA at 395ft	No
			Fairfield Inn & Suites, rear façade (2014)	56	63 dBA at 205ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	44 dBA at 305ft	No
			Hiller Aviation Museum, rear façade (2014)	56	63 dBA at 190ft	No
San Carlos Drop Shaft: Shaft Construction	9/30/2019-4/22/2020 (135 days)	Service Crane (1) Excavating/CSM Rig (1) Air Compressor (1) Hydr. Backhoe/Excavator (1) Concrete Pump/Boom Truck (1)	Izzy's Steak & Chops (2014)	56	75[d] dBA at 295ft	**Yes**
			Burger King (2014)	64	72[d] dBA at 395ft	**Yes**
			Fairfield Inn & Suites, rear façade (2014)	56	78[d] dBA at 205ft	**Yes**

Table 4.13-6:
Estimated Gravity Pipeline Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
		Concrete Truck (1) Dump, Hauling Truck (1) Front End Loader (1) Pickup Truck (1) Slurry Mixing/Pump Station (1) Dewatering Pump (2) Generator Set (1)	Fairfield Inn & Suites, pool area (2014)	64	59[d] dBA at 305ft	No
			Hiller Aviation Museum, rear façade (2014)	65	78[d] dBA at 190ft	**Yes**
San Carlos Drop Shaft: Shaft Access Manhole Finish Out Work	1/7/2021-3/8/2021 (43 days)	Service Crane (1) Concrete Truck (1) Flatbed Truck (1) Pickup Truck (1)	Izzy's Steak & Chops (2014)	56	64 dBA at 295ft	No
			Burger King (2014)	64	61 dBA at 395ft	No
			Fairfield Inn & Suites, rear façade (2014)	56	67 dBA at 205ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	48 dBA at 305ft	No
			Hiller Aviation Museum, rear façade (2014)	65	67 dBA at 190ft	No
Bair Island Inlet Structure Shaft: Mobilization/Site Preparation	9/24/2019-10/15/2019 (15 days)	Rubber-Tired Dozer (1) Front End Loader (1) Flatbed Truck (1) Backhoe (1) Water Truck (1) Dump, Hauling Truck (1)	ST-5 nearest commercial office	64	60 dBA at 650ft	No
			ST-5 office opposite US 101	64	60 dBA at 665ft	No
			ST-5 retail opposite US 101	64	58 dBA at 820ft	No
Bair Island Inlet Structure Shaft: Shaft Construction	9/24/2019-2/24/2020 (107 days)	Service Crane (1) Excavating/Drilling Rig (1) Air Compressor (1) Hydr. Backhoe/Excavator (1)	ST-5 nearest commercial office	64	70[e] dBA at 650ft	No

Table 4.13-6: Estimated Gravity Pipeline Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
		Dewatering Pump (2) Port. Water Treatment Unit (1) Water Truck (1) Concrete Pump/Boom Truck (1) Concrete Truck (1) Generator Set (1) Dump, Hauling Truck (2) Front End Loader (1) Flatbed Truck (1) Pickup Truck (1) Slurry Separation Plant (1)	ST-5 office opposite US 101	64	70[e] dBA at 665ft	No
			ST-5 retail opposite US 101	64	68[e] dBA at 820ft	No
Bair Island Inlet Structure Shaft: Shaft Access Manhole Finish Out Work	1/7/2021-3/8/2021 (43 days)	Service Crane (1) Concrete Truck (1) Flatbed Truck (1) Pickup Truck (1) Water Truck (1)	ST-5 nearest commercial office	64	58 dBA at 650ft	No
			ST-5 office opposite US 101	64	58 dBA at 665ft	No
			ST-5 retail opposite US 101	64	56 dBA at 820ft	No
Bair Island Inlet Structure Shaft: Demobilization/Site Restoration	4/7/2021-6/7/2021 (43 days)	Backhoe (1) Front End Loader (1) Water Truck (1) Flatbed Truck (1) Pickup Truck (1) Grader (1)	ST-5 nearest commercial office	64	62 dBA at 650ft	No
			ST-5 office opposite US 101	64	62 dBA at 665ft	No
			ST-5 retail opposite US 101	64	60 dBA at 820ft	No

Notes:

[a] Construction noise levels represent the levels during daytime and nighttime construction activities, since the reduced equipment resulted in a 0.1 dBA reduction at nighttime.

[b] The range of construction noise levels represents the levels of Airport Access Shaft: Shaft Access Manhole Finish Out Work phase only and combined with the Airport Access Shaft: Gravity Pipeline Placement phase.

Table 4.13-6: Estimated Gravity Pipeline Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**

[c] The range of construction noise levels represents the levels of Airport Access Shaft: Demobilization/Site Restoration phase only and combined with the Airport Access Shaft: Gravity Pipeline Placement phase.
[d] Construction noise levels represent the levels of San Carlos Drop Shaft: Shaft Construction phase only and combined with the San Carlos Drop Shaft: Mobilization/Site Preparation phase, since the overlap in phases resulted in a 0.1 dBA difference.
[e] Construction noise levels represent the levels of Bair Island Inlet Structure Shaft: Shaft Construction phase only and combined with the Bair Island Inlet Structure Shaft: Mobilization/Site Preparation phase, since the overlap in phases resulted in a 0.3 dBA difference

Source: Illingworth & Rodkin, November 2016

Table 4.13-7: Estimated WWTP Civil Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
Phase 1: Stabilization and Grading	7/13/2017-9/20/2017 (50 days)	Loader (1) Grader (1) Crew Truck (1) Backhoe (1) Roller (1) Excavator (1)	ST-1 nearest commercial office	56	76 dBA at 75ft	**Yes**
			ST-2 nearest residence	54	58 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	52 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	44 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	38 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	38 dBA at 6,195ft	No
Phase 1: Recycled Water from Plant	9/20/2017-11/28/2017 (50 days)	Backhoe (1) Crew Truck (1) Excavator (1)	ST-1 nearest commercial office	56	70 dBA at 75ft	No
			ST-2 nearest residence	54	52 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	46 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	32 dBA at 6,195ft	No
Phase 1: Interim Storm Drain System	11/28/2017-12/7/2017 (8 days)	Backhoe (1) Crew Truck (1) Excavator (1)	ST-1 nearest commercial office	56	70 dBA at 75ft	No
			ST-2 nearest residence	54	52 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	46 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38 dBA at 3,000ft	No

Table 4.13-7: Estimated WWTP Civil Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			ST-8 Redwood Shores Pkwy. Residence	62	32 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	32 dBA at 6,195ft	No
Phase 1: Utility Crossing	11/28/2017-12/27/2017 (15 days)	Backhoe (1) Crew Truck (1) Excavator (1)	ST-1 nearest commercial office	56	70-73[a] dBA at 75ft	**Yes**
			ST-2 nearest residence	54	52-55[a] dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	46-49[a] dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38-41[a] dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32-35[a] dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	32-35[a] dBA at 6,195ft	No
Phase 1: Lighting	11/28/2017-12/25/2017 (20 days)	Backhoe (1) Crew Truck (1) Excavator (1)	ST-1 nearest commercial office	56	70-75[b] dBA at 75ft	**Yes**
			ST-2 nearest residence	54	52-57[b] dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	46-51[b] dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38-43[b] dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32-37[b] dBA at 6,210ft	No

Table 4.13-7:
Estimated WWTP Civil Improvements Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
			ST-9 Dory Ln. residence	57	32-37[b] dBA at 6,195ft	No
Phase 1: Preliminary Paving on Roadways	12/25/2017-1/12/2018 (15 days)	Excavator (1) Loader (1) Asphalt Paver (1) Roller (1)	ST-1 nearest commercial office	56	72 dBA at 75ft	**Yes**
			ST-2 nearest residence	54	54 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	48 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	40 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	34 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	34 dBA at 6,195ft	No
Phase 1: Concrete Curb	1/1/2018-1/12/2018 (15 days)	Concrete Truck (1) Excavator (1)	ST-1 nearest commercial office	56	70-74[c] dBA at 75ft	**Yes**
			ST-2 nearest residence	54	52-56[c] dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	46-50[c] dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38-42[c] dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32-36[c] dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	32-36[c] dBA at 6,195ft	No
	1/15/2018-1/17/2018	Crew Truck (1)	ST-1 nearest commercial office	56	52 dBA at 75ft	No

Table 4.13-7: Estimated WWTP Civil Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
Phase 1: Construction Fencing	(3 days)		ST-2 nearest residence	54	44 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	38 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	30 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	24 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	24 dBA at 6,195ft	No
Phase 2: SD Pump Station	5/24/2019-6/20/2018 (20 days)	Excavator (1) Loader (1) Backhoe (1) Crane (1) Crew Truck (1)	ST-1 nearest commercial office	56	72 dBA at 75ft	**Yes**
			ST-2 nearest residence	54	54 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	48 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	40 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	34 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	34 dBA at 6,195ft	No
Phase 2: SD System	6/20/2019-7/24/2019 (25 days)	Excavator (2) Backhoe (1) Loader (1) Crew Truck (1)	ST-1 nearest commercial office	56	73 dBA at 75ft	**Yes**
			ST-2 nearest residence	54	55 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	49 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	41 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	35 dBA at 6,210ft	No

Table 4.13-7: Estimated WWTP Civil Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			ST-9 Dory Ln. residence	57	35 dBA at 6,195ft	No
Phase 2: Overflow Pipe	7/24/2019-9/6/2019 (33 days)	Excavator (1) Crew Truck (1) Backhoe (1)	ST-1 nearest commercial office	56	70 dBA at 75ft	No
			ST-2 nearest residence	54	52 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	45 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	32 dBA at 6,195ft	No
Phase 2: Misc. Utility Connections	9/6/2019-10/17/2019 (30 days)	Excavator (1) Backhoe (1) Crew Truck (1)	ST-1 nearest commercial office	56	70 dBA at 75ft	No
			ST-2 nearest residence	54	52 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	46 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	32 dBA at 6,195ft	No
Phase 3: Final Grading	5/25/2021-6/3/2021 (8 days)	Crew Truck (1) Dozer (1) Water Truck (1) Loader (1) Grader (1)	ST-1 nearest commercial office	56	75 dBA at 75ft	**Yes**
			ST-2 nearest residence	54	57 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	51 dBA at 1,220ft	No

Table 4.13-7:
Estimated WWTP Civil Improvements Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
		Roller (1)	ST-4 Southport Dr. & Bay Harbour Dr. residence	47	43 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	37 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	37 dBA at 6,195ft	No
Phase 3: Final AC Paving for areas done in Phase 1	6/3/2021-6/9/2021 (5 days)	Asphalt Paver (1) Roller (1)	ST-1 nearest commercial office	56	68 dBA at 75ft	No
			ST-2 nearest residence	54	50 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	44 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	36 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	30 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	30 dBA at 6,195ft	No
Phase 3: Full Paving	6/9/2021-7/22/2021 (32 days)	Roller (1) Loader (1) Crew Truck (1) Asphalt Paver (1)	ST-1 nearest commercial office	56	71 dBA at 75ft	**Yes**
			ST-2 nearest residence	54	53 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	47 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	39 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	33 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	33 dBA at 6,195ft	No
Phase 3: Concrete Rolled Curb	7/22/2021-7/29/2021	Concrete Truck (1) Excavator (1)	ST-1 nearest commercial office	56	71 dBA at 75ft	**Yes**

Table 4.13-7: Estimated WWTP Civil Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
	(6 days)		ST-2 nearest residence	54	53 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	47 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	39 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	33 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	33 dBA at 6,195ft	No
Phase 3: Signage	7/29/2021-8/2/2021 (3 days)	Crew Truck (1)	ST-1 nearest commercial office	56	62 dBA at 75ft	No
			ST-2 nearest residence	54	44 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	38 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	30 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	24 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	24 dBA at 6,195ft	No
Phase 3: Striping	7/29/2021-8/2/2021 (3 days)	Crew Truck (1)	ST-1 nearest commercial office	56	62-65[d] dBA at 75ft	No
			ST-2 nearest residence	54	44-47[d] dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	38-41[d] dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	30-33[d] dBA at 3,000ft	No

Table 4.13-7: Estimated WWTP Civil Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			ST-8 Redwood Shores Pkwy. Residence	62	24-27[d] dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	24-27[d] dBA at 6,195ft	No
Phase 3: Frontage Wall	8/2/2021-8/20/2021 (15 days)	Excavator (1) Crane (1) Loader (1) Crew Truck (1) Backhoe (1)	ST-1 nearest commercial office	56	72 dBA at 75ft	**Yes**
			ST-2 nearest residence	54	54 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	48 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	40 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	34 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	34 dBA at 6,195ft	No
Phase 3: Frontage Landscape	8/20/2021-9/30/2021 (30 days)	Crew Truck (1) Excavator (1) Backhoe (1)	ST-1 nearest commercial office	56	70 dBA at 75ft	No
			ST-2 nearest residence	54	52 dBA at 600ft	No
			ST-3 Governors Bay Dr. residence	51	46 dBA at 1,220ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38 dBA at 3,000ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32 dBA at 6,210ft	No
			ST-9 Dory Ln. residence	57	32 dBA at 6,195ft	No

Notes:
[a] The range of construction noise levels represents the levels of Phase 1: Utility Crossing phase only and combined with the Phase 1: Interim Storm Drain System phase.
[b] The range of construction noise levels represents the levels of Phase 1: Lighting phase only and combined with the Phase 1: Interim Storm Drain System Phase 1: Utility Crossing phases.

Table 4.13-7: Estimated WWTP Civil Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**

[c] The range of construction noise levels represents the levels of Phase 1: Concrete Curb phase only and combined with the Phase 1: Preliminary Paving on Roadways phase.
[d] The range of construction noise levels represents the levels of Phase 3: Striping phase only and combined with the Phase 3: Signage phase.

Source: Illingworth & Rodkin, November 2016

Table 4.13-8:
Estimated WWTP Improvements-Headworks Facility Construction Noise Levels*

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Site Work & Piles	2/28/2018-6/7/2018 (90 days)	Crane (1) Backhoe (2) Grader (2) Scraper (2) Loader (2) Forklift (1) Medium Truck (1) Light Truck (1) Water Truck (1) Vibratory Pile Driver (1) Concrete Pile Driving Equip. (1) Flatbed Truck (2) Earthwork Haul Truck (2)	ST-1 nearest commercial office	56	72 dBA w/ diesel hammer; 71 dBA w/ vibratory; 66 dBA w/o PD at 430ft	**Yes (w/ pile driving)** No (w/o pile driving)
			ST-2 nearest residence	54	66 dBA w/ diesel hammer; 65 dBA w/ vibratory; 60 dBA w/o PD at 900ft	**Yes (w/ pile driving)** No (w/o pile driving)
			ST-3 Governors Bay Dr. residence	51	62 dBA w/ diesel hammer;	**Yes (w/ pile driving)**

Table 4.13-8: Estimated WWTP Improvements-Headworks Facility Construction Noise Levels*						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
					61 dBA w/ vibratory; 56 dBA w/o PD at 1,385ft	No (w/o pile driving)
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	55 dBA w/ diesel hammer; 54 dBA w/ vibratory; 49 dBA w/o PD at 3,215ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	49 dBA w/ diesel hammer; 48 dBA w/ vibratory; 43 dBA w/o PD at 6,500ft	No
			ST-9 Dory Ln. residence	57	49 dBA w/ diesel hammer; 48 dBA w/ vibratory; 43 dBA w/o PD at 6,510ft	No
Screen & Grit	5/4/2018-1/24/2019 (190 days)	Crane (1) Backhoe (2) Grader (2) Scraper (2) Loader (2) Forklift (1)	ST-1 nearest commercial office	56	66-68[a] dBA at 430ft	No
			ST-2 nearest residence	54	60-62[a] dBA at 900ft	**Yes**
			ST-3 Governors Bay Dr. residence	51	56-58[a] dBA at 1,385ft	No

Table 4.13-8:
Estimated WWTP Improvements-Headworks Facility Construction Noise Levels*

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
		Medium Truck (1) Light Truck (1) Water Truck (1) Concrete Pump (1) Concrete Delivery Truck (3) Flatbed Truck (4) Earthwork Haul Truck (2)	ST-4 Southport Dr. & Bay Harbour Dr. residence	47	49-51[a] dBA at 3,215ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	43-45[a] dBA at 6,500ft	No
			ST-9 Dory Ln. residence	57	43-45[a] dBA at 6,510ft	No
Material Handling	12/14/2018-5/9/2019 (85 days)	Crane (1) Forklift (1) Medium Truck (1) Light Truck (1) Concrete Pump (1) Concrete Delivery Truck (3) Flatbed Truck (4)	ST-1 nearest commercial office	56	60 dBA at 430ft	No
			ST-2 nearest residence	54	54 dBA at 900ft	No
			ST-3 Governors Bay Dr. residence	51	50 dBA at 1,385ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	43 dBA at 3,215ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	37 dBA at 6,500ft	No
			ST-9 Dory Ln. residence	57	37 dBA at 6,510ft	No

Notes:
*Includes Influent Connector Pipes Project
[a] The range of construction noise levels represents the levels of Screen & Grit phase only and combined with the Site Work & Piles (excluding pile driving activities) phase.

Source: Illingworth & Rodkin, October 2016

Table 4.13-9: Estimated WWTP Improvements-RLS & Shaft Interior Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
Shaft Structural Improvements	5/1/2019-10/31/2019 (120 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Pump (1) Concrete Delivery Truck (1) Air Compressor (1) Concrete Pump (1)	ST-1 nearest commercial office	56	62 dBA at 420ft	No
			ST-2 nearest residence	54	55 dBA at 890ft	No
			ST-3 Governors Bay Dr. residence	51	51 dBA at 1,375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	44 dBA at 3,205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	38 dBA at 6,490ft	No
			ST-9 Dory Ln. residence	57	38 dBA at 6,500ft	No
Construct Interior Wet Wall Structural Components	11/1/2019-2/28/2020 (80 days)	Concrete/Industrial Saw (2) Boom Truck/Small Crane (1) Forklift (1) Pump (1) Concrete Delivery Truck (10) Air Compressor (1) Concrete Pump (1)	ST-1 nearest commercial office	56	66 dBA at 420ft	No
			ST-2 nearest residence	54	59 dBA at 890ft	No
			ST-3 Governors Bay Dr. residence	51	55 dBA at 1,375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	48 dBA at 3,205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	42 dBA at 6,490ft	No
			ST-9 Dory Ln. residence	57	42 dBA at 6,500ft	No
Pump Mounts and Rail	3/1/2020-6/30/2020 (40 days)	Boom Truck/Small Crane (1) Welder (2) Air Compressor (1)	ST-1 nearest commercial office	56	55 dBA at 420ft	No
			ST-2 nearest residence	54	49 dBA at 890ft	No
			ST-3 Governors Bay Dr. residence	51	44 dBA at 1,375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	37 dBA at 3,205ft	No

Table 4.13-9: Estimated WWTP Improvements-RLS & Shaft Interior Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			ST-8 Redwood Shores Pkwy. Residence	62	31 dBA at 6,490ft	No
			ST-9 Dory Ln. residence	57	31 dBA at 6,500ft	No
Construct Top Slab of Wet Wall and Piping Gallery	7/1/2020-10/31/2020 (60 days)	Concrete/Industrial Saw (2) Boom Truck/Small Crane (1) Forklift (1) Pump (1) Concrete Delivery Truck (10) Air Compressor (1) Concrete Pump (3) Excavator (2) Tractor/Loader/Backhoe (2) Pile Driver (1) Scraper (1) Rubber-Tired Dozer (1) Roller (1) Dump Truck (9)	ST-1 nearest commercial office	56	75 dBA w/ PD; 68 dBA w/o PD at 420ft	**Yes (w/ pile driving)** No (w/o pile driving)
			ST-2 nearest residence	54	66 dBA w/ PD; 61 dBA w/o PD at 890ft	**Yes**
			ST-3 Governors Bay Dr. residence	51	62 dBA w/ PD; 57 dBA w/o PD at 1,375ft	**Yes (w/ pile driving)** No (w/o pile driving)
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	55 dBA w/ PD; 50 dBA w/o PD at 3,205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	49 dBA w/ PD; 44 dBA w/o PD at 6,490ft	No
			ST-9 Dory Ln. residence	57	49 dBA w/ PD; 44 dBA w/o PD at 6,500ft	No
Pump Installation	9/1/2020-10/31/2020 (20 days)	Forklift (1) Crane (1)	ST-1 nearest commercial office	56	51-64[a] dBA at 420ft	No
			ST-2 nearest residence	54	44-57[a] dBA at 890ft	No

Table 4.13-9:
Estimated WWTP Improvements-RLS & Shaft Interior Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
			ST-3 Governors Bay Dr. residence	51	40-53[a] dBA at 1,375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	33-46[a] dBA at 3,205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	27-40[a] dBA at 6,490ft	No
			ST-9 Dory Ln. residence	57	27-40[a] dBA at 6,500ft	No
Electrical and Controls	9/1/2020-9/31/2020 (40 days)	Forklift (1) Crane (1)	ST-1 nearest commercial office	56	51-64[b] dBA at 420ft	No
			ST-2 nearest residence	54	44-57[b] dBA at 890ft	No
			ST-3 Governors Bay Dr. residence	51	40-53[b] dBA at 1,375ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	33-46[b] dBA at 3,205ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	27-40[b] dBA at 6,490ft	No
			ST-9 Dory Ln. residence	57	27-40[b] dBA at 6,500ft	No

Notes:
[a] The range of construction noise levels represents the levels of Pump Installation phase only and combined with Construct Top Slab of Wet Wall and Piping Gallery phase.
[b] The range of construction noise levels represents the levels of Electrical and Controls phase only and combined with Pump Installation and Construct Top Slab of Wet Wall and Piping Gallery phases.

Source: Illingworth & Rodkin, November 2016

Table 4.13-10:
Estimated WWTP Improvements-Flow Diversion Facilities Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Flow Diversion Facilities-Sheet Piles	30 days	Crane (1) Loader (1) Vibratory Pile Driver (1) Misc. Equipment (1)	ST-1 nearest commercial office	56	72 dBA w/ PD; 61 dBA w/o PD at 360ft	**Yes (w/ pile driving)** No (w/o pile driving)
			ST-2 nearest residence	54	64 dBA w/ PD; 53 dBA w/o PD at 845ft	**Yes (w/ pile driving)** No (w/o pile driving)
			ST-3 Governors Bay Dr. residence	51	61 dBA w/ PD; 50 dBA w/o PD at 1,275ft	**Yes (w/ pile driving)** No (w/o pile driving)
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	51 dBA w/ PD; 42 dBA w/o PD at 3,130ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	47 dBA w/ PD; 36 dBA w/o PD at 6,375ft	No
			ST-9 Dory Ln. residence	57	47 dBA w/ PD; 36 dBA w/o PD at 6,355ft	No
Flow Diversion Facilities-Excavation	45 days	Dozer (2) Backhoe (2) Loader (2) Dewatering Equipment (2)	ST-1 nearest commercial office	56	67 dBA at 360ft	No
			ST-2 nearest residence	54	59 dBA at 845ft	No
			ST-3 Governors Bay Dr. residence	51	56 dBA at 1,275ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	48 dBA at 3,130ft	No

Table 4.13-10: Estimated WWTP Improvements-Flow Diversion Facilities Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			ST-8 Redwood Shores Pkwy. Residence	62	42 dBA at 6,375ft	No
			ST-9 Dory Ln. residence	57	42 dBA at 6,355ft	No
Flow Diversion Facilities-Bracing	15 days	Loader (1) Crane (2) Misc. Equipment (4)	ST-1 nearest commercial office	56	67 dBA at 360ft	No
			ST-2 nearest residence	54	59 dBA at 845ft	No
			ST-3 Governors Bay Dr. residence	51	56 dBA at 1,275ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	48 dBA at 3,130ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	42 dBA at 6,375ft	No
			ST-9 Dory Ln. residence	57	42 dBA at 6,355ft	No
Flow Diversion Facilities-Pile Driving	81 days	Diesel Hammer Pile Driving Equip. (1) Crane (1)	ST-1 nearest commercial office	56	72 dBA at 360ft	**Yes**
			ST-2 nearest residence	54	64 dBA at 845ft	**Yes**
			ST-3 Governors Bay Dr. residence	51	61 dBA at 1,275ft	**Yes**
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	53 dBA at 3,130ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	47 dBA at 6,375ft	No
			ST-9 Dory Ln. residence	57	47 dBA at 6,355ft	No
Flow Diversion Facilities-Formwork	80 days	Hydraulic Crane (1) Crane (1)	ST-1 nearest commercial office	56	54 dBA at 360ft	No
			ST-2 nearest residence	54	46 dBA at 845ft	No
			ST-3 Governors Bay Dr. residence	51	43 dBA at 1,275ft	No

Table 4.13-10: Estimated WWTP Improvements-Flow Diversion Facilities Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	35 dBA at 3,130ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	29 dBA at 6,375ft	No
			ST-9 Dory Ln. residence	57	29 dBA at 6,355ft	No
Flow Diversion Facilities-Concrete Work	80 days	Hydraulic Crane (1) Concrete Equipment (1) Concrete Pump Truck (1)	ST-1 nearest commercial office	56	57 dBA at 360ft	No
			ST-2 nearest residence	54	49 dBA at 845ft	No
			ST-3 Governors Bay Dr. residence	51	46 dBA at 1,275ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	38 dBA at 3,130ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	32 dBA at 6,375ft	No
			ST-9 Dory Ln. residence	57	32 dBA at 6,355ft	No
Flow Diversion Facilities-Pipe Work	40 days	Excavator (1) Backhoe (1) Pipe Placement Equipment (1)	ST-1 nearest commercial office	56	58 dBA at 360ft	No
			ST-2 nearest residence	54	50 dBA at 845ft	No
			ST-3 Governors Bay Dr. residence	51	47 dBA at 1,275ft	No
			ST-4 Southport Dr. & Bay Harbour Dr. residence	47	39 dBA at 3,130ft	No
			ST-8 Redwood Shores Pkwy. Residence	62	33 dBA at 6,375ft	No
			ST-9 Dory Ln. residence	57	33 dBA at 6,355ft	No
Source: Illingworth & Rodkin, October 2016						

Table 4.13-11:
Estimated Belmont Conveyance - San Carlos Pump Station Improvements Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Pipeline Construction	1/1/2019-2/28/2019 (40 days)	Tractor/Loader/Backhoe (1) Excavator (1) Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Dump Truck (4) Pump (1) Concrete Delivery Truck (2) Plate Compactor (1) Sweeper/Scrubber (1) Skid Steer Loader (1) Air Compressor (1) Generator Set (1)	Izzy's Steak & Chops (2014)	56	77 dBA at 190ft	**Yes**
			Burger King (2014)	64	75 dBA at 265ft	**Yes**
			Fairfield Inn & Suites, rear façade (2014)	56	83 dBA at 100ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	63 dBA at 175ft	No
			Hiller Aviation Museum, rear façade (2014)	65	83 dBA at 100ft	**Yes**
Vault Construction (10-inch San Carlos Force Main/San Carlos Vault)	3/1/2019-5/31/2019 (65 days)	Excavator (1) Tractor/Loader/Backhoe (1) Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Dump Truck (2) Pump (1) Concrete Delivery Truck (2) Plate Compactor (1) Sweeper/Scrubber (1) Skid Steer Loader (1) Air Compressor (1) Generator Set (1)	Izzy's Steak & Chops (2014)	56	76 dBA at 190ft	**Yes**
			Burger King (2014)	64	74 dBA at 265ft	**Yes**
			Fairfield Inn & Suites, rear façade (2014)	56	82 dBA at 100ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	62 dBA at 175ft	No
			Hiller Aviation Museum, rear façade (2014)	65	82 dBA at 100ft	**Yes**

Table 4.13-11: Estimated Belmont Conveyance - San Carlos Pump Station Improvements Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
Vault Construction (Combination Vault)	6/1/2019-9/30/2019 (85 days)	Excavator (1) Tractor/Loader/Backhoe (1) Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Dump Truck (3) Pump (1) Concrete Delivery Truck (2) Plate Compactor (1) Sweeper/Scrubber (1) Skid Steer Loader (1) Air Compressor (1) Generator Set (1)	Izzy's Steak & Chops (2014)	56	76 dBA at 190ft	**Yes**
			Burger King (2014)	64	74 dBA at 265ft	**Yes**
			Fairfield Inn & Suites, rear façade (2014)	56	82 dBA at 100ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	62 dBA at 175ft	No
			Hiller Aviation Museum, rear façade (2014)	65	82 dBA at 100ft	**Yes**
Source: Illingworth & Rodkin, November 2016						

Table 4.13-12: Estimated Belmont Conveyance-Force Main Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Nighttime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Belmont Force Main 54-inch (Slipline Construction)	4/1/2022-6/30/2022 (45 days)	Excavator (1) Tractor/Loader/Backhoe (1) Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Dump Truck (2) Pump (1) Plate Compactor (1) Sweeper/Scrubber (1) Skid Steer Loader (1) Air Compressor (1) Generator Set (1)	ST-6 office north of BPS	53	61 dBA at 1,175ft	No
			Offices near Belmont Tee (2014)	56	77 dBA at 180ft	**Yes**
			Fairfield Inn & Suites	52	52 dBA at 3,200ft	No
Belmont Force Main Rehab 24-inch	7/1/2022-8/31/2022 (25 days)	Excavator (1) Tractor/Loader/Backhoe (1) Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Dump Truck (2) Pump (1) Plate Compactor (1) Sweeper/Scrubber (1) Skid Steer Loader (1) Air Compressor (1) Generator Set (1)	ST-6 office north of BPS	53	78 dBA at 150ft	**Yes**
			Offices near Belmont Tee (2014)	56	77 dBA at 180ft	**Yes**
			Fairfield Inn & Suites	52	52 dBA at 3,200ft	No
Belmont Force Main Rehab	9/1/2022-10/1/2022 (15 days)	Excavator (1) Tractor/Loader/Backhoe (1) Concrete/Industrial Saw (1)	ST-6 office north of BPS	53	61 dBA at 1,175ft	No

Table 4.13-12:
Estimated Belmont Conveyance-Force Main Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Nighttime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Belmont Tee – Connections		Boom Truck/Small Crane (1) Forklift (1) Dump Truck (2) Pump (1) Plate Compactor (1) Sweeper/Scrubber (1) Skid Steer Loader (1) Air Compressor (1) Generator Set (1)	Offices near Belmont Tee (2014)	56	77 dBA at 180ft	**Yes**
			Fairfield Inn & Suites	52	52 dBA at 3,200ft	No

Source: Illingworth & Rodkin, November 2016

Table 4.13-13: Estimated Belmont Conveyance-Belmont Pump Station Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Demolition	4/1/2023-4/30/2023 (20 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Pump (1) Air Compressor (1) Tractor/Loader/Backhoe (1)	ST-6 office north of BPS	63	83 dBA at 70ft	**Yes**
			ST-6 office east of BPS	63	69 dBA at 355ft	No
			ST-6 office opposite US 101	63	70 dBA at 310ft	No
			ST-6 office northeast of BPS	63	68 dBA at 420ft	No
Building Improvement – Structure	5/1/2023-5/31/2023 (20 days)	Boom Truck/Small Crane (1) Welder (2) Air Compressor (1) Concrete/Industrial Saw (1) Forklift (1) Pump (1) Concrete Delivery Truck (3)	ST-6 office north of BPS	63	83 dBA at 70ft	**Yes**
			ST-6 office east of BPS	63	69 dBA at 355ft	No
			ST-6 office opposite US 101	63	70 dBA at 310ft	No
			ST-6 office northeast of BPS	63	68 dBA at 420ft	No
Mechanical Improvements	6/1/2023-7/15/2023 (20 days)	Forklift (2) Crane (1) Boom Truck/Small Crane (1) Welder (2) Air Compressor (1) Concrete/Industrial Saw (1)	ST-6 office north of BPS	63	81 dBA at 70ft	**Yes**
			ST-6 office east of BPS	63	67 dBA at 355ft	No
			ST-6 office opposite US 101	63	68 dBA at 310ft	No
			ST-6 office northeast of BPS	63	66 dBA at 420ft	No
Electrical Improvements	7/15/2023-9/31/2023 (20 days)	Forklift (1) Boom Truck/Small Crane (1)	ST-6 office north of BPS	63	71 dBA at 70ft	**Yes**
			ST-6 office east of BPS	63	57 dBA at 355ft	No
			ST-6 office opposite US 101	63	58 dBA at 310ft	No
			ST-6 office northeast of BPS	63	56 dBA at 420ft	No

Source: Illingworth & Rodkin, November 2016.

Table 4.13-14: Estimated San Carlos Pump Station Repurposing Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Civil Site Work (Duct/Piping)	7/24/2022-9/28/2022 (15 days)	Excavator (Track hoe) (1) Generator (1) Asphalt Saw (1) Skid Steer (1) Roller (1) 10-Wheel Dump Truck (1) Wacker/Compactor (1) Backhoe (1)	Izzy's Steak & Chops (2014)	56	74 dBA at 205ft	**Yes**
			Burger King (2014)	64	71 dBA at 275ft	**Yes**
			Fairfield Inn & Suites, rear façade (2014)	56	80 dBA at 100ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	60 dBA at 175ft	No
			Hiller Aviation Museum, rear façade (2014)	65	78 dBA at 120ft	**Yes**
Pump Station Demo	1/24/2022-3/24/2022 (15 days)	Backhoe (1) Forklift (1) Air Compressor (1) Boom Truck/Small Crane (1) Small Truck (1)	Izzy's Steak & Chops (2014)	56	67 dBA at 205ft	No
			Burger King (2014)	64	64 dBA at 275ft	No
			Fairfield Inn & Suites, rear façade (2014)	56	73 dBA at 100ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	53 dBA at 175ft	No
			Hiller Aviation Museum, rear façade (2014)	65	71 dBA at 120ft	**Yes**
Odor Control Facility	3/24/2022-7/24/2022 (30 days)	Generator (1) Air Compressor (1) Forklift (1) Concrete Mixer (1) Boom Truck/Small Crane (1)	Izzy's Steak & Chops (2014)	56	69 dBA at 205ft	No
			Burger King (2014)	64	66 dBA at 275ft	No
			Fairfield Inn & Suites, rear façade (2014)	56	75 dBA at 100ft	**Yes**
			Fairfield Inn & Suites, pool area (2014)	64	55 dBA at 175ft	No
			Hiller Aviation Museum, rear façade (2014)	65	73 dBA at 120ft	**Yes**

Source: Illingworth & Rodkin, November 2016.

Table 4.13-15: Estimated Redwood City Pump Station Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
Remove and Relocate Existing Transformer	1/18/2021-2/17/2021 (10 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Concrete Delivery Truck (1)	Maple Street Shelter (2014)	56	70 dBA at 240ft	No
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	47 dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	44 dBA at 920ft	No
			Offices opposite US 101	67	68 dBA at 310ft	No
Construct Wet Walls, Screening Building, & New Yard Piping	2/18/2021-2/13/2022 (240 days)	Concrete/Industrial Saw (2) Boom Truck/Small Crane (2) Forklift (2) Pump (4) Concrete Delivery Truck (10) Air Compressor (2) Pile Driver (1) Crane (1) Concrete Pump (1) Excavator (1) Grader (1) Scraper (1) Rubber-Tired Dozer (1) Tractor/Loader/Backhoe (1) Welder (1) Aerial Lift (1) Generator Set (4) Roller (1)	Maple Street Shelter (2014)	56	82 dBA w/ PD; 78 dBA w/o PD at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	59 dBA w/ PD; 55 dBA w/o PD at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	56 dBA w/ PD; 52 dBA w/o PD at 920ft	No
			Offices opposite US 101	67	80 dBA w/ PD; 76 dBA w/o PD at 310ft	**Yes**
	2/14/2022-	Boom Truck/Small Crane (1)	Maple Street Shelter (2014)	56	73 dBA at 240ft	**Yes**

Table 4.13-15: Estimated Redwood City Pump Station Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Building Structural and Seismic	4/15/2022 (40 days)	Welder (2) Air Compressor (1) Concrete/Industrial Saw (2) Forklift (1) Concrete Delivery Truck (3) Concrete Pump (1)	Docktown, west of RCPS & shielded by intervening buildings (2014)	59	50 dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	47 dBA at 920ft	No
			Offices opposite US 101	67	71 dBA at 310ft	No
Existing Building Demolition & Interior Improvements – Part 1 (Ground Floor; Generator Area)	2/14/2022-3/16/2022 (30 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Air Compressor (1) Generator Set (1) Haul Truck (2)	Maple Street Shelter (2014)	56	71-75[a] dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	48-52[a] dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	45-49[a] dBA at 920ft	No
			Offices opposite US 101	67	69-73[a] dBA at 310ft	**Yes**
HVAC	2/14/2022-3/16/2022 (20 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Air Compressor (1) Welder (1)	Maple Street Shelter (2014)	56	70-76[b] dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	47-53[b] dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	44-50[b] dBA at 920ft	No
			Offices opposite US 101	67	68-74[b] dBA at 310ft	**Yes**

Table 4.13-15: Estimated Redwood City Pump Station Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
New Electrical and Controls	3/17/2022-9/13/2022 (180 days)	Crane (1) Forklift (1) Boom Truck/Small Crane (1) Welder (2) Generator Set (1)	Maple Street Shelter (2014)	56	67-74[c] dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	44-51[c] dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	41-48[c] dBA at 920ft	No
			Offices opposite US 101	67	65-72[c] dBA at 310ft	**Yes**
Temporary Odor Control for New Pump Station; Permanent Ducting	3/17/2022-7/15/2022 (80 days)	Forklift (1) Boom Truck/Small Crane (1) Concrete/Industrial Saw (1) Air Compressor (2) Welder (2)	Maple Street Shelter (2014)	56	70-76[d] dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	47-53[d] dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	44-50[d] dBA at 920ft	No
			Offices opposite US 101	67	68-74[d] dBA at 310ft	**Yes**
Startup and Commissioning of New Pump Station	9/14/2022-10/14/2022 (24 days)	Generator Set (1)	Maple Street Shelter (2014)	56	64 dBA at 240ft	No
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	41 dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	38 dBA at 920ft	No

Table 4.13-15: Estimated Redwood City Pump Station Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
			Offices opposite US 101	67	62 dBA at 310ft	No
Existing Building Demolition and Interior Improvements – Part 2 (Ground Floor; Control Room and Blower/Storage Room)	10/15/2022-11/14/2022 (30 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Air Compressor (1) Generator Set (1) Haul Truck (2)	Maple Street Shelter (2014)	56	71 dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	48 dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	45 dBA at 920ft	No
			Offices opposite US 101	67	69 dBA at 310ft	No
New Generator and Relocate Diesel Fuel Storage Tank	11/15/2022-2/13/2023 (90 days)	Generator Set (1) Forklift (1) Crane (1) Boom Truck/Small Crane (1) Welder (1) Rubber-Tired Dozer (1)	Maple Street Shelter (2014)	56	68 dBA at 240ft	No
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	45 dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	42 dBA at 920ft	No
			Offices opposite US 101	67	66 dBA at 310ft	No
Startup and Commissioning of New Generator	2/14/2023-3/16/2023 (30 days)	Generator Set (1)	Maple Street Shelter (2014)	56	64 dBA at 240ft	No
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	41 dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	38 dBA at 920ft	No
			Offices opposite US 101	67	62 dBA at 310ft	No
	3/17/2023-	Boom Truck/Small Crane (1)	Maple Street Shelter (2014)	56	71 dBA at 240ft	**Yes**

Table 4.13-15:
Estimated Redwood City Pump Station Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Architectural Improvements	6/15/2023 (60 days)	Welder (2) Air Compressor (1) Concrete/Industrial Saw (1) Forklift (1) Aerial Lift (1)	Docktown, west of RCPS & shielded by intervening buildings (2014)	59	48 dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	45 dBA at 920ft	No
			Offices opposite US 101	67	69 dBA at 310ft	No
Civil/Site Landscaping	3/17/2023-6/15/2023 (60 days)	Concrete/Industrial Saw (1) Excavator (1) Tractor/Loader/Backhoe (1) Scraper (1) Rubber-Tired Dozer (1) Roller (2) Paving Equipment (1) Dump Truck (9) Haul Truck (4)	Maple Street Shelter (2014)	56	75-76[e] dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	52-53[e] dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	49-50[e] dBA at 920ft	No
			Offices opposite US 101	67	73-74[e] dBA at 310ft	**Yes**
Existing Building Demolition and Interior Improvements – Part 3 (Motor Room and Wet Well)	3/17/2023-5/16/2023 (40 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Pump (1) Air Compressor (1) Tractor/Loader/Backhoe (1) Concrete Delivery Truck (2) Concrete Pump (1)	Maple Street Shelter (2014)	56	73-77[f] dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	50-54[f] dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	47-51[f] dBA at 920ft	No
			Offices opposite US 101	67	71-75[f] dBA at 310ft	**Yes**

Table 4.13-15:
Estimated Redwood City Pump Station Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Odor Control	5/17/2023-7/16/2023 (40 days)	Forklift (1) Boom Truck/Small Crane (1) Concrete/Industrial Saw (1) Air Compressor (2) Welder (1)	Maple Street Shelter (2014)	56	70-76[g] dBA at 240ft	**Yes**
			Docktown, west of RCPS & shielded by intervening buildings (2014)	59	47-53[g] dBA at 645ft	No
			Docktown, northwest of RCPS & shielded by intervening buildings (2014)	56	44-50[g] dBA at 920ft	No
			Offices opposite US 101	67	68-74[g] dBA at 310ft	**Yes**

Notes:
[a] The range of construction noise levels represents the levels of Existing Building Demolition and Interior Improvements – Part 1 phase only and combined with Building Structural and Seismic phase.
[b] The range of construction noise levels represents the levels of HVAC phase only and combined with Building Structural and Seismic and Existing Building Demolition and Interior Improvements – Part 1 phases.
[c] The range of construction noise levels represents the levels of New Electrical and Controls phase only and combined with Building Structural and Seismic phase.
[d] The range of construction noise levels represents the levels of Temporary Odor Control for New Pump Station phase only and combined with New Electrical and Controls and Building Structural and Seismic phases.
[e] The range of construction noise levels represents the levels of Civil/Site Landscaping phase only and combined with Architectural Improvements phase.
[f] The range of construction noise levels represents the levels of Existing Building Demolition and Interior Improvements – Part 3 phase only and combined with Civil/Site Landscaping and Architectural Improvements phases.
[g] The range of construction noise levels represents the levels of Odor Control phase only and combined with Civil/Site Landscaping and Architectural Improvements phases.

Source: Illingworth & Rodkin, November 2016.

Table 4.13-16:
Estimated Menlo Park Pump Station Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Wet Well Modifications	2/4/2021-8/3/2021 (120 days)	Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Tractor/Loader/Backhoe (1) Concrete Pump (1) Concrete Delivery Truck (2) Air Compressor (1)	Office south of MPPS (2013)	59	72 dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	65 dBA at 565ft	No
			Park northeast of MPPS (2013)	54	65 dBA at 550ft	No
Building Structural and Seismic	8/4/2021-10/3/2021 (40 days)	Boom Truck/Small Crane (1) Welder (2) Air Compressor (1) Concrete/Industrial Saw (2) Forklift (1) Concrete Delivery Truck (3) Concrete Pump (1)	Office south of MPPS (2013)	59	73 dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	66 dBA at 565ft	No
			Park northeast of MPPS (2013)	54	66 dBA at 550ft	No
Install New Switchgear	8/4/2021-11/2/2021 (20 days)	Forklift (1) Boom Truck/Small Crane (1)	Office south of MPPS (2013)	59	60-74[a] dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	53-67[a] dBA at 565ft	No
			Park northeast of MPPS (2013)	54	53-67[a] dBA at 550ft	No
Modifications	3/2/2022-8/29/2022 (120 days)	Forklift (1) Crane (1) Boom Truck/Small Crane (1) Welder (2) Air Compressor (2) Concrete/Industrial Saw (2) Haul Truck (2)	Office south of MPPS (2013)	59	73 dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	66 dBA at 565ft	No
			Park northeast of MPPS (2013)	54	66 dBA at 550ft	No

**Table 4.13-16:
Estimated Menlo Park Pump Station Construction Noise Levels**

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
Comminutor Replacement	3/2/2022-5/1/2022 (40 days)	Boom Truck/Small Crane (1) Forklift (1) Air Compressor (1) Concrete/Industrial Saw (2)	Office south of MPPS (2013)	59	72-76[b] dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	65-69[b] dBA at 565ft	No
			Park northeast of MPPS (2013)	54	65-69[b] dBA at 550ft	No
Pump Discharge Pipe Manifold Replacement	8/30/2022-10/29/2022 (40 days)	Forklift (1) Boom Truck/Small Crane (1) Air Compressor (1) Concrete/Industrial Saw (2) Generator Set (1) Pump (2)	Office south of MPPS (2013)	59	74 dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	67 dBA at 565ft	No
			Park northeast of MPPS (2013)	54	67 dBA at 550ft	No
Yard Piping (force main) and Flow Meter Replacement	9/29/2022-10/29/2022 (20 days)	Excavator (1) Tractor/Loader/Backhoe (1) Concrete/Industrial Saw (1) Boom Truck/Small Crane (1) Forklift (1) Air Compressor (2) Generator Set (1) Skid Steer Loader (1) Plate Compactor (1) Sweeper/Scrubber (1)	Office south of MPPS (2013)	59	73-77[c] dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	66-70[c] dBA at 565ft	No
			Park northeast of MPPS (2013)	54	66-70[c] dBA at 550ft	No
Replace Generator	8/30/2022-10/29/2022 (20 days)	Boom Truck/Small Crane (1) Forklift (1)	Office south of MPPS (2013)	59	60-77[d] dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	53-70[d] dBA at 565ft	No

Table 4.13-16:
Estimated Menlo Park Pump Station Construction Noise Levels

Phase	Time Duration	Construction Equipment (Quantity)	Representative Receptors	Daytime Ambient, dBA L_{eq}	Estimated Noise Levels, dBA L_{eq}	Exceed Threshold & Ambient by 5 dBA L_{eq} or more?
			Park northeast of MPPS (2013)	54	53-70[d] dBA at 550ft	No
HVAC	8/30/2022-9/29/2022 (20 days)	Forklift (1) Boom Truck/Small Crane (1) Concrete/Industrial Saw (2) Air Compressor (1) Welder (1)	Office south of MPPS (2013)	59	72-76[e] dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	65-69[e] dBA at 565ft	No
			Park northeast of MPPS (2013)	54	65-69[e] dBA at 550ft	No
Odor Control	8/20/2022-10/29/2022 (40 days)	Forklift (1) Boom Truck/Small Crane (1) Concrete/Industrial Saw (2) Air Compressor (1) Welder (1)	Office south of MPPS (2013)	59	72-78[f] dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	65-71[f] dBA at 565ft	**Yes**
			Park northeast of MPPS (2013)	54	65-71[f] dBA at 550ft	**Yes**
Architectural Improvements	3/29/2023-6/27/2023 (60 days)	Boom Truck/Small Crane (1) Welder (2) Air Compressor (1) Concrete/Industrial Saw (2) Forklift (1) Concrete Delivery Truck (2) Concrete Pump (1) Generator Set (1)	Office south of MPPS (2013)	59	72 dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	65 dBA at 565ft	No
			Park northeast of MPPS (2013)	54	65 dBA at 550ft	No
Civil/Site Landscaping	3/17/2023-6/15/2023 (20 days)	Concrete/Industrial Saw (1) Excavator (1) Tractor/Loader/Backhoe (1) Rubber-Tired Dozer (1)	Office south of MPPS (2013)	59	74-76[g] dBA at 250ft	**Yes**
			Office southeast of MPPS (2013)	59	67-69[g] dBA at 565ft	No

Table 4.13-16: Estimated Menlo Park Pump Station Construction Noise Levels						
Phase	**Time Duration**	**Construction Equipment (Quantity)**	**Representative Receptors**	**Daytime Ambient, dBA L_{eq}**	**Estimated Noise Levels, dBA L_{eq}**	**Exceed Threshold & Ambient by 5 dBA L_{eq} or more?**
		Dump Truck (4) Roller (2) Paving Equipment (1) Haul Truck (8)	Park northeast of MPPS (2013)	54	67-69[g] dBA at 550ft	No

Notes:

[a] The range of construction noise levels represents the levels of Building Structural and Seismic phase only and combined with Install New Switchgear phase.

[b] The range of construction noise levels represents the levels of Comminutor Replacement phase only and combined with Modifications phase.

[c] The range of construction noise levels represents the levels of Yard Piping and Flow Meter Replacement phase only and combined with Pump Discharge Pipe Manifold Replacement phase.

[d] The range of construction noise levels represents the levels of Replace Generator phase only and combined with Yard Piping and Flow Meter Replacement and Pump Discharge Pipe Manifold Replacement phases.

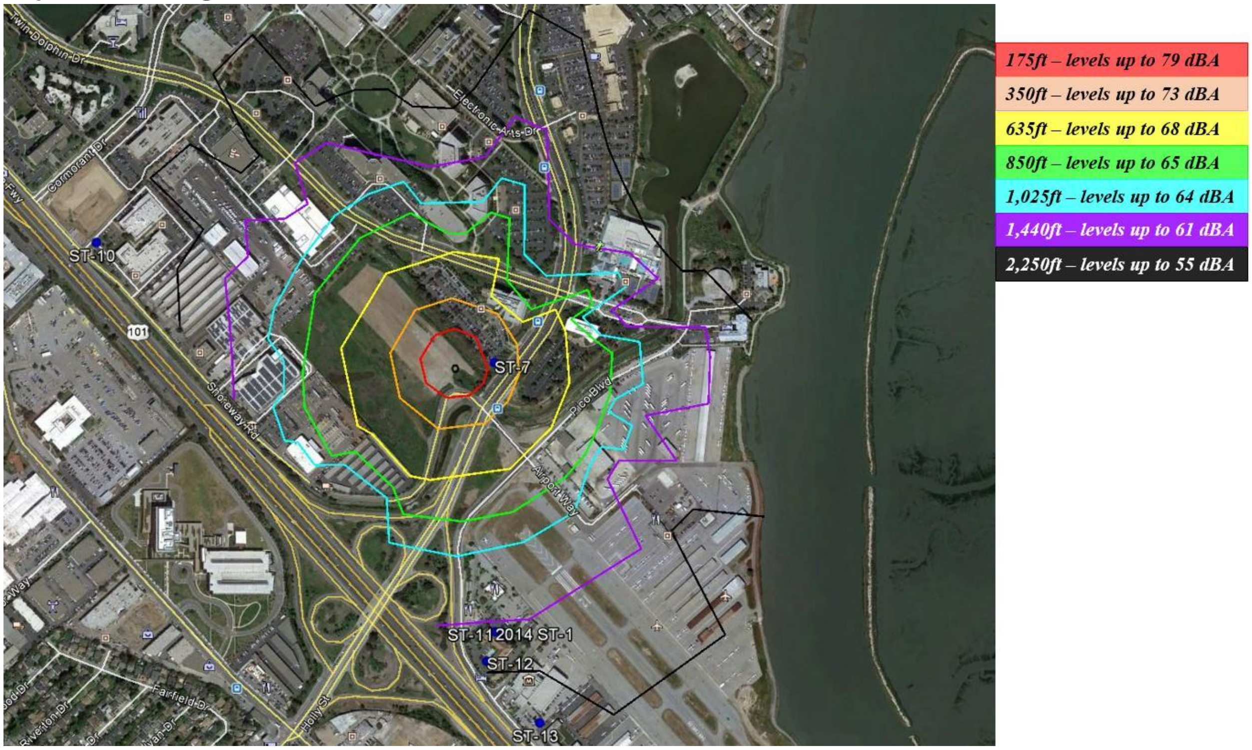
[e] The range of construction noise levels represents the levels of HVAC phase only and combined with Replace Generator and Pump Discharge Pipe Manifold Replacement phases.

[f] The range of construction noise levels represents the levels of Odor Control phase only and combined with Replace Generator, Yard Piping and Flow Meter Replacement, and Pump Discharge Pipe Manifold Replacement phases.

[g] The range of construction noise levels represents the levels of Civil/Site Landscaping phase only and combined with Architectural Improvements phase.

Source: Illingworth & Rodkin, November 2016.

Figure 4.13-4 Noise Contours during Airport Access Shaft: Tunnel Construction during the daytime and nighttime*

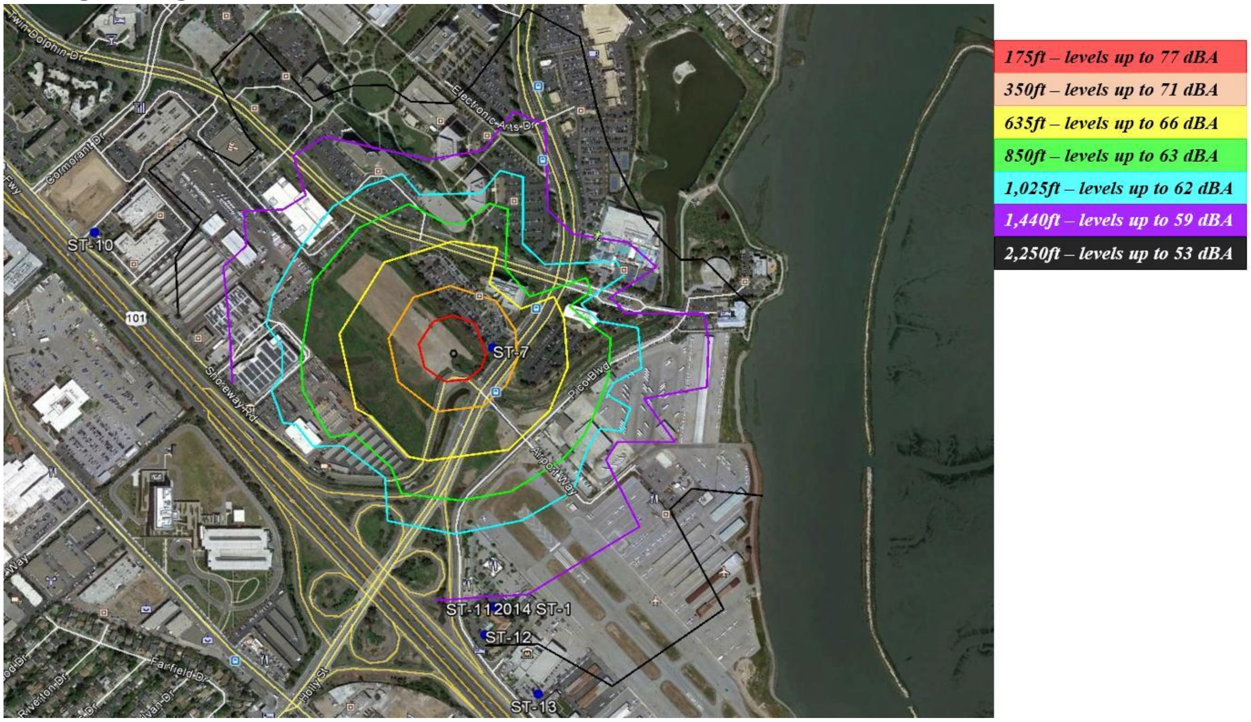


*Note, these noise levels reflect construction activities during the daytime and nighttime since the fewer pieces of equipment during nighttime activities resulted in a noise reduction from daytime construction of 0.1 dBA.

Figure 4.13-5 Noise Contours during Airport Access Shaft: Gravity Pipeline Placement during the daytime

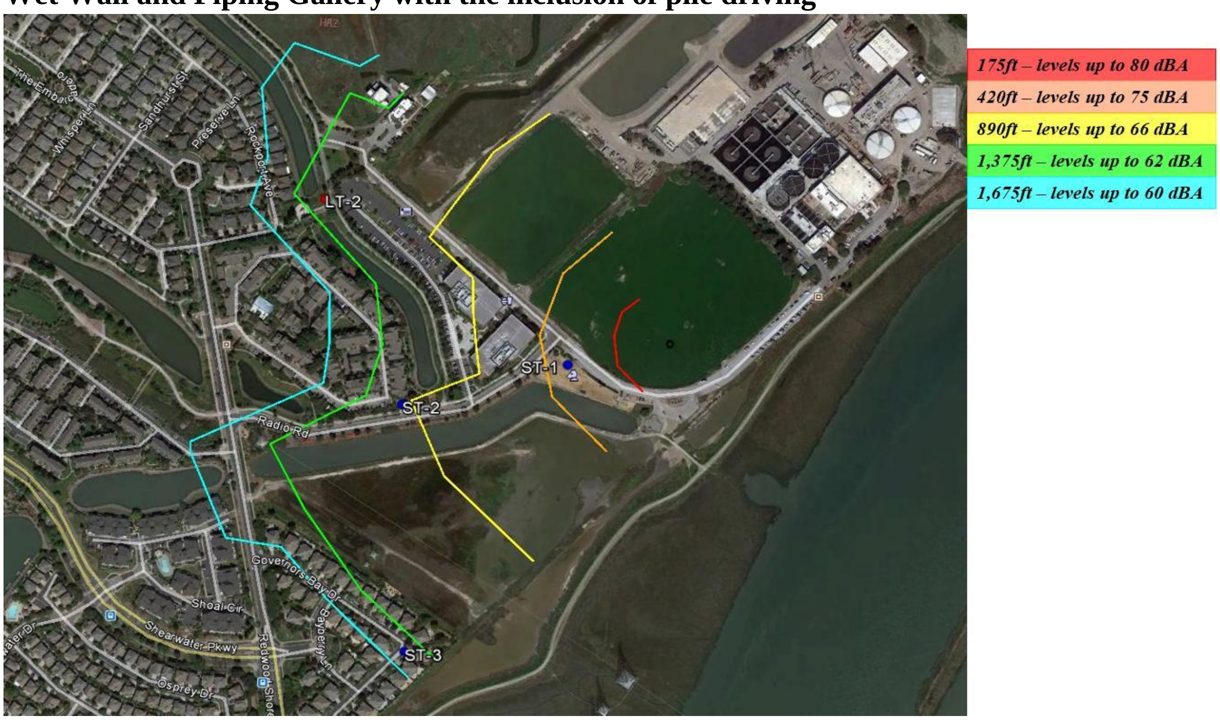
*Note, these noise levels reflect construction activities during the daytime hours only.

Figure 4.13-6 Noise Contours during Airport Access Shaft: Gravity Pipeline Placement during the nighttime



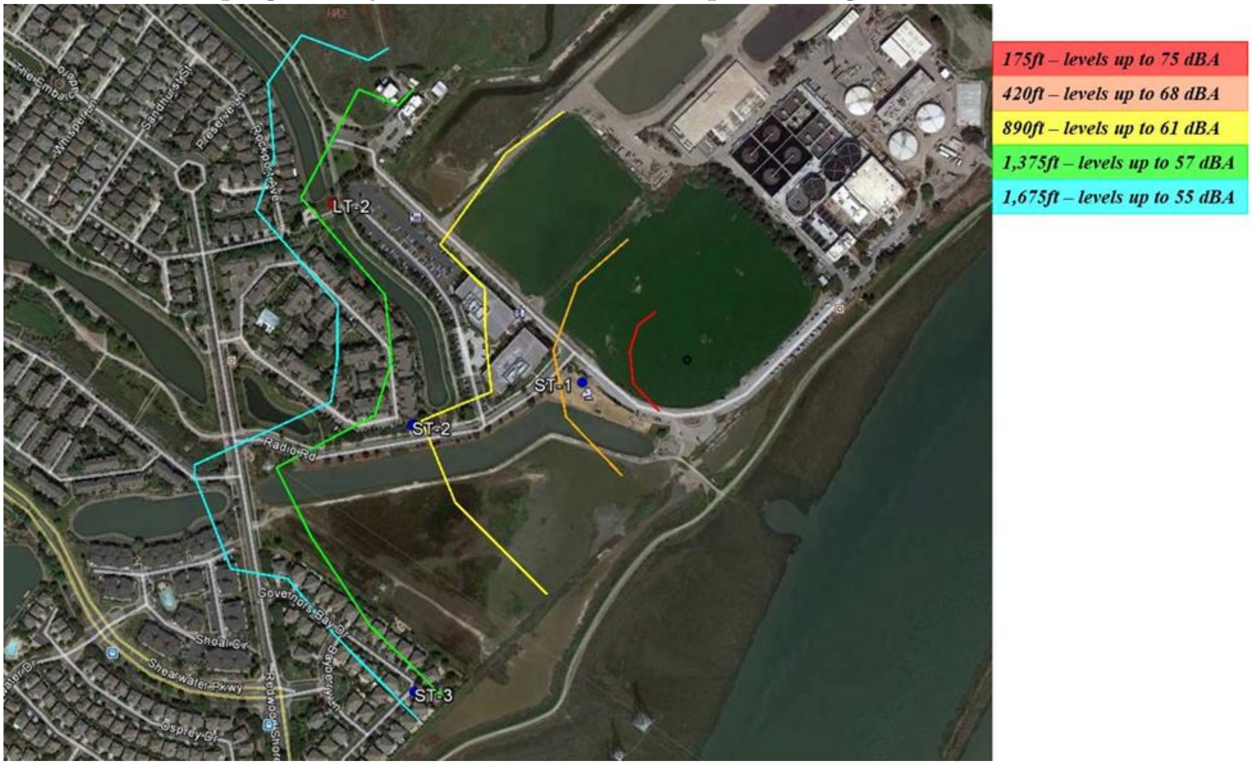
*Note, these noise levels reflect construction activities during the nighttime hours only.

Figure 4.13-7 Noise Contours during WWTP RLS & Shaft Interior: Construct Top Slab of Wet Wall and Piping Gallery with the inclusion of pile driving



*Note, these noise levels assume a 5 dBA reduction from the 12-foot temporary or permanent sound wall located around the perimeter of the WWTP site.

Figure 4.13-8 Noise Contours during WWTP RLS & Shaft Interior: Construct Top Slab of Wet Wall and Piping Gallery without the inclusion of pile driving



*Note, these noise levels assume a 5 dBA reduction from the 12-foot temporary or permanent sound wall located around the perimeter of the WWTP site.

Operational Noise in relation to Applicable City Local Limits and Ambient Noise Conditions

Operational noise would be generated by new or replacement equipment at the WWTP or the pump stations, potentially resulting in a change in existing noise from the Belmont, San Carlos, Redwood City, and Menlo Park facilities.

Gravity Pipeline

The operation of the Gravity Pipeline component of the Project would not result in measurable noise levels above ground; once the pipeline is installed, it would operate similar to the existing force main, with no above ground sources of noise. It is a pipe that conveys sewage. The operation of this component of the proposed Project would not, therefore, cause a permanent change in the noise environment along the Project alignment.

WWTP Improvements

The 10-acre ornamental pond located adjacent to the existing SVCW WWTP is the site for the proposed WWTP improvements, which would include the RLS, the Headworks, Front of the Plant Odor Control Facility, the Flow Diversion Facilities, the Nutrient Removal Components, and the Clarifiers. A permanent 12-foot sound wall would be constructed as part of the WWTP Improvements Project, and the wall would be located around the perimeter of the property.

The RLS would consist of two, rectangular trench-style wet wells, which would each house four submersible pumps (for a total of eight pumps): one 7.5 MGD pump and three 15 MGD pumps each. The pumps and their associated piping would be installed below grade and submersed in water. The sound of the submersible pumps would be attenuated at the water/air interface because the acoustical characteristics of water and air are different given that the density of water is so much greater than the density of air. Approximately every six months, the pumps would require removal for maintenance inspections and oil changes. This would be done using a rental crane and this mobile crane would only be used a few times per year. Odor control for the RLS would treat two distinct areas: 1) air conveyed through the headspace of the tunnel using exhaust fans at a peak rate of approximately 3,900 CFM to draw out air from the front end of the RLS and convey it to the Odor Control Facility; and 2) air within the wet wells, which would require both supply and exhaust fans to ventilate the wet well air space within the larger RLS shaft. An expected air flow rate of approximately 7,400 CFM for four ventilation changes per hour would be supplied and ventilated from the space.

The proposed Headworks would consist of a screening facility, grit removal facility, grit and screening processing equipment, Odor Control Facilities, and an electrical room. The electrical facilities would be accommodated within an electrical building constructed for the Headworks and RLS with the capacity for the FDS. Standby power for these facilities would be located within the Headworks building. The anticipated electrical demand would be approximately 250 HP from the Headworks equipment and 50 HP for the odor control ventilation equipment. Power supply may be from two new transformers located at the same elevation as the electrical building and in close proximity to the building.

If the gravity pipe reaches capacity during the wet weather season, the excess wastewater will be directed to the proposed FDS, which does not currently exist at the SVCW WWTP and Drying Bed "A". The Flow Diversion facilities would provide the storage capacity required to allow SVCW to limit wastewater flow through the WWTP to 60 MGD during the wet weather season and would allow a constant process flow of approximately 16 MGD during the dry weather season. The facilities would consist of the Gravity Pipeline storage, FDS, and the drying beds. The FDS would be an uncovered concrete tank, and the drying beds would be drained of stored wastewater by a portable pump, pumping flow into the FDS. The return pumps within the FDS would consist of four, 7.5 MGD, 75 HP submersible pumps. Pumps would alternate with a maximum of three pumps in simultaneous operation, sized to pump wastewater at a total flow rate of up to 22 MGD. Since the FDS will be open to the atmosphere, no ventilation would be included.

Stormwater collected within the 10-acre ornamental pond would require treatment after completion of the RLS, Headworks, and the Flow Diversion Facilities. A submersible pump station, capable of conveying 10-year storm flows, would be constructed to pump treated stormwater from the 10-acre pond area to the 5-acre ornamental pond.

At the time of the preparation of the noise technical report (attached as Appendix G), detailed, design-level noise information and plans for the proposed equipment were not available. However, with most of the proposed noise-generating equipment located within the proposed WWTP buildings, a maximum noise level of 85 dBA Leq, as measured at a distance of five (5) feet, was assumed for the purpose of this study. Since these long-term operations are assumed to be located at the nearest improvements structure, the nearest existing land uses, which include a commercial office building, would be located approximately 420 feet southwest. The nearest residential land uses would be located approximately 890 feet southwest of the nearest improvements structure. Assuming five (5) dBA reduction by the proposed 12-foot sound wall, the noise levels at the nearest land uses would be 42 dBA Leq at the office building and 35 dBA Leq at the nearest residence.

The City of Redwood City does not have any operational noise requirements; however, compared to the average hourly daytime and nighttime noise level trends measured at LT-2 and the ten-minute daytime noise levels measured at ST-1 and ST-2, the calculated operational noise from the proposed WWTP improvements would be at or below ambient noise levels.

In addition to running during emergencies, the standby generator would normally be placed on a testing schedule, typically for a period of about 30 minutes once per month. Major noise sources associated with a generator include the engine exhaust, the engine casing, and the radiator. Diesel engine-generators are always specified with an exhaust muffler. However, the noise control for the engine/generator package depends on the design of the Project and can be accomplished with special enclosures supplied by vendors, or with treatments, such as sound absorbing and sound barrier materials, and sound attenuators or baffles on the air intakes and exhausts that are incorporated into the design of the building housing the generator. A noise performance standard, as listed in **MM NOI-2** below, for the generator noise would ensure that noise from testing and operation of the equipment would not disturb sensitive receptors in the vicinity.

Belmont Conveyance System

As part of the Belmont Pump Station Rehabilitation, the existing three 100-HP pumps located at the Belmont Pump Station would be replaced with two new 8.2 MGD, 100-HP pumps and one new 1.8 MGD, 10-HP pump. Additionally, all internal piping, all electrical components, and all site security within the Belmont Pump Station would be upgraded to current SVCW standards. While most of the rehabilitation and replacement at the pump station is expected to occur within the existing building, some site improvements may be necessary to accommodate new electrical components (e.g., generator) and containment walls for accommodating future sea level rise. The power demand for the Belmont Pump Station would be reduced from 300 HP to 210 HP with the renovations.

The City of Belmont has established noise performance standards, limiting daytime noise levels to 65 dBA and nighttime noise levels to 55 dBA for all sources of sound measured from any residential property and non-residential building. While no residential land uses are located in the vicinity of the Belmont Pump Station, there are commercial land uses located approximately 80 feet north, 350 feet southeast, and 420 feet northeast of the pump station. Additional land uses are located opposite U.S. 101; however, noise from the pump station would be indiscernible at these land uses over traffic noise from U.S. 101. Short-term measurement ST-6 was taken at the existing commercial office building located adjacent to the Belmont Pump Station to quantify the existing ambient noise environment. Daytime ambient levels were 63 dBA Leq. Average nighttime noise levels along U.S. 101 in this area are about 10 dBA lower than daytime levels (City of Redwood City 2008). Since the new replacement equipment would be comparable to the existing operational equipment, the improvements at the Belmont Pump Station are not expected to result in a measurable noise increase from these ambient levels. The operational noise from the improvements at the Belmont Pump Station would not result in a significant impact.

San Carlos Pump Station Repurposing

The San Carlos Pump Station would be repurposed to no longer be an active pumping station. Under the proposed Project, this location would primarily be used to house Odor Control Facilities, which would contain and treat odors venting from the San Carlos Drop Shaft. Several improvements would be required at the pump station to allow for Belmont and San Carlos flows to connect to the proposed Gravity Pipeline.

The Odor Control Facilities would be installed at the San Carlos Drop Shaft site to contain and treat odors venting from the drop shaft. The amount of air venting from the San Carlos Drop Shaft site is estimated to be up to 5,000 CFM during diurnal flow storage events, which would happen daily for periods of two to three hours, and could be as high as 16,000 CFM during wet weather storage events, which would occur two to three times per year for a period of 24 hours or less. Odor control equipment would include three chemical scrubbers, each with a capacity of 5,000 CFM. Each unit would be equipped with a fan to collect air from the drop shaft, push it through the scrubber, and vent it to the atmosphere through a stack extending up to approximately 25 feet above the ground. Chemical metering pumps, secondary containment piping, electrical equipment, and other ancillary equipment would also be required. Two small blowers that would provide ventilation into the two new vaults would allow for safe entry. These blowers would be housed in the existing San Carlos Pump Station building with a fresh air source, which would be located on either the roof or in an exterior wall. Noise from these blowers would be intermittent and only occur when an individual is on-site performing entry into the new vaults for periodic maintenance. Prior to installing the new odor control equipment, the existing equipment, which includes large wastewater pumps, small chemical metering pumps, chemical storage tanks, air handling fans, electrical motor control centers, and other miscellaneous equipment, piping, and conduit, would need to be removed from the existing building.

Specific noise information pertaining to the fans expected to be used for the ventilation system was not available at the time of this study; however, noise levels of 85 dBA Leq, as measured at a distance of 5 feet, would be typical for this type of project. The location, quantity, and usage information (i.e., whether all fans would be operational at the same time) of these fans have not been confirmed at this time. If worst-case scenario conditions are assumed, the fans would be located inside the building and the air vent would be directed away from the hotel. In this case, the rear building façade of the adjacent Fairfield Inn and Suites hotel would be located approximately 115 feet southwest of the nearest possible location of the fan. If positioned at the airport-facing side of the San Carlos Pump Station building, the rear hotel façade would be approximately 195 feet southwest of the fan outlet. At these distances, noise levels from a single fan would range from 58 dBA Leq at the hotel-facing side of the San Carlos Pump Station building to 53 dBA Leq at the airport-facing side of the San Carlos Pump Station building. The existing ambient level measured at ST-11 was 56 dBA Leq, which was at the rear of the hotel. This noise resulted from traffic on U.S.

101 and from the existing operations at San Carlos Pump Station. Average nighttime noise levels along U.S. 101 in this area are about 10 dBA lower than daytime levels, but noise from the existing pump station would be steady day and night, resulting in a steady nighttime noise level of about 50 to 52 dBA Leq at the exterior of the hotel building. If a single fan is located on the roof nearest to the hotel, then both daytime and nighttime ambient levels would be exceeded. If located on the roof farthest from the hotel, daytime ambient levels would not be exceeded, but nighttime levels would be exceeded.

The City of San Carlos has established noise performance standards for noise sensitive uses in Chapter 18.21 of the Municipal Code. Table 18.21.050A establishes a noise limit for steady noise of 55 dBA L_{50} during the daytime and 45 dBA L_{50} during the nighttime for residential land uses. Since there are no residential land uses in the vicinity of the San Carlos Pump Station, this standard would not apply. However, the Project could potentially cause a permanent increase from existing ambient conditions at the Fairfield Inn and Suites, which is considered a noise-sensitive commercial land use, in that elevated San Carlos Pump Station operational nighttime noise would be disruptive to the hotel guests. Individual guests would be exposed for a relatively short period of time based on their length of stay, assumed to be typically a few days, which is not a significant environmental impact. Rather if the hotel were exposed to ongoing elevated operational nighttime noise from the San Carlos Pump Station odor control fans, it is possible the hotel could have difficulty attracting guests to remain fully occupied if the hotel were to become known for being exposed to excessive noise, and that may affect the long-term viability of the use itself, which would be an economic impact.

Therefore, a noise performance standard, as listed in the **MM NOI-2** below, for the new Odor Control Facility fans would ensure the adjacent hotel will not be exposed to excessive noise that would be disruptive to guests, and so no significant impacts are expected, whether economic or environmental.

<u>Redwood City Pump Station Replacement</u>

The existing Redwood City Pump Station consists of the existing pump station building, a PG&E transformer, electrical equipment, a standby engine generator and fuel storage tank, six 100-HP pumps and various underground piping and force main connections, and biofilter for odor control. The replacement project would include major upgrades and improvements to maintain long-term operation. New facilities to be located within the existing Redwood City Pump Station building include a chemical odor scrubber, exhaust fans, electric equipment and a generator. A new structure would be constructed to the west of the existing building, and this new structure would include coarse screening of the wastewater flow and two new wet wells that contain dry weather and wet weather pumps (a total of eight new pumps). These eight new submersible pumps have flows ranging from 1.36 MGD at minimum flow to 60 MGD at PWWF, and ADWF would be approximately 7.7 MGD. At a flow of approximately 14 MGD, flow from Menlo Park Pump Station would be diverted through Redwood City Pump Station, and these pumps would convey the combined flow from Redwood City and Menlo Park to the Gravity Pipeline shaft. Flows less than 14 MGD would be pumped by Menlo Park Pump Station only and combine with Redwood City Pump Station flow downstream of Redwood City Pump Station.

Additional above-grade improvements to the Redwood City Pump Station include installation of surge control tanks, screening building, chemical storage facility, fuel tank, exterior façade upgrades to the existing pump station building, flood protection improvements, onsite storm water management, seismic building upgrades, security fencing and lighting, and limited landscaping, if space allows. The new Redwood City Pump Station would increase the connected horsepower from 600 HP to 1,740 HP, which would require a new transformer. The existing Pacific Gas and Electric (PG&E) transformer, which is in conflict with the new utilities, would be relocated within the Redwood City Pump Station construction site.

The adjacent land uses include the Redwood City Police Station, which is approximately 55 feet east of the Redwood City Pump Station; the Maple Street Shelter, which is approximately 170 feet northwest of the Redwood City Pump Station; and the San Mateo County Women's Jail, which is located approximately 270 feet northwest of the pump station. To the south of the pump station is U.S. 101. Noise levels were measured at ST-15 (front of the Maple Street Shelter), ST-16, and ST-17, as discussed above. The average noise level during daytime hours at the shelter was 56 dBA Leq. Average nighttime noise levels along U.S. 101 in this area are about 10 dBA lower than daytime levels. While noise information for the replacement equipment was not provided at the time of this study, it is assumed that the noise increase from existing levels would be less than 5 dBA, which would constitute a less-than-significant increase. Since all improvements at the Redwood City Pump Station would be within the building, the Redwood City Pump Station Replacement Project improvements are not expected to result in a measurable contribution to the overall noise, which is dominated primarily by traffic along U.S. 101.

The City of Redwood City Noise Ordinance or General Plan does not include noise limits that regulate noise from mechanical equipment. Without having noise information to confirm that there would not be a noise increase for the proposed replacement project, a noise performance standard for operational noise from Redwood City Pump Station as listed in **MM NOI-2** would ensure that noise from the pump station does not cause a substantial increase in ambient levels at sensitive receptors in the Project vicinity.

Menlo Park Pump Station Rehabilitation

The existing Menlo Park Pump Station, which consists of five 100-HP pumps and two wet wells (one wet well housing two pumps and the other housing three pumps), would be rehabilitated with both above ground and below ground modifications. Above-grade improvements include exterior façade upgrades to the existing pump station building, a new 18-inch exterior perimeter wall and access ramps for flood protection, onsite stormwater management, new security fencing and lighting, landscaping, new vacuum relief valves, a new odor control system, seismic upgrades to the existing building, and an upgraded HVAC system. In addition, five new 5.5 MGD, 85-HP pumps, new pump discharge manifold and valves, flow meter, grinders, and related equipment would be installed below grade.

The existing building would be reused and would house standby power, odor control, and other ancillary equipment needed to operate and maintain the new pump station. With the exception of the flow meter, the proposed improvements would be located within the existing Menlo Park Pump Station building.

The connected horsepower of the existing pump station is 500 HP; the connected horsepower for the upgraded Menlo Park Pump Station is less than the existing at 425 HP. As a result, the existing PG&E electrical service would not need to be upgraded. At a peak flow rate of 22 MGD, the operating horsepower would be 300 HP.

A FedEx Shipping Center is located approximately 65 feet southwest of the Menlo Park Pump Station. Other commercial office buildings are located approximately 250 to 315 feet south/southwest of the Menlo Park Pump Station, opposite Bayfront Expressway. To the north of the Menlo Park Pump Station is a park and walking trails. In 2013, I&R conducted noise measurements at the Menlo Park Pump Station.3 A short-term measurement was taken to the north of the existing Menlo Park Pump Station building along the fence line. Without truck traffic, average noise levels resulting from the pump station operations ranged from 58 to 59 dBA Leq. Another short-term measurement was taken approximately 120 feet to the north of the Menlo Park Pump Station building, along the walking trail at the southern part of the park. The average daytime noise measurement at this location, which indicates the fall-off of the pump station operational noise ranged from 53 to 54 dBA Leq. Under the proposed Project improvements, operational noise at the Menlo Park Pump Station would not result in a measurable noise increase above existing ambient levels.

The City of Menlo Park has established noise performance standards in Chapter 8.06.030 for all sources of sound measured from any residential property but not for commercial properties. This is expected to be a less-than-significant impact and would not require mitigation.

Impact NOI-2: Operational noise from regular operations at the WWTP and the specified pump stations as discussed above would lead to a potentially significant impact.

MM NOI-2: The following noise performance standards shall be applied to noise from regular operations at the WWTP and at the specified pump stations:

- Noise resulting from regular (non-emergency) operations of WWTP equipment shall not exceed 50 dBA L_{eq} at night (10 p.m. to 7 a.m.) at the nearest residential land use located 890 feet southwest of the WWTP Improvements buildings. If the mechanical equipment at the WWTP would cause levels to exceed 50 dBA L_{eq} at night, controls could include, but are not limited to, design alternatives, fan silencers, enclosures, and screen walls.
- Noise resulting from regular (non-emergency) operations of San Carlos Pump Station equipment shall not exceed 52 dBA L_{eq} at night (10 p.m. to 7 a.m.) at any point on the common property line of San Carlos Pump Station and the Fairfield Inn and Suites hotel. Design alternatives, such as locating the fans on the exterior walls facing the airport, would reduce fan noise from the new Odor Control Facility to levels at or below ambient conditions

at the nearest hotel façade. Fan enclosures would be another potential mitigation measure.

- Noise resulting from regular (non-emergency) operations of Redwood City Pump Station equipment shall not exceed 46 dBA L_{eq} at night (10 p.m. to 7 a.m.) measured outside the Maple Street façade of the Maple Street Shelter. Possible mitigation measures would include, but are not limited to, design alternatives, fan silencers, enclosures, and screen walls.
- Low-velocity ventilation systems (which are quieter than standard ventilation systmes) and other ancillary noise controls shall be incorporated into the designs, as necessary, to meet the noise performance standards.

The following noise performance standard shall be applied to noise from diesel engine-generator operations at WWTP and each of the pump stations:

- The sound level from non-emergency operation of the diesel engine-generator at each facility shall not exceed 60 dBA when measured on any real property outside the property lines of the facilities (excluding U.S. 101, other roadways, and San Carlos Airport).

Implementation of mitigation measures **NOI-1** and **NOI-2** will result in a less than significant impact from construction and operational phases of the Project.

4.13.3.4 *Vibration Impacts*

For structural damage, the California Department of Transportation recommends a vibration limit of 0.5 inches/second, peak particle velocity (in/sec, PPV) for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec, PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and a conservative limit of 0.08 in/sec, PPV for ancient buildings or buildings that are documented to be structurally weakened.

All buildings in the Project vicinity are assumed to be structurally sound, but these buildings may or may not have been designed to modern engineering standards. Vibration impacts would be considered significant if levels from proposed construction activities would exceed 0.3 in/sec PPV at nearby buildings. Vibration levels exceeding 0.3 in/sec PPV could result in cosmetic damage. No ancient buildings or buildings that are documented to be structurally weakened are known to exist along the Project corridor. While the proposed SVCW construction Project would increase the number of heavy trucks traveling along Redwood Shores Parkway, vibration and noise levels can be minimized through the enforcement of a 25 mph speed limit for all construction vehicles. SVCW already directs its contractors to not exceed 25 mph and avoid the tree roots along Redwood Shores Parkway by utilizing the right hand or slow lane that is furthest from the center median where the tree roots originate. To minimize vibration annoyance/disruption, the 25 mph speed limit should continue to be enforced by SVCW.

Construction activities with the potential to generate perceptible vibration levels would include the removal of pavement and soil, shoring, the compacting of backfill, and pile driving. Tunnel shaft construction and tunnel construction utilize a tunnel boring machine (TBM) and jacking frames to bore an underground tunnel and install pipe segments between the launch shaft and receiving shaft. Table 4.13-7 summarizes typical vibration levels associated with varying pieces of construction equipment at a distance of 25 feet.

Major equipment anticipated during Project construction would include: an excavator, a crane, a vibratory pile driver, a loader, a forklift, dump trucks, concrete trucks, paving equipment, and a compactor. Ancillary equipment would include welders, air compressors, concrete saws, pumps, water trucks, delivery trucks, tunneling device, and various passenger vehicles. A review of the proposed equipment and the vibration level data provided in Table 4.13-17 indicates that, with the exception of pile driving, vibration levels generated by the proposed equipment would be below the 0.3 in/sec PPV criterion used to assess the potential for cosmetic or structural damage to nearby buildings at distance of about 25 feet. Tunneling results in less vibration than open trench construction activities because the depth of the underground tunnel increases the distance between the equipment and structures on the surface. In the case of the proposed Project, tunneling would occur at depths ranging from 20 to 52 feet below the ground surface.

Table 4.13-17:
Vibration Source Levels for Construction Equipment

Equipment		PPV at 25 foot (in/sec)
Pile Driver (Impact)	upper range	1.158
	typical	0.644
Pile Driver (Sonic)	upper range	0.734
	typical	0.170
Clam shovel drop		0.202
Hydromill (slurry wall)	in soil	0.008
	in rock	0.017
Vibratory Roller		0.210
Hoe Ram		0.089
Large bulldozer		0.089
Caisson drilling		0.089
Loaded trucks		0.076
Jackhammer		0.035
Small bulldozer		0.003

Source: United States Department of Transportation, Federal Transit Agency, Office of Planning and Environment. *Transit Noise and Vibration Impact Assessment*, May 2006.

Both a vibratory pile driver and an impact pile driver would be required for installing sheet piles and concrete piles, respectively, for the proposed Project. As mentioned above, the nearest existing commercial land use would be located approximately 420 feet southwest of the nearest improvements structure. The nearest residential land use would be approximately 890 feet southwest. Vibration levels at these distances would be below 0.1 in/sec PPV. Existing buildings located at the WWTP would be approximately 290 feet from the nearest potential pile driving location, and at this distance, vibration levels would be below 0.1 in/sec PPV. Since the 0.3 in/sec

PPV threshold is not expected to be exceeded by the proposed Project, this impact would be less-than-significant.

The nearest commercial land use building to the construction activities at the Airport Access Shaft would be approximately 350 feet away. At this distance, vibration levels would be at or below 0.01 in/sec PPV. Buildings in the vicinity of the Bair Island Inlet Structure Shaft would be commercial buildings approximately 650 feet or more from the construction activities, which would result in vibration levels below 0.01 in/sec PPV. The nearest structures to activities at the San Carlos Pump Station and the Belmont Pump Station would be the Fairfield Inn and Suites and an office building. These land uses would be 70 to 100 feet from the construction activities, respectively. At these distances, vibration levels would be at or below 0.07 in/sec PPV. The nearest structures to the Force Main Replacement work for the Belmont Conveyance Project would be 150 feet or both from the construction activities, and at this distance, vibration levels would be at or below 0.03 in/sec PPV. Construction at the Redwood City Pump Station would be approximately 55 feet from the Redwood City Police Station. At this distance, the police station would be exposed to vibration levels at or below 0.09 in/sec PPV. The Menlo Park Pump Station is located adjacent to a FedEx shipping center, which would be within 65 feet from construction activities. At this distance, vibration levels would be up to 0.07 in/sec PPV.

Construction vibration levels are not expected to exceed 0.3 in/sec PPV due to Project construction at any of the surrounding buildings. This would be a less-than-significant impact.

4.13.3.5 *Consistency with Plans and Policies*

The Project is located within the San Carlos Airport Land Use Plan Influence Area, but would not expose people residing or working in the area to excessive noise from aircraft. Intermittent aircraft noise associated with the operations of San Carlos Airport would have no effect on construction workers, given the noise exposure that these workers are subjected to on a daily basis. Following construction, no persons would be exposed during Project operations, since only occasional maintenance activities are planned.

4.13.4 Conclusion

Implementation of the proposed Project would lead to **less than significant** for vibration (both construction and operations), **less than significant** for conformance with noise policies of the various jurisdictions (construction and operation), and **less than significant with mitigation** for long-term operations compared to ambient conditions, and **less than significant with mitigation** for changes in noise levels during construction compared to ambient conditions.

4.14 PUBLIC SERVICES AND RECREATION

4.14.1 <u>Regulatory Setting</u>

4.14.1.1 *Federal*

There are no federal, state or local statutes or regulations governing public services that are applicable to the proposed Project.

4.14.1.2 *State and Regional*

San Francisco Bay Trail Plan

The San Francisco Bay Trail Plan proposes development of a regional hiking and bicycling trail around the perimeter of the San Francisco Bay and San Pablo Bay. The Plan was prepared by the ABAG pursuant to Senate Bill 100. The Bay Trail Plan proposes an alignment for what is intended to become a 400-mile recreational ring round the Bay. Within the Project area, the Bay Trail is developed and dedicated on Inner Bair Island, Bair Island Road and the area between Skyway Road and Whipple Avenue. A portion of the Bay Trail is planned but not yet constructed through the Docktown Marina and Maple Street area, located north of the Redwood City Pump Station site (ABAG 2011).

4.14.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

San Mateo County Comprehensive Bicycle Route Plan

The San Mateo County Comprehensive Bicycle Route Plan was completed by City/County Association of Governments of San Mateo County (C/CAG) to create a safe and effective network for bicyclists throughout the County. In the Project area, the plan proposes the San Francisco Bay Trail Gap Closure Project which will complete the gaps in the Bay Trail to provide a continuous trail within San Mateo County. As mentioned above, the Bay Trail gaps in the Project area include the Docktown Marina and Maple Street area, north of the Redwood City Pump Station site.

4.14.2 <u>Environmental Setting</u>

This section describes public services and recreation facilities in the Project area consisting of fire, police, schools, parks, and other relevant public and recreational facilities.

4.14.2.1 *Fire Service*

Fire service and emergency services are provided by the three jurisdictions within the Project area, as further described below. Automatic mutual aid is provided by CAL FIRE and adjacent cities.

Belmont

The Belmont Fire Department is an "All-Risk" Department, composed of 21 firefighters, that responds to all types of incidents, including fire and medical emergencies. The Department's Command Staff consists of shared management services with the nearby cities of San Mateo and Foster City. Fire personnel are stationed at two locations, Station 14, located at 911 Granada Street, and Station 15, located at 2701 Cipriani Boulevard. The Battalion Chief responds from San Mateo Fire Station 23, located at 31 27th Avenue. The Belmont Fire Department's administrative offices are located at the Belmont City Hall. The nearest fire station to the Belmont Pump Station is Belmont-San Carlos Fire Station 14, located approximately 1.2 miles (based on travel distance) northwest of the site, across U.S. 101.

San Carlos

Fire and Emergency Services in San Carlos are provided by the San Carlos Fire Department. The department is staffed by Fire Captains, Firefighter/Paramedics, Firefighters, a Fire Inspector, an Emergency Preparedness Coordinator and an Administrative Clerk that are employed by the City of San Carlos. The San Carlos Fire Department command team (Fire Chief, Deputy Fire Chief, Fire Marshal and Battalion Chiefs) is provided by the Redwood City Fire Department under contract to the City of San Carlos. The department also has an agreement with the Woodside Fire Protection District for EMS Battalion Chief services. Fire protection services for the San Carlos Pump Station and Inner Bair Island Ramped Inlet are jointly provided by the San Carlos Fire Department and the Redwood City Fire Department. The nearest fire station to the San Carlos Pump Station (based on travel distance) is San Carlos Fire Station 13, located at 525 Laurel Street, San Carlos, approximately one mile southwest of Skyway Road on the west side of U.S. 101. The nearest fire station to the Inner Bair Island Ramped Inlet (based on travel distance) is San Carlos Fire Station 13, approximately two miles northwest of Skyway Road and on the west side of U.S. 101.

Redwood City

The Redwood City Fire Department includes seven fire stations housing seven engines, one truck, one battalion chief and currently has over 90 staff members including firefighters, firefighter/paramedics, captains and battalion chiefs, fire prevention staff, training staff, and administrative staff. Fire protection services for the Redwood City Pump Station and SVCW WWTP are provided by the Redwood City Fire Department. The closest station to the Project area (based on travel distance) is the Redwood City Station No. 9 located at 755 Marshall Street, Redwood City, approximately one mile southwest of Maple Street on the west side of U.S. 101.

The nearest station to the Redwood City Pump Station site is Fire Station 11 (based on travel distance), approximately two miles south of the site. The nearest station to the WWTP is Fire Station 20, located at 680 Redwood Shores Parkway, Redwood City, approximately 2.4 miles southwest of Radio Road.

The nearest station to the Airport Access Shaft site is Belmont-San Carlos Fire Station 14, located at 911 Granada Street, Belmont, approximately two miles north of the site on the west side of U.S. 101.

Menlo Park

Fire protection services for the Menlo Park Pump Station are provided by the Menlo Park Fire Protection District. The Fire District covers the communities of Atherton, Menlo Park and East Palo Alto limited additional unincorporated areas of San Mateo County. The District has seven stations that are strategically placed to provide the most efficient response times. The closest fire station to the Menlo Park Pump Station (based on travel distance) is Station 77, located at 1467 Chilco Street, Menlo Park, approximately 1.4 miles south of the Project site.

4.14.2.2 *Police Service*

Police service is provided by the each of the jurisdictions within the Project area, as further described below. San Mateo County Sheriff's Office of Emergency Services (OES) is responsible for coordinating emergency response in the County.

Belmont

Police services for the City of Belmont are provided by the Belmont Police Department. The Belmont Police Department has about 50 dedicated full time personnel, two reserve police officers, and a large contingent of citizen volunteers and Police Explorers. The police department is located at 1 Twin Pines Lane, Belmont which is approximately 1.6 miles northwest of the site.

San Carlos

Police services for the City of San Carlos are provided by the Sheriff's Office of San Mateo County located at 600 Elm Street, San Carlos. The Department currently employs 32 sworn officers, a ratio of 1.1 officers per 1,000 residents. The sheriff's office is located (based on travel distance), approximately 1.4 miles west of the Project site.

The USFWS manages enforcement of National Wildlife Refuge regulations on Bair Island and the Bair Island visitors' parking lot property.

Redwood City

Police services for Redwood City are provided by the Redwood City Police Department which is headquartered at 1301 Maple Street. The Redwood City Police Department has a total of 96 total sworn officers and numerous support staff. The police department is divided into three divisions, Administration, Investigation and Patrol. Police headquarters are adjacent to the Redwood City Pump Station site, and approximately 6.5 miles southwest of the WWTP.

Menlo Park

Police services for the City of Menlo Park are provided by the Menlo Park Police Department, with headquarters located at 701 Laurel Street, Menlo Park. The Menlo Park Police Department is approximately four miles southwest of the Menlo Park Pump Station.

4.14.2.3 *Schools*

Belmont

The pump station site is located within the Belmont-Redwood Shores School District which has six elementary schools and one middle school. There are no schools located within or adjacent to the Project area.

San Carlos

The San Carlos School District has four elementary schools and two middle schools. There are no schools located within or adjacent to the San Carlos Pump Station site.

Redwood City

Three school districts are within the City of Redwood City: Redwood City School District, Belmont-Redwood Shores School District, and Sequoia Union High School District (SUHSD). Sandpipe Elementary School is approximately 0.7 miles south of the WWTP, located at 801 Redwood Shores Parkway.

Menlo Park

The Menlo Park City School District serves parts of Menlo Park, Atherton, and portions of unincorporated San Mateo County. The district has three elementary schools and one middle school. There are no schools located within or adjacent to the Project area.

4.14.2.4 *Parks and Recreational Facilities*

Gravity Pipeline

The closest recreational facility to the Project alignment is Bair Island, which is part of the USFWS Don Edwards San Francisco Bay National Wildlife Refuge; a portion of the proposed Gravity Pipeline would be located on Inner Bair Island. A TBM retrieval and ramped inlet shaft would be constructed on the northern end of Inner Bair Island at the terminus of the new 48-inch diameter force main from the Redwood City Pump Station. The San Francisco Bay Trail is also designated within the Project area, including segments on Inner Bair Island and Bair Island Road. A multi-use paved trail is located between the Skyway Road cul-de-sac and Whipple Avenue just east of and parallel to U.S. 101.

Belmont

The City of Belmont maintains approximately 23 parks, fields, and recreational areas. The City has a standard of providing eight acres of parks and open space per 1,000 residents. There are no parks located within or adjacent to the Belmont Pump Station site.

Within the Project area, a paved pedestrian trail is located adjacent to the Belmont Pump Station site along the Belmont Creek channel. There is also another trail on the southeast side of the creek channel. These trails are maintained by the County for public shore access. This trail is not part of the San Francisco Bay Trail System (ABAG 2011b). The trail connects to Shoreway Road adjacent to Marine Parkway, north of the Belmont Pump Station site. The trail can be accessed at this location from Shoreway Road.

San Carlos

The City of San Carlos has approximately 143 acres of parkland in its 15 parks (City of San Carlos 2009). The City has a standard of providing four acres of recreational land per 1,000 residents. There are no parks located within or adjacent to the pump station site.

The City also currently maintains 8.9 miles of recreational trails, including 3.7 miles of hillside trails, and has identified 15 potential trail connections to expand the trail system, many of which are hillside trails, through the San Carlos Hillside Trails Plan. None of the recreation trails are located within or adjacent to the San Carlos Pump Station site.

Redwood City

Redwood City has approximately 225 acres of parkland including 182 acres of city park facilities and 43 acres of school-related parkland (City of Redwood City 2010). The City has a standard of three acres of developed parkland per 1,000 persons. There are no parks located within or adjacent to the pump station site. The Shores Dog Park is south of the entrance of WWTP, on the south side of Radio Road. A portion of the Bay Trail is planned but not yet constructed through the Docktown Marina and Maple Street area, located north of the Redwood City Pump Station site.

Other recreational facilities are located north of the pump station site, which consist of various rowing and boating facilities that utilize the nearby marinas and waterways including the Docktown Marina, Peninsula Yacht Club, and Bair Island Aquatic Center Bair Island Marina, Pete’s Harbor, Redwood City Marina and Pier, and Sequoia Yacht Club. None of these recreational facilities are located immediately adjacent to the pump station site. Fishing is permitted from certain piers in the area including the Redwood City Marina Pier and from boats in Smith Slough, Corkscrew Slough, Steinberger Slough, and Redwood Creek.

Menlo Park

The City of Menlo Park maintains approximately 220 acres of parklands in its 12 parks.[26] The City has adopted a goal of maintaining a ratio of 5-acres of developed parkland per 1,000 residents. Menlo

[26] City of Menlo Park website. Available at: <www.menlopark.org/255/Parks.> Accessed on August 8, 2016.

Park residents also have access to a range of regional parks and open space, including the Don Edwards San Francisco Bay National Wildlife Refuge, Wunderlich County Park, Huddart County Park, and the San Francisco Bay Trail. There is a walking trail and Bedwell Bayfront Park located to the north of the pump station building.

4.14.2.5 *Other Public Facilities*

San Mateo County has multiple public facilities including the Women's Correctional Center, Sheriff's Work Program, and the Men's and Women's Transitional Facilities on Maple Street, near the Redwood City Pump Station. These facilities provide incarceration and rehabilitative services for pretrial and court sentenced inmates. The County has approved the replacement of these facilities at a new location on Chemical Way in Redwood City. Next to the County public facilities is the Maple Street Shelter Network, which is a single adult shelter that provides housing and support services to homeless individuals.

4.14.3 <u>Public Services and Recreation Impacts</u>

4.14.3.1 *Thresholds of Significance*

For the purposes of this EIR, a public services and recreation impact is considered significant if the impacts are associated with:

- The provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services
    - i. Fire protection
    - ii. Police protection
    - iii. Schools
    - iv. Parks
    - v. Other public facilities
- An increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction of expansion of recreational facilities which might have an adverse physical effect on the environment.

4.14.3.2 *Fire and Police Service Impacts*

The proposed rehabilitation of the existing pump stations would be constructed in conformance with current building and fire codes, and would include features that reduce potential fire hazards. The proposed pump station rehabilitation/replacement would occur in the same general Project area as the existing pump stations and would provide the same function as the existing pump stations. The new Gravity Pipeline pipeline would be underground and would replace the remaining 48-inch reinforced concrete pipe and entire 54-inch segment with a new 17,600 linear foot pipeline constructed between the SVCW WWTP and the north end of Inner Bair Island. During construction of the Gravity Pipeline alignment, temporary traffic detours would be required. However, the design of the proposed Gravity Pipeline pipeline installation includes TBM construction techniques along the entire alignment. This technique is intended to minimize the roadway detours.

While construction could result in minor congestion on the roadways of Monte Vista Drive, Skyway Road, Maple Street, Holly Street, and Redwood Shores with the installation of the wastewater pipelines and the replacement and rehabilitation of the pump station sites, some of these (Monte Vista Drive, Skyway Road and Maple Street) are dead-end roadways and not major throughways in and out of Redwood City and San Carlos. As mentioned above, the Redwood City Police Department is located adjacent to the Redwood City Pump Station; however, the main entrance to the police department is on the south side loop of Maple Street, which would not be affected by construction in this area. In addition, while detours would be in place, emergency personnel would always have access throughout the Project area. The proposed Project would not substantially impact performance objectives, acceptable service ratios, or response times.

The pump stations would incorporate appropriate safety features based on local and state standards to reduce fire hazards. The pump stations and WWTP are located in urban areas already served by fire departments and development of the Project would not increase the demand for fire protection or expansion of fire facilities.

The proposed pump station repurposing projects would occur on existing pump station sites within the existing pump station facilities. The sites are all served by the respective city police departments. Project development would not increase the need for police services in the Project area and would therefore, not be expected to result in the need for an expansion of existing facilities or construction of new facilities. Therefore, implementation of the proposed Project would have a less than significant impact on police protection services.

4.14.3.3 *School Impacts*

The proposed Project is the rehabilitation and repurposing of four existing pump stations and improvements to an existing wastewater conveyance system. The existing project does not generate new students, nor does it provide substantial new treatment capacity that would eliminate an existing constraint on growth in the area that would lead to unplanned student growth, therefore, the Project would not result in an adverse impact on existing school facilities within the cities of Redwood City, San Carlos, Belmont, and Menlo Park.

4.14.3.4 *Parks and Recreational Facilities*

The proposed Project is the rehabilitation and repurposing of four existing pump stations and improvements to an existing wastewater conveyance system. The Project would not generate new residents and would, therefore, not generate or increase a demand for parks and recreational facilities in the Project's vicinity. Recreational impacts and loss of recreational areas or access would not occur in the long-term under the proposed Project.

During construction at Inner Bair Island, signage would be posted at the pedestrian bridge on Bair Island Road updating the public on the construction schedule and providing information on areas that are inaccessible due to ongoing construction. The pipeline alignment along Maple Street from the Redwood City Pump Station site will not require roadway detours, as any open cut trenching would occur in front of the Redwood City Pump Station site. This would likely impact the access to the facilities across the Redwood City Pump Station site, but would not impact access to any nearby recreational facilities. Construction is not anticipated to create traffic congestion at recreational facilities north of the site including: Docktown Marina, Peninsula Yacht Club, and Bair Island Aquatic Center Rowing and Paddling Club. While the proposed Project construction could result in construction traffic and temporary traffic control measures, visitors would continue to have access and parking to existing recreational facilities.

The proposed Project would not require construction or expansion of recreational facilities in other areas. For these reasons described above, the proposed Project would not result in impacts to recreational facilities.

4.14.4 Conclusion

The Project would not increase the demand for public services in the Project area. The Project would not result in substantial adverse physical impacts associated with the need for new facilities in order to maintain acceptable levels of service or performance objectives for public services. **[Less Than Significant Impact]**

4.15 TRANSPORTATION

The following discussion is based in part on the "Traffic Analysis of Construction of the SVCW Project" prepared by *Hexagon Transportation Consultants, Inc.* in September 2016. A copy of the report is provided in Appendix H of this document.

4.15.1 <u>Regulatory Setting</u>

4.15.1.1 *Federal*

There are no federal regulations that address the transportation impacts associated with the Project.

4.15.1.2 *State and Regional*

Metropolitan Transportation Commission

MTC is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area, including San Mateo County. MTC is charged with regularly updating the Regional Transportation Plan, a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities in the region. The most recent edition of the Regional Transportation Plan, known as Transportation 2035, was adopted in April 2009. Transportation 2035 directs funding for various projects in San Mateo County, including pavement maintenance for local streets; improvement programs for Caltrain, SamTrans, and BART; countywide shuttle service programs; and U.S. 101 operation improvements near State Route 92.

Congestion Management Program

The City/County Association of Governments of San Mateo County (C/CAG) is the designated Congestion Management Agency in San Mateo County. The Congestion Management Program (CMP) prioritizes the use of state and federal funding for roadway system improvements. The purpose of the CMP is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. The CMP is required to be consistent with the MTC planning process that includes regional goals, policies, and projects for the Regional Transportation Improvement Program. The 2011 CMP, which is developed to be consistent with MTC's Transportation 2035 Plan, provides updated program information and performance monitoring results for the CMP roadway system. The CMP roadway system is comprised of 53 roadway segments and 16 intersections. The roadway network includes all of the State highways within the County.

The C/CAG CMP requires a transportation analysis to be prepared when a project would add 100 or more peak-hour trips to the roadway network. Projects that generate fewer than 100 trips in either peak-hour are presumed to have a less than significant impact on the level-of-service (LOS) at intersections that would carry project traffic. The C/CAG has defined Transportation Demand Management Strategies to provide mitigation methods to reduce the number of net new vehicle trips generated by new developments. These guidelines are intended to ensure the implementation of programs to reduce the number of peak hour vehicle trips generated by new developments.

4.15.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

San Mateo County Comprehensive Bicycle Route Plan

The San Mateo County Comprehensive Bicycle Route Plan was written by the C/CAG, the Bicycle and Pedestrian Advisory Committee, and individual cities and agencies. The intent of the plan is to provide a comprehensive bicycle network for San Mateo County and adjacent communities, to improve inter-city and regional travel for bicycles. The plan includes existing roadways within San Mateo County, including roadways in the Project area.

Relevant General Plan Policies

There are no relevant policies found in the General Plans for Redwood City, San Carlos, Belmont and Menlo Park related to transportation impacts that are applicable to the proposed Project.

4.15.2 <u>Environmental Setting</u>

4.15.2.1 *Existing Roadway Network*

Regional and Local Access

<u>Regional access</u> to the Project sites is provided by:
U.S. 101 is a north/south freeway that extends north of San Francisco south to San Jose. In the Project vicinity, U.S. 101 has eight mixed-flow lanes and provides site access via the Holly Street interchange, which provides access to the Belmont Pump Station, San Carlos Pump Station, and WWTP.

Bayfront Expressway is a state highway (SR84), commonly known as the Dumbarton Bridge, that spans the south San Francisco Bay from Newark in Alameda County to south San Mateo County.

<u>Local access</u> to the Project sites is provided by:
Veterans Boulevard is a four lane, two-directional street separated by a median, extending from Woodside Road to the U.S. 101 exit ramp to the north in Redwood City. Veterans Boulevard

transitions from a two-lane one-direction street to a one-lane street as it approaches the U.S. 101 southbound exit.

Radio Road provides direct access to the WWTP area. It extends from Redwood Shores Parkway to a "T"-intersection, from which it extends in two directions. South of the intersection, Radio Road becomes a private street that travels around the SVCW ornamental pond to the entrance of the WWTP. To the north of the intersection, Radio Road is a public street that extends along the western edge of the ornamental pond and ends in an existing City trailhead parking lot.

Seaport Boulevard is a four lane, two-directional street extending east from the U.S. 101 exit to its terminus at the office building development to the west.

Blomquist Street is a two lane, two-directional street extending from the western end of Seaport Boulevard near its U.S. 101 start to its intersection with Maple Street to the north.

Holly Street is a four lane, two-direction street extending from its intersection with Elm Street to the west, to its intersection with Twin Dolphin Drive to the east. Holly Street transitions into Redwood Shores Parkway at its intersection of Twin Dolphin Drive.

Ralston Avenue/Marine Parkway is a four lane, two-directional street extending from its intersection with State Route 92 to the west, to its intersection with U.S. 101 to the east, where it then transitions to Marine Parkway.

Monte Vista Drive is a two lane, two-directional street extending from Skway Road to its terminus at the San Carlos Airport.

Redwood Shores Parkway is a major road, positioned east to west along the southern portion of the Redwood Shores peninsula. The roadway transitions from a two-lane roadway at its eastern end to a four-lane roadway as it proceeds west towards Redwood City (City of Redwood City, 2001).

Shoreway Road runs parallel to U.S. 101 from Holly Street in Redwood City to Marine Parkway in Belmont.

Marsh Road runs southwest to northeast in the beginning at the Middlefield Road intersection and terminating at the Bedwell Bayfront Park.

Haven Avenue begins at the Bayfront Expressway intersection in Menlo Park and transitions into East Bayshore Road in Redwood City.

Redwood City Pump Station

The Redwood City Pump Station is located within Redwood City. Local access to the pump station is via Maple Street and from an overcrossing of U.S. 101 on Maple Street. Parking for the Redwood City Pump Station is available at the pump station site and along Maple Street.

A portion of the Bay Trail for pedestrian and bicycle access is planned but not yet constructed through the Docktown Marina and Maple Street area, located north of the site.[27] There are no pedestrian and bicycle facilities located within or adjacent to the site.

<u>Airport Access Shaft Site</u>

The Airport Access shaft site is located just north of the Shoreway Road and Redwood Shores Parkway (Holly Street) intersection, in Redwood City. Parking for the Project site is available in the site, an undeveloped and vacant lot. Additional parking is available along Shoreway Road as it approaches Belmont. There are no pedestrian or bicycle facilities within the Project area.

<u>San Carlos Pump Station</u>

The San Carlos Pump Station site and part of the pipeline alignment are located within the City of San Carlos. The local roadways in this Project area include Shoreway Road, Holly Street, Monte Vista Drive, and Skyway Road. From U.S. 101, the San Carlos Pump Station is accessible from the Redwood Shores Parkway/Holly Street interchange with U.S. 101. The pedestrian and bicycle facilities along the Gravity Pipeline alignment and pump station Project area include a sidewalk on Shoreway and Skyway Road as well as a sidewalk on the north side of Monte Vista Drive.

Parking for the San Carlos Pump Station is available at the pump station site and along Monte Vista Drive. There are no designated bike lanes on Skyway Road.

<u>Belmont Pump Station</u>

The Belmont Pump Station site is located within the City of Belmont. Access to the site is from Shoreway Road. From U.S. 101, the Belmont Pump Station site is accessible from the Redwood Shores Parkway/Holly Street interchange with U.S. 101, as well as the Ralston Avenue/Marine Parkway interchange.

Parking for the Belmont Pump Station is available at the site and along Shoreway Road. The pedestrian and bicycle facilities in the vicinity of the Belmont Pump Station include a sidewalk on Shoreway Road and paved pedestrian trail located adjacent to the Belmont Pump Station along the Belmont Creek channel. There is also another trail on the southeast side of the creek channel. There are no designated bike lanes on Shoreway Road.

<u>Menlo Park Pump Station</u>

The Menlo Park Pump Station site is located within the City of Menlo Park. Local roadways in the Project area include Haven Avenue, Marsh Road, and Bayfront Expressway.

Parking for the Menlo Park Pump Station is available at the pump station site and along Haven Avenue. There are currently no pedestrian or bicycle facilities in the Project area.

[27] City of Redwood City. *Draft Initial Study for Pump Stations 2 and 3, and 36-inch Gravity Line Project.* April 2014.

Wastewater Treatment Plant

The WWTP, located at the northern end of Redwood Shores is accessible via the Redwood Shores Parkway and Radio Road. Sidewalks are located on both sides of the Redwood Shores Expressway, and on the north side of Radio Road.

Parking is available along Radio Road outside of the entrance of the WWTP. There are designated bike lanes going in the north and south directions along Redwood Shores Parkway. There are no bike lanes along Radio Road.

Gravity Pipeline

The Gravity Pipeline would be located below the ground surface between the SVCW WWTP and the north end of Inner Bair Island. The pipeline would be installed in two separate sections of tunnel, constructed from the proposed Airport Access Shaft site. The first tunnel section between the Airport Access Shaft site and the SVCW WWTP would mostly be located within the Redwood Shores Parkway right-of-way. The second tunnel section between the Airport Access Shaft and Inner Bair Island would be located under Redwood Shores Parkway (Holly Street), Skyway Road, the San Carlos Airport property and Pulgas Creek, where it would connect to the recently completed 48-inch force main pipe on Inner Bair Island. Since the Gravity Pipeline would be constructed underground in the existing alignment, there is no parking, pedestrian, or bicycle facilities associated with the pipeline.

4.15.2.2 *Existing Transit Service*

Existing transit service in the Project area is provided by the San Mateo County Transit District (SamTrans). SamTrans bus routes that serve areas closest to the Project alignment include bus Route 260, which provides service from Downtown Belmont, Redwood Shores, and San Carlos Caltrain, and Route 270 which serves the Redwood City Caltrain Station. Route 260 has stops along Redwood Shores Parkway which is closest to the Belmont Pump Station and the San Carlos Pump Station site. Route 270 has stops near the Redwood City Pump Station site near Maple Street and on Haven Avenue, near the Menlo Park Pump Station. There is no transit service on Shoreway Road. Caltrain facilities are located within San Carlos and Redwood City but outside the immediate Project area. Caltrain provides regional transportation services between San Francisco and San José, and further south to Gilroy.

4.15.2.3 *Air Transportation*

The San Carlos Airport is located at 620 Airport Way in the City of San Carlos, adjacent to the San Carlos Pump Station site. The Project is located within the San Carlos Airport Influence Area. The Airport Access Shaft site, Belmont and Redwood City Pump stations are located within airport safety Zone 6 – Traffic Pattern Zone. The San Carlos Pump Station, adjacent to the San Carlos airport, is located within Zone 2 – Inner Approach/Departure Zone. According to the Safety Compatibility Criteria (Table 4-3) of the San Carlos Airport Land Use Compatibility Plan, water treatment facilities are conditionally compatible in Safety Zones 2 and 6. The Menlo Park Pump Station is beyond the areas included in the San Carlos Airport Safety zones.

4.15.3 Transportation Impacts

4.15.3.1 *Methodology*

The magnitude of truck traffic generated during the construction phase of the proposed Project was estimated based on descriptions of the construction activities. Construction activities would generate truck trips to and from Project construction sites related to soil excavation, soil import and off-haul, equipment transport and delivery, debris removal, and building material transport trips. However, not all excavated soil generates an outbound trip. Some of the soil would be used on site for backfill.

Trip estimates were based on the volume of hauled-off and imported soil, the amount of equipment and building materials, and miscellaneous deliveries and transport.

4.15.3.2 *Thresholds of Significance*

For the purposes of this EIR, a transportation impact is considered significant if the Project would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or otherwise decrease the performance of safety of such facilities.

4.15.3.3 *Long Term Impacts*

Once constructed and in operation, the Gravity Pipeline alignment would not create a new type of land use, and would not generate any long term, operational Project trips. During Project operation, vehicle trips would result from routine maintenance and would not generate trips in excess of the threshold adopted in the General Plans of Redwood City, San Carlos, Belmont, and Menlo Park, which states that any project generating more than 100 peak hour traffic trips is required to do a full traffic analysis.

Routine maintenance and a daily trip to the pump station sites to check operations at the pump stations would be necessary. As noted previously, the San Mateo County CMP requires a transportation analysis to be prepared when a project would add 100 or more daily peak-hour trips to the roadway network. Projects that generate fewer than 100 trips in either peak-hour would be presumed to have a less than significant impact on the level-of-service (LOS) at intersections that would carry project traffic. The trips associated with operation and maintenance of the pump stations would be below the CMP threshold, or the same as existing trips. Therefore, the proposed Project once in operation is not anticipated to result in transportation LOS impacts on local and regional roadways.

Operation and maintenance of the proposed Project would not be expected to generate an amount of transit trips that would impact transit facilities. Other than temporary impacts during construction, further discussed below, the Project would not result in conflicts with pedestrian and bicycle facilities in the area; nor would the proposed Project conflict with any relevant plans or policies including the San Mateo County Comprehensive Bicycle Route Plan.

4.15.3.4 *Short-Term Impacts*

Construction Trip Generation Estimates

The vehicle trips generated from the Project would occur as a result of Project construction, which is expected to last approximately seven years. As stated above, the Project truck trip estimates for the construction phase of the Project were estimated based on descriptions of construction activities for different Project components. Table 4.15-1 summarizes the average truck trips anticipated per day per Project component.

<u>Gravity Pipeline</u>

The Gravity Pipeline component of the proposed Project spans through both Redwood City and San Carlos for approximately four years. Truck trips for hauled-off and imported soil are based on approximately 16 cubic yards and 12 cubic yards of soil per truck, respectively. Other construction activities would generate truck trips to and from the construction site due to equipment transport and delivery, debris removal, and pipe and building material transport. Project work will be completed in two (2) 10- hour shifts Monday through Saturday. The detailed description of the different components in presented in Table 4.15-1, below.

<u>Wastewater Treatment Plant and Redwood City Pump Station</u>

Construction of the WWTP would consist of multiple overlapping phases over a span of approximately two years. The construction truck trips include the trips necessary for off-hauling soil, equipment delivery, building materials, pavement and roadway materials, pipeline transport, and other related construction trips. Project work hours would be completed Monday through Friday, between 7:00 AM and 6:00 PM.

Table 4.15-1: Gravity Pipeline Construction Truck Trips		
Phase Description	**Total Truck Trips[1]**	**Average Truck Trips Per Day**
Treatment Plant Flow Splitter Shaft & Treatment Plant Pump Site-Shaft Construction	7,318	9
Airport Access Shaft Site – Shaft Construction	5,404	7
Airport Access Shaft Site – Tunnel Construction	60,432	53
Bair Island Inlet Structure	3,760	5
San Carlos Drop Shaft	3,960	5
Delivery of Equipment & Material; Concrete; Cellular Grout	48,120	60
Total:	128,994	161

Notes:
[1] Total truck trips is based on a total of 802 days of construction for this component.

Depending on the construction method of the selected alignment of the Influent Connector, construction in Redwood City would require between approximately four to nine months to complete. The cured-in-place method would require approximately two months, the replace-in-place method and replace-in-new alignment would each require approximately six months, and the microtunneling method would require approximately four to nine months. However, average truck trips per day were based on the allotted 348 days designated for the Influent Connector phase. Table 4.15-2 below shows the estimated truck trips for each phase of the WWTP improvements and the repurposing of the Redwood City Pump Station.

Table 4.15-2: WWTP Improvements & Redwood City Pump Station Truck Trips			
Phase Description	**Construction Days**	**Total Truck Trips**	**Average Truck Trips Per Day**
Receiving Lift Station	612	1,069	2
Headworks Facility	616	5,454	9
Flow Diversion Structure	360	20,659	57
Influent Connector	270		
CIPP		246	1
Replace in New Alignment		2,064	8
Replace in Pipe		2,126	8
Microtunnel		1,910	7
Front of Plant Civil Improvements	657	27,448	42
Redwood City Pump Station	718	3,535	5
Total with Minimum Influent Connector		58,411	116
Total with Maximum Influent Connector		60,291	123

Belmont Conveyance System Improvements and San Carlos Connections

The Belmont Conveyance System includes phases in both Belmont and San Carlos. This component would rehabilitate the Belmont Pump Station and wastewater pipeline, as well as relocate wastewater connections from the San Carlos Pump Station. Construction of the Belmont Conveyance System Improvements would be completed in three phases, for a total period of approximately two years. During construction, depending on soil conditions, it is expected that 2,271 cubic yards of soil would be excavated, approximately 1,111 cubic yards would be reused, and 447 cubic yards imported, and the remaining 844 cubic yards of soil would be hauled off-site, if open cut construction method is selecetd. Truck trips are expected for transporting pipes and materials, and disposing off material (such as concrete rubble, old pumps, motors, electrical equipment). Table 4.15-3 below summarizes the truck trip generation by area of the Belmont conveyance system construction.

Table 4.15-3:
Belmont Conveyance System Construction Truck Trips

Phase Description	Construction Days	Total Truck Trips	Average Truck Trips Per Day
Belmont Pump Station Area	154	110	0.71
Open Cut Option	344	37[1]	0.11
Belmont Tee Area	344	126	0.37
HWY 101/Holly St (Pull Pit)	344	69	0.20
San Carlos Pump Station Area	196	944	5
Pipe and Materials Delivery	694	90	0.26
Other Materials (motors, electrical equipment, concrete rubble)	694	60	0.09
	Total:	1,436	7

Notes:
[1]Truck Trips for this option are not included in the total as this would be replacing some truck trip associated with the Belmont Pump Station Area.

San Carlos Odor Control facility

Construction for the San Carlos Odor Control Facility at San Carlos Pump Station is expected to occur over approximately ten months. The component's estimated truck trips are based on the required earthwork, as well as the delivery of process equipment and piping, paving materials, delivery and removal of construction equipment, and disposal of demolition debris. The San Carlos Odor Control Facility will generate approximately 176 total construction truck trips, which is approximately less than one truck trip daily.

Menlo Park Pump Station

The Menlo Park Pump Station rehabilitation component would be constructed on weekdays only for approximately two years, and would generate approximately 165 total construction trips, with an average of less than one truck trip daily.

Project Construction Trips per City

In total, the proposed Project is estimated to generate approximately 191,062 truck trips, which equates to an average of approximately 91 daily truck trips during the seven-year construction phase of the proposed Project. These 91 construction truck trips would be dispersed between the four cities of Redwood City, San Carlos, Belmont, and Menlo Park, as shown in Table 4.15-4.

Table 4.15-4:
Project Construction Truck Trip per City

		Average Truck Trips Per Day						
Location	**Total Truck Trips**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**
Redwood City	163,486	188	247	247	187	47	5	
Belmont	462					7	7	7
San Carlos	26,949	32	39	39	32	1	1	
Menlo Park	165				0.3	0.3	0.3	
Total	**191,062**	**220**	**286**	**286**	**219**	**55**	**13**	**7**

Impacts from construction truck trips will be minimized due to construction zones and staging areas having nearby access to U.S. 101 as well as arterial and commercial streets. Given this direct access, construction traffic will not be required on local residential streets. Additionally, the low number of truck trips per city will be dispersed throughout an entire day, further minimizing impacts. During the highest construction activity period, there will be approximately 286 truck trips per day. Averaged over a 12-hour construction day, this represents about 24 trucks per hour. This number of estimated truck trips generated for the proposed Project is below the threshold of warranting a detailed intersection level of service (LOS) analysis and will not result in any LOS impacts to roads, intersections, freeways, or interchanges.

To ensure that traffic and noise impacts on adjacent residential streets are minimized, the Project would implement the following measures during Project construction:

- Construction trucks would access the WWTP from Radio Road via Marine Parkway/Shearwater Parkways and Redwood Shores Parkway; and
- Truck transport times would remain within the designated construction period of Monday thru Saturday from 7:00 a.m. to 7:00 p.m.

Given the limited amount of truck trips generated from Project construction, the duration of projection construction, and the Project would incorporate the above measures during construction, the Project would have a less than significant traffic impact from construction activity.

Construction Staging Areas

Gravity Pipeline and WWTP Improvements

The construction staging areas for the Gravity Pipeline include: the Airport Access Shaft Shaft, WWTP Shaft, the San Carlos Pump Station, and the Bair Island Inlet Structure (refer to Figure 3-2-5 for Gravity Pipeline staging areas). The Airport Access Shaft Staging area would be located adjacent to the launch shaft north of the Shoreway Road and Redwood Shores Parkway/Holly Street intersection. Truck routes to Shoreway Road can be accessed via U.S. 101, Redwood Shores Parkway/Holly Street, or Ralston Avenue/Marine Parkway.

The staging area for the WWTP Shaft and WWTP improvements would be within the 10-acre ornamental pond of the WWTP property. Access to the staging area would be provided from Radio Road via Redwood Shores Parkway or Marine Parkway/Shearwater Parkway.

The San Carlos Pump Station staging area would be within a portion of the existing pump station property and adjacent parking lot. Access to the staging area would be provided from Monte Vista Drive via Skyway Road. Skyway Road should be accessed via U.S. 101 and Redwood Shores Parkway/Holly Street.

The staging area for the Bair Island Ramp Inlet would be located along the levee road of Inner Bair Island. Access to the staging area would be provided via Whipple Avenue, East Bayshore Road, and U.S. 101.

Belmont Conveyance System and San Carlos Pump Station Repurposing

Designated construction areas for the Belmont Pump Station are displayed in Figure 3.2-8 and include:

- Northeast end of Sem Lane right-of-way (ROW), Belmont;
- Belmont Pump Station property and adjacent ROW;
- Southeast end property near of Shoreway Road and Cormorant Drive (Springfield Suite Property), San Carlos;
- Belmont Tee (Connection of 24-inch FM to 54-in FM), Belmont;
- ROW between Shoreway Road and the U.S. 101/Holly Street interchange, San Carlos; and
- San Carlos Pump Station property and adjacent ROW, San Carlos.

Site access for the first four staging areas would be provided from Shoreway Road, which is accessible via U.S. 101, Redwood Shores Parkway/Holly Street, or Ralston Avenue/Marine Parkway. The staging area located in the ROW between Shoreway Road and the U.S. 101/Holly Street interchange as well as the San Carlos Pump Station property can be accessed via U.S. 101 and Redwood Shores Parkway/Holly Street.

Redwood City Pump Station

Staging areas for the Redwood City Pump Station Component would include (figure 3.2-9):

- Docktown property located at the northwest of the Redwood City Pump Station;
- City-owned property located to the west of the Redwood City Pump Station; and
- City-owned property used by a private car dealership located north of the Redwood City Pump Station.

All three staging areas are only accessible via Maple Street, which can be accessed via Veterans Boulevard, as well as U.S. 101, Seaport Boulevard, and Blomquist Street.

Menlo Park Pump Station

Staging areas for the Menlo Park Pump Station component would include two staging areas: one north of the existing Menlo Park Pump Station and one to the east of the station. The Menlo Park Pump Station is located north of the Marsh Road and U.S. 101 interchange. The staging areas can be accessed by Bayfront Expressway, or U.S. 101 and Marsh Road (see Figure 3.2-10).

4.15.3.5 *Air Traffic Pattern Impacts*

As described above in *Section 4.11 (Land Use)*, portions of the Project site are within the San Carlos Airport influence area. While operation of the proposed Project would not result in the placement of any permanent objects within FAA regulated airspace, rehabilitation of the San Carlos Pump Station and the construction equipment at the Airport Access Shaft site may require temporary extension into the airspace (e.g. for large cranes required for equipment placement/removal) and would also require night-time work to avoid daytime closures of the airport. To minimize airspace intrusions, most of the construction equipment would be below the height restrictions by FAA (200 feet above ground level). In events where temporary intrusion is unavoidable, SVCW will obtain necessary approvals from the airport and/or FAA for any anticipated encroachments into the airspace.

As described in *Section 4.9 (Hazards and Hazardous Materials)* and *Section 4.11 (Land Use)* impacts discussions, the proposed Project would not result in any significant safety risks related to construction. Further, the construction and operation of the proposed Project would not result in impacts to air traffic patterns, mapping or communication and, therefore, would not constitute a hazard to aviation.

4.15.3.6 *Emergency Access Impacts*

The proposed Project does not propose to make permanent changes to roadways that would create road hazards or alter design features developed to mitigate such hazards. Traffic generated from Project construction is not anticipated to result in significant level of service impacts as discussed in *Section 4.15.3.3* above, therefore, Project implementation would not result in inadequate emergency access.

As described in Section *4.14 (Public Services and Recreation)*, the proposed Project would not substantially interfere with emergency response access during construction within the Project area. Project construction and implementation would not increase the demand for police or fire services and given that the Project construction and implementation would not affect access to the Project sites, the Project would not result in inadequate emergency access.

4.15.3.7 *Parking Impacts*

Parking for construction workers would be in the construction staging areas that would not deplete the availability of parking spots for residents in the Project areas. Adequate parking is available at each pump station, the WWTP, Airport Access Shaft and at the Bair Island Ramped Inlet site to accommodate parking for construction activity.

4.15.4 <u>Conclusion</u>

Implementation of the proposed Project would have a less than significant impact on transportation. **[Less Than Significant Impact]**

4.16 UTILITIES AND SERVICE SYSTEMS

4.16.1 Regulatory Setting

4.16.1.1 *Federal*

The USEPA sets standards for drinking water and wastewater management, and the proposed Project would be subject to its regulations.

4.16.1.2 *State and Regional*

Regional Water Quality Control Board

Wastewater generators must obtain a permit to discharge their wastewater. Pursuant to the federal CAA and California's Porter-Cologne Water Quality Control Act, the RWQCB regulates wastewater discharges to surface waters, like San Francisco Bay, through its NPDES program. The SVCW treatment plant operates under a permit from the San Francisco Bay RWQCB. SVCW's NPDES permit governs the quantity and quality of treated wastewater that can be discharged into San Francisco Bay. RWQCB requires periodic reissuance of its NPDES permits. Under its existing permits from the RWQCB, SVCW operates a pre-treatment program. Under this program, SVCW and its Member Agencies have established sewer use ordinances that apply to all industrial users in its sewer system. This program limits the types of materials that industrial users may discharge into a Member Agency's wastewater collection system.

Utility Notification Requirements

Title 8, Section 1541 of the California Code of Regulations requires excavators to determine the approximate locations of subsurface installations such as sewer, telephone, fuel, electricity, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. California law (Government Code Section 4216 et seq.) requires owners and operations or underground utilities to become members of and participate in a regional notification center, such as Underground Service Alert – Northern California (USA North). USA North receives reports of planned excavations from public and private excavators, and transmits the information to all participating members that may have underground facilities at the location of an excavation. USA members mark or stake the horizontal path of the utilities, provide information about the location of the utilities, and advise the excavator of clearance for utilities that they own (USA North, 2014).

California Integrated Waste Management Act of 1989 - Assembly Bill (AB) 939

The California Integrated Waste Management Act (AB 939) was signed into law on September 29, 1989. The Act requires all California cities, counties, and approved regional solid waste management agencies, responsible for enacting plans and implementing programs, to divert 25 percent of their solid waste by 1995 and 50 percent by year 2000. Later legislation mandates the 50 percent diversion requirement be achieved every year. The California Department of Resources Recycling and Recovery (CalRecycle) oversees and provides assistance to local governments as they develop and implement plans to meet the mandates of AB 939 and subsequent legislation. Local assistance staff serves as a liaison between local governments and CalRecycle and its program areas, providing input for the development of CalRecycle policies concerning local planning and implementation issues. This act is relevant to SVCW to the extent demolition and construction activities generate solid waste requiring disposal at local landfills.

4.16.1.3 *Local*

SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores, within Redwood City, and related wastewater pumping and transmission facilities in Belmont, San Carlos, and Menlo Park. The JPA Member Agencies include the cities of Belmont, Redwood City, San Carlos, and the West Bay Sanitary District (which provides sanitary sewer collection services to the cities of Menlo Park, Portola Valley, and portions of Atherton, Woodside, East Palo Alto, and unincorporated areas of San Mateo County). SVCW, as a public agency JPA, is not subject to certain local land-use plans, policies, and regulations (i.e., zoning and building codes, general plans, specific plans, and other planning and building laws), including those of its Member Agencies, under the doctrine of "intergovernmental immunity" which effectively means that a public agency implementing its basic mission and purpose does not need to obtain land use or other entitlements from other public agencies. Nevertheless, in the exercise of its discretion and in the interest in working cooperatively with local jurisdictions, this section references, describes, and addresses local land-use plans, policies, and regulations as listed below.

Countywide Integrated Waste Management Plan

The Countywide Integrated Waste Management Plan is mandated by State law under AB 939. The purpose of the Plan is to describe local waste diversion and disposal conditions and lay out realistic programs to achieve the waste diversion goals outlined in AB 939. The Plan serves as the primary tool for designing waste reduction programs that are countywide in scope. The Plan also addresses the San Mateo County's landfill needs in a comprehensive way. The County completed the 2009 Countywide Integrated Waste Management Plan Five-Year Review Report. This plan is relevant to SVCW to the extent demolition and construction activities generate solid waste requiring disposal at local landfills.

Redwood City

The following policies of the Built Environment Chapter of the General Plan are adequate for the Project:

Policy BE-41.1: Continue to ensure adequate treatment capacity and collection system for Redwood City's wastewater conveyed to at South Bayside System Authority (SBSA) treatment facilities while protecting water quality and public health, and minimizing adverse impacts to the environment.

Policy BE-41.2: Work with SBSA Member Agencies to ensure that the treatment facility has sufficient capacity to meet future wastewater treatment needs.

Policy BE-41.3: Minimize groundwater infiltration and inflow to the wastewater collection system to maintain sufficient peak wet weather capacity and continue to explore other possible options to reduce peak wet weather flow.

Policy BE-40.1: Improve the level of service, reliability, quality, and life cycle of the city's potable and recycled water storage and distribution system.

Policy BE-40.3: Locate and design new capital-intensive potable and recycled water storage and distribution facilities, particularly storage tanks, in a manner that minimizes visual, cost, and environmental impacts to the surrounding area.

Policy BE-40.5: Continue to make every practical effort to minimize leaks in the water and recycled water distribution system, through regular monitoring and maintenance.

Program BE-126: Funding for Water System Maintenance and Upgrades. As appropriate, allocate increased funding in Redwood City's Capital Improvement Program to upgrade and/or replace pipes, storage tanks, and pump stations in the Redwood City water system; monitor for water losses; and carry out preventive measures to avoid major disruptions or water losses to the water storage and distribution system. Prioritize investment in water supply delivery upgrades in areas where sub-standard size water mains currently exist.

Program BE-127: Wastewater System Maintenance. Continue to provide funding to repair, maintain, and upgrade the city's wastewater collection system. Annually survey at least 15 miles of sewer pipeline to identify necessary repairs to pipeline cracks and improperly sealed joints that may cause groundwater infiltration. If pipeline deterioration accelerates, increase the rate of pipeline replacement accordingly. Enforce regulations that restrict the discharge of substances such as grease, oil, mud, silt, and pollutants into the sewer system.

Although the City of Redwood City has adopted measures to reduce solid waste, it does not have specific regulations regarding the diversion of construction debris generated from projects within the city.

Redwood Bayfront Shores Specific Plan

The following policy is relevant to the Project:

Policy 7.3.1.4: Encourage SBSA and the City of Redwood City to expedite the production and distribution of recycled water throughout the Site, the Redwood Shores community and the entire service area of SBSA.

City of Belmont

The following policies, as found in the City of Belmont General Plan, are applicable to the Project:

Policy 7.3.1.4: Encourage SBSA and the City of Redwood City to expedite the production and distribution of recycled water throughout the Site, the Redwood Shores community and the entire service area of SBSA.

City of San Carlos Recycling and Diversion of Construction and Demolition Debris Ordinance

San Carlos adopted a construction and demolition debris diversion ordinance (Zoning Ordinance Chapter 8.05) in 2001. It requires a construction and demolition permit applicant to address their waste before the permit is approved. If the Project construction costs are over $50,000 or would generate more than five tons of construction or demolition debris, the Project must divert a portion of construction or demolition debris and develop a Construction and Demolition Waste Management Plan. There are also minimum amounts of the waste that must be recycled or reused according to type.

City of Menlo Park

The City of Menlo Park has implemented a recycling program to reduce the quantity of solid waste going to landfills. Construction waste diversion requirements are codified within the city's code (Menlo Park Municipal Code Section 12.48.030), and the following conditions must be met:

- Commercial demolition projects of 5,000 square feet or greater must divert 60 percent of waste generated including soil, concrete and/or asphalt and at least 25 percent of diverted material excluding soil, concrete and asphalt.
- Commercial construction projects of 5,000 square feet or greater must divert 60 percent of total generated waste tonnage.

Separate calculations are required for the demolition and construction portions of projects involving both of these activities.

4.16.2 Environmental Setting

4.16.2.1 *Water Supply*

Potable Water Supply

The Project area lies within the water service areas of the cities of Belmont, Redwood City, San Carlos and Menlo Park. Water sources for these cities originate from the Hetch-Hetchy San Francisco Public Utility Commission (SFPUC) regional water system. However, the Project is related to wastewater treatment reliability improvements, and does not have a water demand associated with it other than minor landscaping improvements and a minimal demand from human consumption at the WWTP and pump stations. The Project is not a 'water demand project' as defined by CEQA Guidelines Section 15155.

Redwood City's potable water service area is approximately 14 square miles and draws its connections from the regional water system pipelines at 13 metered connections (City of Redwood City 2010). The City's water distribution system is comprised of 262 miles of distribution mains, 10 pump stations, 2,385 fire hydrants, and 26 pressure reducing valve stations. The Mid-Peninsula

Water District serves the City of Belmont. The Mid-Peninsula Water District's service territory covers approximately five square miles and serves approximately 28,000 people. The City of San Carlos manages a water infrastructure system which consists of 21 storage tanks and 29 booster pumps. San Carlos receives its water from two local domestic water providers: the California Water Service Company and the Mid-Peninsula Water District. The Mid-Peninsula Water District also serves unincorporated areas in San Mateo County. These two local domestic water providers purchase water from the Hetch-Hetchy SFPUC regional water system. Multiple water districts serve Menlo Park, including California Water Service, Menlo Park Municipal Water District, O'Connor Tract Co-op Water District, and Palo Alto Park Mutual Water Company. Water service to the Menlo Park Pump Station site is provided by Menlo Park Municipal Water District, which serves approximately 15,000 customers.

There are existing potable water pipelines located within Maple Street, Bair Island Road, Shoreway Road, Skyway Road, and Monte Vista Drive.

Recycled Water Supply

SVCW's existing facility is permitted by the San Francisco Bay RWQCB and the California Department of Health Services to produce recycled water that meets the State's stringent environmental health requirements for unrestricted uses. SVCW is responsible for treating the wastewater for recycling, while Redwood City is responsible for distributing the recycled water. In 2008, Redwood City adopted a Recycled Water Use Ordinance that requires the use of recycled water in internal separate plumbing for urinals, internal cooling towers and external landscaping on new apartments, townhouses and condominiums, and on industrial, commercial, and governmental projects. It also requires the use of recycled water for external landscaping on existing and remodeled commercial and industrial buildings. All of the recycled water pipelines in the Project area are associated with SVCW and will be used in various operation of the pump stations, as well as for construction dust control.

4.16.2.2 *Sanitary Sewer/Wastewater Treatment*

SVCW provides wastewater treatment for more than 200,000 people and businesses within the cities of Redwood City, San Carlos, Belmont, and Menlo Park. SVCW is a JPA that owns and operates a regional wastewater treatment plant at the eastern end of Redwood Shores within the City of Redwood City. The JPA members own and operate the sanitary sewer collection systems within their respective jurisdictions, and SVCW owns and operates the wastewater treatment plant as well as the sanitary sewer force main and pump stations that convey the sewage to the treatment plant. After treatment, treated wastewater is discharged through a 66-inch diameter pipeline to the submarine outfall diffuser approximately a mile offshore into the San Francisco Bay, as permitted by the San Francisco RWQCB. As described in *Section 2.0 Project Description*, the WWTP has the capacity to treat 29 mgd ADFW, and is permitted by the RWQCB to discharge 29 mgd ADWF into the San Francisco Bay.

In 2008, SVCW adopted a 10-year CIP to improve the reliability and efficiency of its regional wastewater system and facilities. The CIP projects address the most critical needs of SVCW's aging wastewater system, improving the condition of sewer mains, repairing treatment facilities, and assuring compliance to stringent environmental standards. The proposed replacement of the 54-inch section of the SVCW force main, WWTP improvements and replacement/rehabilitation projects at Redwood City, Belmont, San Carlos and Menlo Park pump stations are part of the CIP priority projects. All of these facilities are located within the Project area.

In addition, sewer collection pipelines are located within Bair Island, Skyway Road and Monte Vista Drive. There are also two sewer lines (one abandoned) located within Maple Street. There is also a proposed 60-inch sewer line that will be constructed by the City of Redwood City, as a separate project, to transmit sewage to the Redwood City Pump Station facility.

4.16.2.3 *Storm Drainage System*

The San Mateo County Stormwater Pollution Prevention Program (STOPPP) is a consortium of San Mateo County and all 20 cities located within San Mateo County, including Redwood City, Belmont, San Carlos, and Menlo Park. The consortium relies on each of these municipalities to implement local stormwater pollution prevention and control activities for their local storm drain systems. Many of STOPPP's activities are coordinated through the City/County Association of Governments of San Mateo County (STOPPP 2015).

The Redwood City Public Works Services Department maintains the storm drainage system, which serves the areas of the Project within Redwood City's jurisdiction. The City of Belmont Public Works Department maintains the storm drainage system, which serves the areas of the Project within Belmont's jurisdiction. The City of San Carlos maintains all storm water facilities within the areas of the Project within San Carlos' jurisdiction. The City of Menlo Park's Public Works Department owns, operates, and maintains the storm drainage system. The City has approximately 44 miles of storm drain pipe and 1,000 inlets or catch basins. The City stormwater drainage system consists of 17 individual systems that discharge into San Francisquito Creek, Atherton Channel, and through East Palo Alto into San Francisco Bay. Stormwater in Belmont, San Carlos, and Redwood City is conveyed into creeks, lined channels, storm drainage pipes and retention basins, all of which drain directly into the San Francisco Bay.

In the Project area, there are existing storm drainage inlets along the sidewalks on Redwood Shores Parkway, Shoreway Road, Skyway Road, Bair Island Road and Monte Vista Road, and storm drainage pipelines within Maple Street, Bair Island Road, and Skyway Road. All other stormwater flows overland, percolates into pervious surfaces, and into nearby waterways.

4.16.2.4 *Solid Waste*

San Mateo County has two active landfills: Hillside Class III Disposal Site and Half Moon Bay Ox Mountain Sanitary Landfill. Recology Incorporated provides solid waste collection and conveyance service for the City of Redwood City, San Carlos, Belmont and Menlo Park. Solid waste and recyclable materials from these cities are initially transported to the Shoreway Environmental Center in San Carlos for processing and shipment. The Shoreway Environmental Center is owned by RethinkWaste (former South Bayside Waste Management Authority), is a JPA that is comprised of twelve public agencies, including the City of Atherton, Belmont, Burlingame, East Palo Alto, Foster City, Hillsborough, Menlo Park, Redwood City, San Carlos, San Mateo, the County of San Mateo, and the WBSD, and operated by South Bay Recycling under a contract with RethinkWaste. Additional small quantities of waste may be transported to other landfills within the area by private contractors.

Solid waste that is not diverted is primarily sent to the Ox Mountain Sanitary Landfill, located east of Half Moon Bay in unincorporated San Mateo County. According to California Integrated Waste Management Board, the Ox Mountain Landfill is estimated to have a remaining capacity of at least 27 million cubic yards (as of May 31, 2011). This landfill is currently permitted to operate through 2023. A small percentage of solid waste is also diverted to numerous landfills in the Bay Area and elsewhere in the State of California.

4.16.2.5 *Electricity, Natural Gas, and Telecommunication*

PG&E supplies electricity and natural gas to the Project area. Distribution of electric power is accomplished primarily through underground and overhead systems extending from various electrical transmission lines in the area. Natural gas is distributed through a series of gas distribution lines located within street right-of-ways including Maple Street, Skyway Road, Shoreway Road, and Monte Vista Drive.

There are PG&E 110kV high-voltage electrical towers with overhead transmission lines located along Shoreway Road and Skyway Road and on Inner Bair Island within the Project alignment area. Standar12 KV distribution overhead lines are located along Maple Street, Skyway Road, and Monte Vista Drive. Telecommunication lines are located within street rights-of-way including Maple Street, Bair Island Road, Shoreway Road, Skyway Road, and Monte Vista Drive.

4.16.3 Utilities and Service Systems Impacts

4.16.3.1 *Thresholds of Significance*

For the purposes of this EIR, a utilities and service systems impact is considered significant if the Project would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new waste or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;

- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Comply with federal, state, and local statutes and regulations related to solid waste.

4.16.3.2 *Water Supply*

No significant amounts of water would be required during Project construction, other than for routine dust suppression, and the Project would not require new or expanded water supply resources or entitlements. Recycled water would be utilized for construction activities like dust control and for any landscaping proposed as part of the Project. The temporary increment of potable water demand by the construction workers would not be significant to require new or expanded water supply resources or entitlements. The Project would not create new residential, commercial, industrial, or agricultural uses that would affect available water supplies or require new or expanded water supply resources or entitlements. As a result, this criterion is not applicable to the proposed Project because no impacts on existing water supplies would occur, and no mitigation measures would be required.

4.16.3.3 *Compliance with Wastewater Treatment Requirements*

<u>Construction Impacts</u>
The Project would not result in any construction-related impacts that would exceed the wastewater requirements of San Francisco RWQCB as the construction activities at the various sites would not generate wastewater beyond what minimal amounts are discussed below.

<u>Operational Impacts</u>
The proposed Project would not result in new residential, commercial, or industrial uses that would exceed the wastewater treatment requirements of the San Francisco RWQCB. The purpose of the Project is to improve the operational reliability of the existing wastewater conveyance system. Therefore, this criterion would not be applicable to the Project.

4.16.3.4 *Sanitary Sewer/Wastewater Treatment*

<u>Construction Impacts</u>
Construction of the proposed Project would not result in the need for new or expanded wastewater facilities or water facilities. Construction would, however, generate water requiring disposal through excavation dewatering as well as from portable restroom facilities. Wastewater generated during excavation dewatering would be treated on-site according to SVCW's NPDES permit. The construction contractor would arrange private collection and disposal of wastewater collected in portable restroom facilities during construction. Thus, the Project would not cause SVCW to issue a determination of inadequate capacity to serve the Project. Consequently, no impacts on wastewater treatment capacity would occur, and no mitigation measures would be required.

Operational Impacts

One of the Project's primary purposes is to improve the seismic reliability of the SVCW's conveyance system and the WWTP by replacing the 40-year old concrete force main (existing 48-inch and entire 54-inch) which has a history of joint leaks caused by unstable young bay mud soil conditions. In addition, the pump stations at Redwood City, San Carlos, Belmont and Menlo Park are in varying stages of condition, ranging from poor to very poor. The Project would replace/rehabilitate/repurpose these pump stations so that they can adequately handle future flow rates and pressures. The Project would also construct some WWTP improvements in the 10-acre ornamental pond area southwest of the existing WWTP. All Project components would ensure reliable operation of the overall wastewater conveyance system in accordance with the San Francisco RWQCB permit conditions. These improvements would not lead to an increase to the 29 MGD ADWF permitted capacity for SVCW. The Project would not construct any new residential or commercial structures that would require water or wastewater treatment. Therefore, the proposed Project would not result in construction of new water or wastewater facilities and the criterion would not be applicable to the Project.

4.16.3.5 *Stormwater Drainage Facilities*

Construction Impacts

No new or expanded storm drainage facilities would be required during Project construction. During construction dewatering, existing storm drainage facilities would be used, as the Project passes through urbanized areas where such facilities already exist. Construction at the 10-acre ornamental pond would use the existing storm drain storage basin (approximately 5.5 MG) and existing Storm Drainage pump stations, (3) 10HP pumps, located at the WWTP. Therefore, no impacts would occur.

Operational Impacts

The proposed Project would require additional on-site drainage facilities at the WWTP site. The proposed Project would increase the amount of impervious surface at the 10-acre ornamental pond area, increasing total stormwater runoff that would need to be captured and discharged. An onsite Stormwater Pump Station will be constructed to ensure that all stormwater and rainwater that falls on the WWTP site gets collected after it is treated through treatment planters, as required by the plant's NPDES permit. The storm drainage system would be constructed within the Front of the Plant area capable of collecting a 10-year, 24-hour storm event. Because storm drainage runoff from plant property cannot be directly discharged into the bay, storm drain runoff would be collected into vegetated treatment planters and pumped via a new storm drain pump station into the 5 -acre pond. This 5-acre pond will allow storm water added to flow over a flow control weir back into or the storm drain pumping system to be treated with incoming waste water and then discharged under the existing NPDES discharge permit. Storm drain piping is anticipated to be 12" to 24" in diameter. The Front of the Plant area will also be sloped to drain to a new storm drain system constructed for the new WWTP Improvements area. Thus, impacts are expected to be less than significant.

The proposed Project would not lead to an increase in impervious surface areas at the pump stations. In addition, the proposed Project includes major upgrades and improvements including onsite stormwater management for all the four pump station sites. A second vehicle access point for the

Redwood City Pump Station site through the San Mateo County Police Station property will be provided as the existing access from Maple Street is subject to flooding. Thus, no impacts would occur.

4.16.3.6 *Solid waste*

During construction of the proposed Project, construction workers and construction material packaging would generate solid waste. The main contributor to solid waste generated by the proposed Project would be the excavation and disposal of soil from the Project component sites. Some of the soil would be reused for backfill and some soil would be hauled off-site. Solid waste (soil) generated by the Proposed Project would likely be hauled to Ox Mountain Sanitary Landfill, which can accept up to 3,598 tons per day. It has a capacity of 37.9 million cubic yards, with an expected closure date of 2018 (CalRecycle, 2015). Approximately 212,000 CY of excavated materials would be off hauled from the Gravity Pipeline excavation and other Project components, spread over several years, the daily disposal of soil would not exceed the permitted daily acceptance levels at Ox Mountain Sanitary Landfill. Identifying an alternate disposal site and/or construction timing should the identified landfill not be able to accommodate all of the waste, would further reduce any potential impacts. Solid waste would be disposed of in accordance with all applicable federal, state, and local statutes and regulations. Once constructed, operation and maintenance activities would generate minimal solid waste. For this reason, implementation of the proposed Project would not exceed permitted capacity at local landfills. The impact would be less than significant and no mitigation is required.

4.16.3.7 *Utility Relocations and Modifications*

Existing utilities may be required to be relocated or modified to accommodate the Gravity Pipeline alignment and connections to Gravity Pipeline.

A large number of utilities are located in the Project area as discussed in *Section 4.16.2 above*. The tunneling for the Gravity Pipeline and construction at the shafts would require minimal interference and would not result in utility relocation. The open cut construction along Shoreway road for the Belmont Force Main rehabilitation component and Monte Vista Drive for San Carlos Repurposing improvements may require utility relocation. With all of the utility relocations, the exact modifications would be determined during final design. Nonetheless, relocation and modification of existing utilities could result in short-term service disruption which is considered a significant impact.

Impact UTIL-1: The relocation and modification of existing utilities could result in short-term service disruption impacts during construction.

Implementation of the following mitigation measure will reduce short-term utility disruption impacts to a less than significant level.

MM UTIL-1: The project will incorporate the following measures into the project construction documents:

- Prior to and during construction of the Gravity Pipeline alignment and the proposed connections, all utility work shall be completed with approval and coordination with the respective utility providers to minimize any potential disruption in service.
- All utility modifications and relocations shall comply with respective utility providers' notification process for any disruption of service, including USA North requirements.

4.16.4 Conclusion

The proposed Project would not result in significant impacts to utilities and service systems. The proposed Project includes measures to reduce or avoid impacts to utilities during construction. **[Less Than Significant Impact with Mitigation]**

5.0 CUMULATIVE IMPACTS

5.1 INTRODUCTION

Cumulative impacts, as defined by CEQA, refer to two or more individual effects, which when combined, are considerable or which compound or increase other environmental impacts. Cumulative impacts may result from individually minor, but collectively significant projects taking place over a period of time. CEQA Guideline Section 15130 states that an EIR should discuss cumulative impacts "when the project's incremental effect is cumulatively considerable." The discussion does not need to be in as great detail as is necessary for project impacts, but is to be "guided by the standards of practicality and reasonableness." The CEQA Guidelines advise that a discussion of cumulative impacts should reflect both their severity and the likelihood of their occurrence.

The purpose of the cumulative analysis is to allow decision-makers to better understand the potential impacts that might result from approval of past, present, and reasonably foreseeable future projects, in conjunction with the proposed Project addressed in this Draft EIR. Cumulative analyses are based on the premise that impacts of specific actions may be less than significant when viewed on a project-by-project basis, but when considered together with the impacts of other projects involving similar activities, these specific actions may be cumulatively considerable.

5.2 LIST OF CUMULATIVE PROJECTS

Table 5.2-1 identifies the approved, pending and reasonably probable projects, both public infrastructure projects and private development in the vicinity of the various SVCW wastewater conveyance system component sites, which are considered in this cumulative analysis.

For each environmental issue, cumulative impacts may occur over different geographic areas. For example, emissions of regional pollutants affect pollutant concentrations within the regulatory limits of the San Francisco Bay Air Basin, but the influence will be more substantial downwind of the sources. As appropriate, geographic considerations are discussed in individual issue areas, such as transportation and construction noise.

While the individual projects listed in Table 5.2-1 may result in significant impacts in particular issue areas, it is assumed that the projects will comply with existing regulations and statutes, and will incorporate mitigation and avoidance measures to reduce potential impacts to a less than significant level, if feasible and necessary. For example, all projects are required to incorporate best management practices and comply with local and regional regulations to reduce impacts to hydrology and water quality to the maximum extent feasible.

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
Autobahn Motors Dealership Reconstruction Project	700 Island Parkway Belmont, CA 94002	0.5 miles from BPS	The project involves demolition of the existing facility currently developed with Autobahn Motors and construction of a new dealership serving the same general purpose on the 5.8 acre site.	Unknown
Clear Channel Outdoor Pump Station Billboard Project	1385 Shoreway Road Belmont, CA 94002	13 foot from BPS	The project involves construction and operation of one new double-sided outdoor advertising LED billboard on the City-owned pump station property that would be oriented toward traffic along adjacent U.S. 101.	Unknown
Hilton Homewood Suites Hotel – 1201 Shoreway Road	1201 Shoreway Road Belmont, CA 94002	0.3 miles from BPS	The project includes demolition of the existing on-site structures and surface parking areas and construction of a 5-story wood framed 62,640 square foot hotel building with 96 guestrooms. In addition, the project will have 73 surface parking spaces.	Unknown
Marriott Springhill Suites Hotel	Shoreway Road & Cormorant Drive Belmont, CA 94002	0.1 mile from BPS	The project includes the construction of a four-story 169-room hotel on a 3.39-acre lot located at the southeast corner of the intersection of Shoreway Road and Cormorant Drive.	March 2016 – March 2017
Landmark Hotel	595 Industrial Road, San Carlos	0.3 mile from SCPS	The hotel development includes the construction of a new four-story, upscale, extended-stay hotel with 204 guest-rooms.	Ongoing through Late summer/early fall 2017

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
Meridian 25 office project	887 Industrial Road, San Carlos	0.5 miles from SCPS	The project proposes the demolition of the six existing buildings and associated parking and landscaping improvements and development of office uses on the 7.95 acre Project site.	Unknown
Honda Dealership	777 Industrial road, San Carlos	0.5 miles from SCPS	The project proposes automotive sales and service facility on 47,220 square foot two-story building with above surface parking.	Summer 2016 – early/late summer 2017
US 101/Holly Street Pedestrian Overcrossing Project	101/Holly Street Interchange	Adjacent to SCPS and Airport Access Shaft	The City of San Carlos, in cooperation with the California Department of Transportation (CALTRANS) proposes to construct a new Class I pedestrian and bicycle overcrossing (POC) bridge over U.S. 101. The purpose of the project is to reduce pedestrian and bicycle conflicts with vehicles within the U.S. 101/Holly Street interchange and to improve pedestrian and bicycle east-west connectivity across U.S. 101.	June 2017 – Summer 2018
Industrial Road Parallel Sanitary Sewer Project	Project alignment begins at Monte Vista Drive and Skyway Road, crosses under U.S. Hwy. 101 to East San Carlos Avenue and moves south along Industrial Road to Brittan Avenue.	Adjacent to SCPS	The general scope of work for this project includes the trenching and installation of 24-inch to 33-inch sanitary sewer pipe, reconnections of sewer laterals, removal/replacement/rehabilitation of sanitary sewer manholes and the surface restoration of existing improvements.	This project began in July 2015 with substantial completion by June 2016.
Redwood Shores Lagoon System Improvements Project	Redwood Shores Lagoon	Some of the components adjacent to FOP area, few are 0.1 mile from BPS and few are on	The project will consist of removing silt and dredging, improving intakes and outfalls, rehabilitating existing discharge facilities, and installing a new pump station and water quality assessment of the lagoon.	December 2018 – January 2019

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
		and near the alignment.		
Sandpiper Elementary School Facilities Expansion Project	797 and 801 Redwood Shores Parkway, redwood City	0.3 miles from Front of the Plant area	The project proposes the expansion of Sandpiper Elementary School and an increase in student capacity at the school from 566 students to 786 students. To accommodate the additional students, the project proposes to construct a two-story modular building and a one-story Kindergarten classroom building on the project site	Feb 2017 – July 2017
Inner Harbor Specific Plan and Harbor View Project	Various locations	The project boundary includes the RCPS and the staging areas	Specific Projects within the Inner Harbor Specific Plan include • Harbor View project at 32-350 Bloomquist Avenue (0.5 miles from RCPS) – High-tech office campus comprised of four nine-story buildings totaling 1,296,556 square feet with associated parking and landscape improvements • Watt Communities at 1548 Maple Street (0.2 miles from RCPS) - The project is proposing 131 three-story townhome-style for-sale condominium units with associated parking and amenities. The project site is located within the proposed Inner Harbor Specific Plan.	Unknown
Walnut and Maple Sewer Interceptor Improvement Project	Various locations	Adjacent to RCPS	The project will install one 60-inch inside diameter gravity sewer interceptor pipeline beneath State Highway Route 101 (Bayshore Freeway), and two Interceptor structures to connect the proposed line to an existing 48-inch gravity sewer pipeline beneath the highway, providing additional sewer capacity.	Ongoing – January 2017

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
Recycled Water Distribution System Phase 2A	Various locations	Adjacent to RCPS	Extend the City's recycled water system to the downtown area, and add 9 services for irrigation water and dual plumbed buildings.	Ongoing – September 2016
Bloomquist Bridge and Street Extension Project	Blomquist Street will be extended from its current terminus at Maple Street, northwards to parallel U.S. 101, then bridging Redwood Creek to connect at the E Bayshore and Bair Island traffic circle.	Adjacent to RCPS	The Blomquist Bridge and Street Extension project consists of both a street extension and new bridge connection across Redwood Creek to the east of U.S. 101. Blomquist Street will be extended from its current terminus at Maple Street, northwards to parallel U.S. 101, then bridging Redwood Creek to connect at the E Bayshore and Bair Island traffic circle. The total length of the project is approximately one-half mile and would provide access for vehicles, bicycles and pedestrians.	Unknown
US-101/Woodside Rd Interchange Improvements	Various locations	Adjacent to RCPS	Reconstruction of the existing U.S. 101/Woodside Rd interchange to ease congestion, increase safety, and improve access for pedestrians and cyclists.	Unknown
Whipple Avenue Overlay Project	Whipple Avenue and Veterans Blvd.	0.3 miles from Bair Island Inlet Construction staging area	The project will overlay Whipple Ave and a portion of Veterans Blvd. The project will be partially funded by Caltrans and it includes revised striping and the installation of additional curb ramps.	Ongoing – fall 2016

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
557 East Bayshore project	557 East Bayshore Road, Redwood city	0.2 mile from Bair Island Inlet Staging Area	The project proposes to demolish the existing development on the site to construct a 550-unit apartment complex on the northern portion of the property consisting of a five story building over two levels of parking with a total of 983,000 square feet of floor area (including the garage levels). The project also proposes a 100,000 square-foot fitness center on the southern portion of the site.	Unknown
One Marina Hotel Project	650 Bair Island Road Redwood City	0.5 miles from Bair Island Inlet Staging Area	5-story hotel with 177 rooms and an internal 2-level garage. The project is located within the Peninsula Park Precise Plan area.	Ongoing - unknown
Blu Harbor/Pete's Harbor Project	1 Ucelli Blvd., Redwood city	0.5 miles from Bair Island Inlet Staging area	402 unit multi-family residential project, including a 45-65 slip commercial marina, and associated parking and amenities at 1 Uccelli Boulevard.	Ongoing - unknown
Stormwater Pump Stations and Pipeline Replacement and Rehabilitation Project	Various locations	Near RCPS and Bair Island Inlet Structure	Rehabilitate and replace the existing storm drain pump stations and storm drainage pipelines. Improvements include installing new larger pipelines, storm drain pump stations with stronger submersible pumps, variable speed drive controls increasing pump efficiency, a standby engine generator, a valve vault, and pipes and other appurtenances. The project also includes replacing and/or rehabilitating pipes of the wet well surface, a valve vault, motor control center, and storm drain pipelines	March 2018 – August 2018
Atherton channel pedestrian and bicycle	North side of Haven Avenue across the Atherton	0.7 miles from MPPS	The project proposes to construct a new pedestrian and bicycle bridge over the Atherton Channel in order to enhance pedestrian	Sometime in 2016 and would require approx. 60 working days

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
bridge project	Channel, 35 feet downstream of the existing two-lane vehicle bridge.		and bicycle access along Haven Avenue and provide a safe crossing of the Atherton Channel.	
St. Anton Project	3639 Haven Avenue	0.3 miles from MPPS	St. Anton is proposing to build a 394-units residential project on 9.69 acres land	Estimated completion – Spring 2016
Menlo Gateway Project	100 to 190 Independence Drive, 101 to 155 Constitution Drive	0.3 miles from MPPS	The project proposes to construct the following: ◦Café / restaurant (4,245 square feet) ◦Health club, serving hotel guests and the public (68,519 square feet) ◦Hotel (171,563 square feet; 230 rooms) ◦Neighborhood-serving retail and community facilities (10,420 square feet) ◦Three office and R&D buildings (694,669 square feet) ◦Three parking structures The development would take place on 2 sites totaling 15.9 acres located near the US-101 / Marsh Road interchange.	Ongoing through – end of 2017
Greystar Project	3645 Haven Avenue Menlo Park	0.1 mile from MPPS	The project proposes 146 unit residential community on 4.89 acres of land	Unknown
New Magnate High School	150 Jefferson Drive Menlo Park	0.6 miles from MPPS	The proposed school project would serve approximately 400 students. The project site is an approximate 2.1 acre parcel of developed land	Spring 2017 - Fall of 2018
Haven Avenue Streetscape	The project area includes Haven Avenue, between Marsh Road and the San Mateo County border (where the	Adjacent to MPPS	The Haven Avenue Streetscape project will provide new bicycle and pedestrian facilities to Haven Avenue, connecting Menlo Park, San Mateo County and Redwood City residents and employees. It provides a direct connection to the San Francisco	2015-2016

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
Improvement Project	existing bicycle lanes terminate)		Bay Trail, and will function as an interim gap closure of the Bay Trail between Bedwell-Bayfront Park and Seaport Avenue, better serving both commute and recreational needs	
Bedwell Bayfront Park Gas Collection System Repair	Bedwell Bayfront Park	0.5 miles from MPPS	This project will address repairs that may be needed as part of routine maintenance to the gas collection system serving the former landfill at Bedwell Bayfront Park. Improvements that could increase methane capture will be implemented, reducing greenhouse gas emissions. This project will be scoped in more detail following completion of the Gas Collection System Improvements Study and Conceptual Design project.	2017-2018
Bedwell Bayfront Leachate Collection System Replacement	Bedwell Bayfront Park	0.5 miles from MPPS	This project will involve repairs and upgrades to the existing leachate collection system that the City is required to maintain at the former landfill site at Bedwell Bayfront Park.	2016-2017
Bedwell Bayfront Park Master Plan	Bedwell Bayfront Park	0.5 miles from MPPS	The master plan will provide a long term vision and general development guide for the park and its facilities, including how to best protect park resources, provide quality visitor experiences, manage visitor use, and plan for future park development.	2016-2017
Bedwell Bayfront Park Electrical	Bedwell Bayfront Park	0.5 miles from MPPS	The Bedwell Bayfront Park restrooms are in need of repair. The project includes replacement of the electrical panel replacement, toilets, and sewer connection to improve capacity and efficiency.	2015-2016

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
Panel Upgrade				
ConnectMenlo	Variable	Variable	The proposed Land Use and Circulation Elements replace the City's existing Land Use and Circulation Elements, which were last comprehensively updated in 1994. The proposed Land Use and Circulation Elements are intended to guide development and conservation in Menlo Park through the 2040 buildout horizon of this General Plan.	Unknown
Continued maintenance of the PG&E right-of-way	North side of Inner Bair Island	Variable	Continued maintenance of the PG&E right-of-way	Ongoing
Sanitary Sewer Pump Station Rehabilitation Project	Various locations	Adjacent to the tunnel alignment	The project consists of improvements to two sanitary sewer pump stations (P.S. No. 13 and P.S. No. 16). The work will consist of removing and replacing existing mechanical and electrical structures; rehabilitating and repairing an existing wet well; installing a temporary by-pass system, submersible pumps, motor control center, and stand by generator; and connecting pump stations to existing force mains.	Construction Start : January 2017
Sanitary Sewer Pump Station Improvements Project	Various locations	Two components adjacent to near the Gravity	The project consists of improvements to three sanitary sewer pump stations (Marina P.S., P.S. 17, and P.S. 19). The work will consist of removing and replacing existing mechanical and electrical structures; rehabilitating and repairing an existing wet well; installing a temporary by-pass system, submersible pumps,	Ongoing – September 2016

Table 5.2-1: Projects Considered in Cumulative Impacts Analysis for the proposed Silicon Valley Clean Water Conveyance System and Treatment Plant Reliability Improvement Project				
Project Name	**Address**	**Distance from Proposed Project (miles)**	**Project Description**	**Estimated Construction Schedule**
		Pipeline alignment	motor control center, and stand by generator; and connecting pump stations to existing force sewer mains.	

5.3 ANALYSIS OF CUMULATIVE IMPACTS

For each impact area discussed in this Draft EIR, the following aspects of cumulative impacts are discussed in this section:

- Would the effects of the proposed project, when combined with the effects of all past, present, and pending development result in a cumulatively significant impact on the resources in question?

- If a cumulative impact is likely to be significant, would the contribution of the proposed project to that impact be cumulatively considerable?

Section 15130(B) of the CEQA Guidelines states that lead agencies should define the geographic scope of the area affected by the cumulative effect. For example, the project effects on air quality would combine with the effects of projects in the entire San Francisco air basin, whereas noise impacts would primarily be localized to the surrounding area. The proposed Project would primarily contribute to the cumulative effects of development in and around the wastewater conveyance system component sites located in Redwood City, Belmont, San Carlos, and Menlo Park.

5.3.1 Cumulative Impacts Previously Discussed

The analysis of several environmental topics disclosed in previous sections of this EIR was by its very nature a cumulative impacts analysis, and those topics are therefore not addressed further here.

Criteria Air Pollutants. The San Francisco Bay Area Air Basin (SFBAAB) is currently designated as a non-attainment area for state and national ozone standards and national particulate matter ambient air quality standards. SFBAAB's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. The analysis in Draft EIR Section 4.3.3.3 *Air Quality* of the criteria pollutants emitted during the construction and operational phases of the proposed improvements to the wastewater conveyance system was by its very nature a cumulative impacts analysis in that the Project's criteria pollutant emissions were evaluated in terms of their contribution to the region's cumulative emissions. The significance thresholds established by BAAQMD are an indication of a project's contribution to cumulative regional criteria pollutant emissions, as no single project would individually cause an exceedance of air quality standards for the San Francisco Air Basin. Applying the BAAQMD's significance thresholds, as discussed in Section 4.3.3, the EIR disclosed the combined construction activity at the various component sites would exceed NOx emissions thresholds in 2018, and therefore the Project includes a mitigation measure to utilize EPA Tier 3 equipment to reduce NOx so that the Project would **not** significantly contribute to cumulative regional air quality impacts.

Greenhouse Gas Emissions. The analysis of the GHG emissions emitted during the construction and operational phases of the proposed improvements to the wastewater conveyance system was by its very nature a cumulative impacts analysis in that the Project's GHG emissions were evaluated in terms of their contribution to GHG emissions throughout the Bay Area and entire state in 2020 according to California's climate protection laws and policies including AB 32 addressing 2020 cumulative GHG emissions, and SB 32 addressing 2030 statewide emissions. The significance thresholds established by BAAQMD are an indication of a project's contribution to cumulative 2020 GHG emissions, as no single project could individually cause a significant impact to global climate change. As discussed in Section 4.8.3, the Project would not emit a cumulatively considerable amount of GHG emissions according to the state's 2020 GHG goals set by AB32 and the thresholds developed by BAAQMD used to assess a project's contribution to cumulative 2020 GHG emissions. For those wastewater system components only evaluated at a conceptual level in this EIR that are not anticipated to be built and operational until sometime after 2020, those components will undergo subsequent project-level environmental review including detailed analysis of their anticipated GHG emissions in years to be constructed and first in operation, once sufficient detail exists about the components' construction and operations. SVCW has committed to reduce the GHG emissions associated with those future post-2020 components to levels consistent with statewide 2030 GHG reduction targets set by recently enacted SB 32.

Energy. The analysis of the energy involved in the construction and operation of the proposed improvements to the wastewater conveyance system was by its very nature a cumulative impacts analysis in that the Project's energy demands were evaluated in terms of California's cumulative energy demand and supplies now and into the future. The proposed Project, together with the cumulative projects, would result in a small increment of increased energy demand that is considered less than significant. This is due to the energy conservation requirements and programs that have been established under AB 32 and Title 24 requirements. Future development throughout California would be required to integrate energy efficiency measures that would reduce average demand per type of use. All cumulative development would be required to increase energy efficiency and, therefore, would not encourage wasteful or inefficient use of energy. For these reasons, implementation of the proposed Project would not make a cumulatively considerable contribution to impacts resulting from energy production and use.

5.3.2 Environmental Topics For Which The Project Causes No Impacts

The analysis of a number of environmental topics discussed in previous sections of this EIR disclosed the Project would have **no impact** to those environmental resources or topic areas, and those topics are therefore not addressed further here as a matter of cumulative impacts, as the Project would **not** make a contribution to any cumulative impacts that may be likely to occur. Those topics not addressed further are as follows:

- Agricultural and Forestry Resources
- Archaeological/Paleontological Resources (other than Redwood City Pump Station, discussed below)
- Historic Resources
- Tribal Cultural Resources
- Land Use Impacts
- Minerals
- Population/Housing
- Public Services
- Recreation

5.3.3 Cumulative Impacts To Which The Project Could Contribute

The analysis of a number of environmental topics discussed in previous sections of this EIR disclosed the Project **would** have impacts to those environmental resources or topic areas, and for those topics the Project's impacts are therefore discussed in combination with other approved, pending and reasonably probable projects, both private development and public infrastructure, as the Project could contribute to any cumulative impacts that may be likely to occur. Those topics are as follows:

- Aesthetics and Visual Resources
- Biological Resources
- Cultural Resources (limited to archaeology at Redwood City Pump Station)
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise and Vibration
- Transportation
- Utilities and Service Systems

5.3.4 Cumulative Impacts For SVCW System As A Whole

The Project is a combination of wastewater conveyance system components, occurring in four adjacent cities and across multiple site locations, and the EIR's preceding analysis of the Project as a whole presents the combined effects of those components being constructed and operated together. For example, as noted above, the analysis of the Project's construction criteria pollutant impacts from activity anticipated at all component locations that would be under construction simultaneously at any given time, is presented in Section 4.3.3.3 *Air Quality*, and reflects the combined contribution from the various system components to cumulative San Francisco air basin conditions. What is presented below is the degree to which the Project, in total or as relevant for each system component, would combine with other development and infrastructure projects to produce cumulative impacts.

The conveyance system taken as a whole would have the potential to contribute to the following cumulative impacts, given the impact is anticipated to occur at each component location. The site specific impacts at each component location are subsequently presented as separate cumulative impact discussions in Section 5.4.

Project Impacts At All Project Component Locations

Construction Impacts:

CUL-2: potential for all ground disturbing activities to impact unknown archaeological resources
HAZ-1: potential for all ground disturbing activities to encounter soil/groundwater contamination
HYD-1: potential for all ground disturbing activities to release soil and contaminants into stormwater
HYD-2: potential for dewatering of all ground disturbing activities extending below water table
UTIL-1: potential to encounter utilities while excavating at all locations
Transportation: construction trucking activity occurring in multiple jurisdictions over multiple construction seasons

Operational Impacts:

GEO-1: exposure of equipment below ground to corrosive soils at all sites
Utilities: Less than significant impacts to solid waste generation and disposal at landfills

The location and nature of the cumulative projects that have the potential to combine with the Project for cumulative impacts to the seven environmental topics noted above are identified in Table 5.2.-1.

5.3.4.1 *Cumulative Impacts: Prehistoric Resources*

The cumulative projects analyzed in this Draft EIR may require excavation and grading or other activities that may affect unknown prehistoric cultural resources. As with the proposed Project components as a group, all projects with the potential to impact unknown cultural resources would be required to implement measures as conditions of approval to avoid impacts to prehistoric resources and/or reduce them to a less than significant level. As with the proposed Project components as a whole, the cumulative projects would also be subject to federal, state, and county laws regulating cultural or paleontological resources. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to unknown prehistoric resources. The potential for cumulative impacts to known archaeological resources near the Redwood City Pump Station is addressed separately below in Section 5.4. The cumulative projects, including the proposed Project, would not result in significant cumulative prehistoric resource impacts. **[Less Than Significant Cumulative Cultural Resources Impact]**

5.3.4.2 *Cumulative Geology and Soils Impacts*

Similar to the proposed Project, the cumulative projects analyzed in this Draft EIR could also have the potential to result in geology and soils impacts, by placing infrastructure below ground where it would be exposed to corrosive soils. This condition was disclosed for the Project as impact GEO-1: exposure of equipment below ground to corrosive soils at all sites. To address this soil condition, the EIR identified mitigation measure **MM GEO-1**:

MM GEO-1: The following measures are recommended for corrosion control.

- Buried reinforced concrete structures should be constructed of durable concrete such as described in ACI Standards 201.2R and 222R.
- The water/cement ratio should not exceed 0.45.
- The concrete cover applied over all steel reinforcement should generally be a minimum of 2 inches thick.
- A bonded coating should be applied on top of the concrete cover to provide a barrier to the corrosive soil.
- Type V modified cement should be used.
- Sand and water used in concrete mixtures should contain a maximum of 100 ppm of water-soluble chloride ions and water-soluble sulfate ions and have a pH in the range of 6.5 to 8.0. Water used in concrete mixtures should be potable water.

That condition would be likely faced by each project and does not reflect a case where the condition at each site would have the potential to combine with other projects at their respective locations to create cumulative impacts that increased or exacerbated the risk of corrosion. The cumulative projects would each be required to implement measures similar to MM GEO-1 as conditions of approval to avoid and/or reduce the potential for geology and soils impacts to less than significant levels. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative geology and soils impacts. **[Less Than Significant Cumulative Geology and Soils Impact]**

5.3.4.3 *Cumulative Hazardous Materials Impacts*

Similar to the proposed Project, some of the projects that would be built out under the cumulative scenario are proposed on properties that were previously developed with industrial or commercial uses or that are impacted from off-site hazardous material contamination. It is likely that hazardous materials may have been stored and used on some or all of the cumulative project sites at some point in the past. Existing buildings to be demolished by the cumulative projects could contain asbestos-containing materials (ACMs), lead-based paint, or PCBs. As a result, demolition of these structures could expose construction workers, persons in the immediate vicinity, and or the environment to these hazardous materials, if they are not handled properly.

This condition was disclosed for the Project as impact HAZ-1: potential for all ground disturbing activities to encounter soil/groundwater contamination or from the storage, use and/or disposal of hazardous materials. To address the condition, the EIR identified mitigation measures **MM HAZ-1.1** and **1.2**:

MM HAZ-1.1: Prior to initiating earthwork activities, sampling and laboratory analyses shall be conducted at planned earthwork locations where spill incidents appear most likely to have impacted soil and/or groundwater, including at the Belmont Pump Station site, the northerly portion of the planned sewer alignment (tunnel), and the northeastern portion of the San Carlos Pump Station site. This should be done in order to establish specific, appropriate site management protocols, including handling and disposal alternatives for contaminated materials and health and safety protocols.

MM HAZ-1.2: This measure shall be implemented before and during construction of the Gravity Pipeline and pump stations, as well as demolition of the Belmont Pump Station and Menlo Park Pump Station.

- A Site Management Plan (SMP) and Health Safety Plan (HSP) shall be prepared by the Project contractor and submitted to SVCW for review.
- The SMP and HSP shall include the following:
  - Site control procedures to control the flow of personnel, vehicles, and materials in and out of the construction site;
  - Measures to minimize dust generation, storm water runoff, and tracking of soil off-site;

- If excavation de-watering is required, protocols to evaluate water quality and discharge/disposal options;
- Protocols for completing earthwork activities in areas where impacted soils, soil vapor, and/or groundwater are present or suspected;
- Worker training requirements, health and safety measures and soil handling procedures;
- Protocols to be implemented if buried structures, wells, debris, or unidentified areas of impacted soil are encountered during construction activities;
- Protocols to evaluate the quality of soil suspected of being contaminated so that appropriate mitigation, disposal, or reuse options can be determined;
- Procedures to evaluate and document the quality of any soil imported to the construction site;
- Methods to monitor trenches for the potential presence of volatile chemical vapors;
- Protocols to reduce the potential for construction equipment and vehicles to release contaminated soil onto public roadways or other off-site transfer; and
- Stockpiling protocols for "clean" and "impacted" soil.

Similar to the proposed Project, all cumulative projects with the potential to result in risks associated with exposure to hazardous materials would be required to implement measures as conditions of approval. These measures could include incorporating the requirements of applicable existing local, state, and federal laws, regulations, and agencies such as the State Department of Toxic Substances (DTSC), Regional Water Quality Control Board, and the California Occupational Safety and Health Administration (Cal/OSHA), during one or more phases of Project development.

If chemical releases have occurred on the cumulative sites, it is possible that contaminated soils could be over excavated and transported to appropriate landfills or treated on-site. If groundwater is affected, remediation and ongoing groundwater sampling both on the site and on surrounding down-gradient properties could be warranted. Finally, prior to the demolition of structures with the potential to contain hazardous building materials (e.g., ACMs or lead-based paint), surveys would be required as conditions of approval to determine if hazardous building materials are present. If determined to be present, the hazardous building materials would be handled and disposed of in a manner that minimizes exposure to people and the environment. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative hazardous materials impacts.

Hazardous materials and other public health and safety issues are generally specific to the area of concern and would not combine with contamination on other sites in San Mateo County that are not geographically related. For example, investigation and possible subsequent remediation of a development or redevelopment site in the City of Menlo Park would not typically affect the investigation and remediation of sites in other SVCW member cities. Construction of the proposed Project, in combination with the cumulative projects, would not result in a significant cumulative hazardous materials impact. **[Less Than Significant Cumulative Hazardous Materials Impact]**

5.3.4.4 *Cumulative Stormwater Impacts*

Build-out of the cumulative projects would generally involve redevelopment of existing developed sites that contain substantial impervious surfaces, and these projects would be required to conform to applicable General Plan goals, policies, and action statements of the Cities of Redwood City, Belmont, San Carlos, and Menlo Park, as well as each city's respective Municipal Zoning Code and stormwater management guidelines regarding stormwater runoff and infrastructure.

This condition was disclosed for the Project as impacts HYD-1 and HYD-2.

Impact HYD-1: Construction of the proposed Project could increase contaminants in stormwater runoff, which could adversely affect the water quality of the San Francisco Bay.

Impact HYD-2: Water quality impacts from shallow groundwater encountered during construction could occur under the proposed Project.

To address the condition, the EIR identified mitigation measures **MM HYD-1,** which require SVCW to develop, implement, and maintain a Storm Water Pollution Prevention Plan (SWPPP), including Best Management Practices (BMPs) to control the discharge of stormwater pollutants including sediments associated with construction activities, and **MM HYD-2**, which requires preparation of a detailed, design-level geotechnical investigation to address the need for dewatering during construction.

Prior to construction, the SVCW contractor shall be required to prepare an Erosion Control Plan. Additionally, the other cumulative projects would be required to implement stormwater pollution best management practices (BMPs) during construction and incorporate low impact development (LID) project design measures to reduce water quality impacts and to comply with the NPDES Municipal Regional Permit (MRP). For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative hydrology and water quality impacts. **[Less Than Significant Cumulative Hydrology and Water Quality Impact]**

5.3.4.5 Cumulative Utilities Impacts

Cumulative Utilities Interruption Impacts

The EIR previously disclosed Project construction activities involving excavation have the potential to encounter and damage existing utilities, thereby interrupting service to the affected community. This was disclosed as impact UTIL-1: potential to encounter utilities while excavating at all locations. The cumulative projects identified in Table 5.2-1 that involve excavation also have the same potential. Implementation of the proposed Project in combination with the cumulative projects could result in significant cumulative impacts to utilities and service systems by damaging utilities during excavation and other below-ground construction activity.

To reduce the risk of damaging existing utilities during construction, the Project will implement **MM UTIL-1** as follows:

MM UTIL-1: The Project will incorporate the following measures into the Project construction documents:

- Prior to and during construction of the Gravity Pipeline alignment and the proposed connections, all utility work shall be completed with approval and coordination with the respective utility providers to minimize any potential disruption in service.
- All utility modifications and relocations shall comply with respective utility providers' notification process for any disruption of service, including USA North requirements.

This measure would ensure the Project does not impact existing utilities, and it is reasonable to assume that other cumulative projects in the four adjacent member cities in which SVCW will construct the system components would also be required to implement similar precautionary measures to avoid impacts to existing utilities, thereby reducing the potential for cumulative impacts to utilities to a less than significant level.

Cumulative Solid Waste Impacts

Utilities are generally provided or delivered on a local level, but often originate from sources outside of a City and/or as a part of a regional distribution system. The proposed Project, together with the cumulative projects, would increase the generation of solid waste in Redwood City, Belmont, San Carlos, and Menlo Park. It is anticipated, according to the analysis and conclusions of each city's General Plan EIRs, the landfills serving each community would have adequate capacity to accommodate solid waste generation from their surrounding communities. The proposed Project's temporary solid waste generation during construction would represent a small contribution to this amount. Therefore, implementation of the Project would not make a cumulatively considerable contribution to impacts on solid waste management. **[Less Than Significant Cumulative Utilities Impact]**

5.3.4.6 *Cumulative Transportation Impacts*

The traffic analysis completed for the Project considered the combined cumulative impacts of the various component sites' construction schedules, many of which would use the same roads for construction vehicles. The proposed Project, considering combined activities from all component construction sites, will generate an estimated total of 191,062 truck trips (depending on Influent Connector method), equating to an average total of approximately 91 daily truck trips to and from each component's construction site within the cities of Belmont, Menlo Park, Redwood City, and San Carlos. Each Project component involves truck trips related to soil excavation, soil import and off-haul, equipment transport and delivery, debris removal, and building material transport. The following summarizes the estimated trips for each city:

- City of Belmont is estimated to have an average of less than one daily Project truck trip over the span of about three (3) years.
- City of Menlo Park is estimated to have an average of less than one daily Project truck trip over the span of about two (2) years.

- City of Redwood City is estimated to have an average of approximately 78 daily Project truck trips (depending on Influent Connector method) over the span of about five (5) years.
- City of San Carlos is estimated to have an average of about 13 daily Project truck trips over the span of about five (5) years.

Impacts from construction truck trips will be minimized due to construction zones and staging areas having nearby access to U.S. 101 as well as arterial and commercial streets. Given this direct access, construction traffic will not be required on local residential streets. Additionally, the low number of truck trips per city will be dispersed throughout an entire day, further minimizing impacts.

During the highest construction activity period, there will be approximately 286 truck trips per day (depending on the Influent Connector method). Averaged over a 12-hour construction day, this represents about 24 trucks per hour. This number of estimated truck trips generated for the proposed Project is below the threshold of warranting a detailed intersection level of service (LOS) analysis and will not result in any LOS impacts to roads, intersections, freeways, or interchanges.

The Project's construction traffic will be temporary, although extending across multiple construction seasons, and it is not possible to predict the precise construction schedules of the various cumulative projects in the vicinity of the conveyance system component locations. However, given the relatively small daily truck volumes identified above (which are not concentrated during the AM or PM peak commute hours, but spread over the course of the day), even if other construction projects are underway or if future development identified in the cumulative list has been built and in operation, generating its own substantial new peak hour traffic volumes, those future conditions would not be significantly influenced by the conveyance system's temporary construction traffic, even for the component location with the most intense construction activity, the WWTP/FoP site with 78 daily construction trips over about five years. Therefore, implementation of the Project would not result in significant impacts to the transportation system under cumulative conditions. **[Less Than Significant Cumulative Traffic Impact]**

5.4 CUMULATIVE IMPACTS FOR EACH SVCW SYSTEM COMPONENT SITE

The conveyance system improvement Project is spread over a large geographic area, spanning four adjacent SVCW member cities, and so in many instances the environmental impacts at one component location are localized and don't have the potential to combine with other system components (e.g. construction noise experienced at the Belmont Pump Station would not be experienced by the same nearby sensitive receptors as would construction noise experienced at the Redwood City Pump Station several miles away). What is therefore relevant for the cumulative impacts discussion is what other development and infrastructure work is anticipated in the local environment of each system component location (e.g. other development and infrastructure projects in the vicinity of the Belmont Pump Station are relevant to evaluating the potential for the Belmont Pump Station to contribute to localized cumulative effects). A discussion of the more localized cumulative impact conditions for the environment surrounding each system component follows below.

5.4.1 AIRPORT ACCESS SHAFT COMPONENT CUMULATIVE CONDITIONS

Project Impacts at Airport Access Shaft Component Location

At the Airport Access Shaft site, the EIR discloses that the Project would result in the following impacts requiring mitigation to reduce impacts to less than significant levels:

BIO-4: Tunnel/Access Shafts construction disturbance of nesting birds
BIO-14: Tunnel/Access Shafts and Bair Island construction impacts to wetlands
BIO-18: Airport Access shaft removal of trees
NOI-1: construction noise in relation to ambient noise conditions

Additionally, the EIR discloses that the Project would result in the following less than significant impacts, which could potentially combine with other cumulative projects to result in significant cumulative impacts:

Aesthetics: Less than significant impacts to existing visual resources or aesthetic character
Aesthetics: Less than significant impacts to scenic resources including scenic highways
Aesthetics: Less than significant impacts to light and glare
Hazards: Less than significant impacts to airport safety at San Carlos Airport
Hydrology: Less than significant impacts to flooding
Noise/Vibration: Less than significant impacts to construction vibration

Cumulative Projects for Airport Access Shaft Component Location

The following project is under construction, planned, or may occur in the vicinity of the Airport Access shaft site, and therefore could potentially combine with the Project for cumulative impacts:

- **U.S. 101/Holly Street Pedestrian Overcrossing Project**: The City of San Carlos, in cooperation with the California Department of Transportation proposes to construct a new Class I pedestrian and bicycle overcrossing bridge over U.S. 101.

The location of the cumulative project is shown on Figure 5.4-1.

AIRPORT ACCESS SHAFT CUMULATIVE PROJECTS

FIGURE 5.4-1

5.4.1.1 *Cumulative Aesthetic and Visual Impacts*

As discussed previously, the wastewater conveyance system Project as a whole would not substantially affect scenic views or scenic resources, nor result in substantial light or glare. At the Airport Access shaft location, there would be removal of non-native trees and temporary installation of construction equipment while the Tunnel excavation and installation process was underway. The temporary construction activity at the Airport Access shaft would not introduce new structures that would degrade the visual character or quality of the surrounding area, nor would the trees to be removed constitute a loss of a substantial visual resource. The U.S. 101/Holly Street pedestrian overcrossing project would also not substantially impact visual resources, as it would not result in the loss of significant visual resources nor the introduction of visually incompatible new structures in the area, because the new pedestrian and bike bridge would be designed in accordance with the standards of the City and Caltrans. While the SVCW tunnel access shaft and the U.S. 101/Holly Street pedestrian/bicycle bridge would both occur in the same viewshed, their combined physical change to the local aesthetic environment would not result in a significant adverse visual change, nor would they in combination create a substantial source of light and glare. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. **[Less Than Significant Cumulative Impact]**

5.4.1.2 *Cumulative Biological Resources Impacts*

Given the Project's biological resources impacts and the nature of the cumulative projects, the discussion below focuses on cumulative impacts related to nesting birds, impacts to wetlands and removal of trees.

Cumulative Impacts: Nesting Birds

The construction activity planned at the Airport Access Shaft and the U.S. 101/Holly Street ped/bike overcrossing project may affect nesting raptors and migratory birds that could be present on and/or adjacent to the Project site or areas of proposed construction.

Measures would be implemented to avoid impacts to nesting birds, which would reduce the Project's contribution to nesting bird cumulative impacts. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds.
For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to nesting birds. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Wetlands

The construction activity planned at the Airport Access Shaft and the U.S. 101/Holly Street pedestrian/bicycle overcrossing project may result in the unintentional discharge or fill into wetlands or non-wetlands waters.

Measures would be implemented to identify the wetland and non-wetland waters prior to ground disturbing activities, which would reduce the Project's contribution to cumulative wetlands impacts. Sensitive habitats within the construction area of the Airport Access Shaft would be identified, and silt fencing would be installed with oversight from a qualified biologist adjacent to identified waters, if necessary. The U.S. 101/Holly Street pedestrian/bicycle overcrossing project would likely implement standard construction measures that would avoid or reduce impacts to wetlands through adherence to BMPs.

For these reasons, the cumulative projects, including the proposed Project would not result in significant cumulative impacts to wetlands. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Trees

As previously discussed, the construction activity at the Airport Access Shaft site will require the removal of trees. Per Impact **BIO-18**, surface disturbance at the Airport Access Shaft will require tree removal of seven trees which are considered protected by the Redwood City Tree Ordinance, and one tree which is not protected per the Ordinance. All trees to be removed are non-native, invasive blackwood acacia trees, and SVCW will replant appropriate native replacement trees in accordance with the City's standard requirements. It is not anticipated that the U.S. 101/Holly Street will require removal of trees, but if required, the overcrossing project would also provide appropriate replacement planting per the City's standard requirements. The proposed Project, together with the U.S. 101/Holly Street ped/bike overcrossing project, would not result in a cumulatively considerable contribution to a significant cumulative loss of protected trees. **[Less Than Significant Cumulative Biological Resources Impact]**

5.4.1.3 *Cumulative Noise Impacts*

The Project site is located in an essentially "built-out" urban area of Redwood City near U.S. 101 and the San Carlos Airport. The construction activity at the Airport Access Shaft would involve nighttime construction, however, due to the U.S. 101/Holly Street/Redwood Shores Parkway traffic noise and aircraft noise, the existing ambient noise levels are high. The Project has incorporated standard construction mitigation measures like utilizing quieter models of equipment and locating stationary noise sources as far from receptors as possible and developing a noise monitoring and control plan, which will further reduce construction noise levels as low as practicable (**MM NOI-1**). There will be no ongoing operational activity after the construction phase is over, and therefore, no operational noise impact would occur. Construction vibration levels are not expected to exceed 0.3 in/sec PPV due to Project construction at any of the surrounding buildings. Therefore, the Project's impact would be less than significant, and the only other nearby localized cumulative project is the U.S. 101/Holly Street Pedestrian Overcrossing project (See Figure 5.4-1). This project may overlap with the construction phase of the proposed Project but according to the environmental analysis completed for the U.S. 101/Holly Street project, it is not expected to have any significant construction noise or vibration impacts, and the project would incorporate standard best management practices for noise, including restrictions on construction hours, equipment staging, and use of utilizing quieter models of equipment. Therefore, the proposed Project, in combination with the cumulative project, would not result in significant cumulative noise and vibration impacts. **[Less Than Significant Cumulative Noise and Vibration Impact].**

5.4.1.4 *Cumulative Hydrology and Water Quality Impacts*

Cumulative Impact: Local Flooding

As identified in the EIR, the Project component locations, with the exception of the Skyway Road and Monte Vista Drive area, are within the FEMA 100-year flood-plain. The Airport Access Shaft is located in Zone A, which are areas that are subject to inundation by the one-percent-annual-chance flood event.

The Airport Access Shaft site would not be constructing temporary or permanent structures that would alter the existing flooding patterns of the Project area, nor would activities at this site affect the control levee system of Redwood Shores. The other project (U.S. 101/Holly Street Pedestrian Overcrossing project) that would be occurring within the area would not combine with construction activity at the Airport Access Shaft site to compromise flooding patterns or result in greater flooding within the Project area. It is, therefore, expected that the Airport Access Shaft and other local cumulative project would not result in a cumulative flooding impact. **[Less Than Significant Cumulative Hydrology Impact]**

5.4.2 <u>WWTP/FRONT OF THE PLANT COMPONENT CUMULATIVE CONDITIONS</u>

<u>Project Impacts at WWTP/Front of the Plant Component Location</u>

At the WWTP/FoP site, the EIR discloses that the Project would result in the following impacts requiring mitigation to reduce impacts to less than significant levels:

AIR-3: Ongoing potential for odors from operations at the WWTP and all four pump stations
BIO-2: Flow Splitter Shaft, Bair Island construction disturbance of CA Ridgeway Rail
BIO-5: WWTP/FoP construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-6: WWTP/FoP construction disturbance of California Ridgeway Rail
BIO-7: WWTP Improvements construction disturbance of nesting birds
BIO-15: Influent Connector portion of project construction impacts to wetlands
BIO-19: WWTP Improvements removal of trees
NOI-1: Construction noise in relation to ambient noise conditions
NOI-2: WWTP ongoing operational noise impacts on surrounding uses

Additionally, the EIR discloses that the Project would result in the following less than significant impacts, which could potentially combine with other cumulative projects to result in significant cumulative impacts:

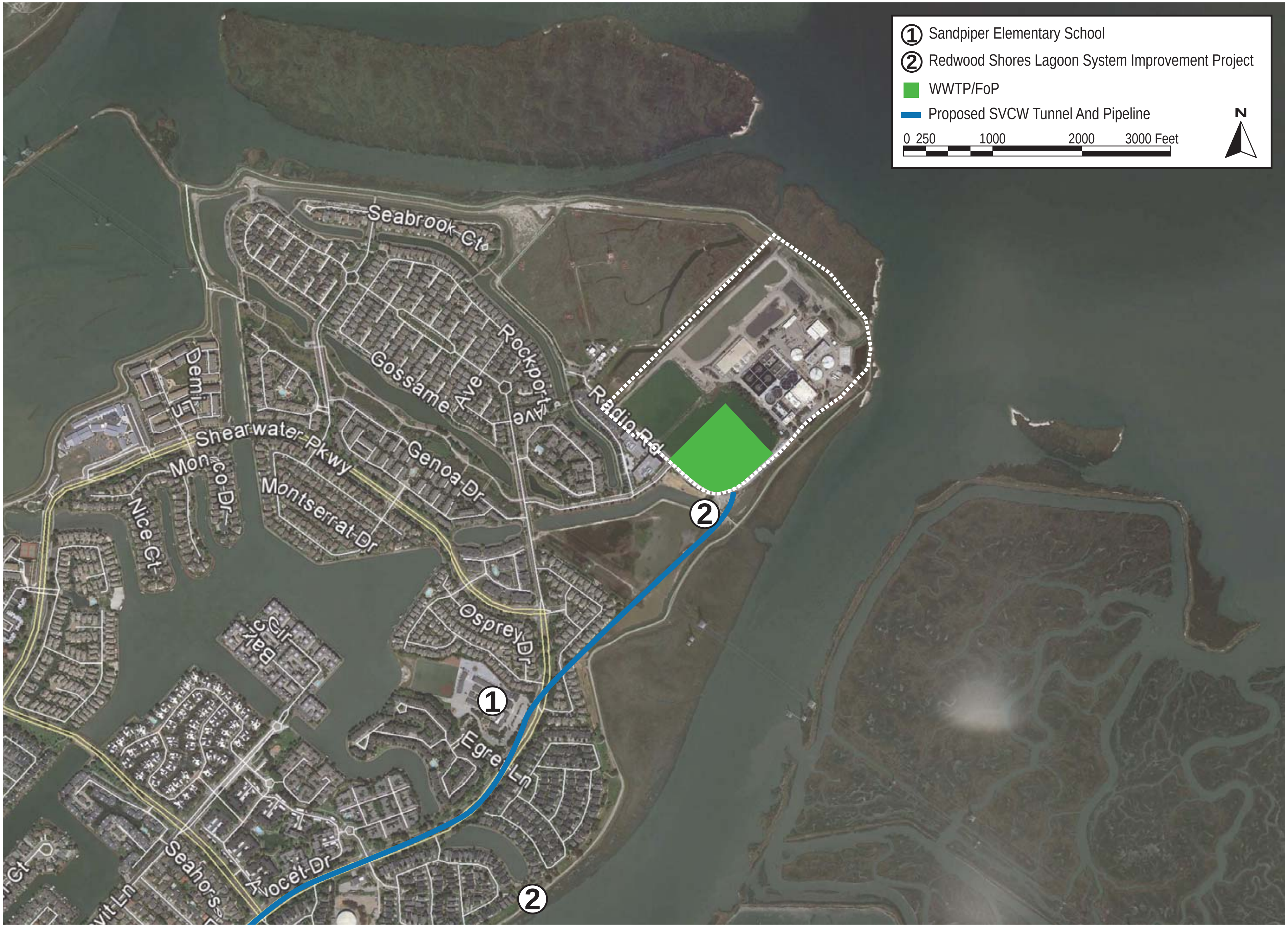
Aesthetics: Less than significant impacts to existing visual resources or aesthetic character
Aesthetics: Less than significant impacts to scenic resources including scenic highways
Aesthetics: Less than significant impacts to light and glare
Hydrology: Less than significant impacts to flooding
Noise/Vibration: Less than significant impacts to construction vibration
Utilities: Less than significant operational impacts to storm drainage facilities

<u>Cumulative Projects for WWTP/Front of the Plant Component Location</u>

The following projects are under construction, planned, or may occur in the vicinity of the WWTP/FoP site, and therefore could potentially combine with the Project for cumulative impacts:

- Sandpiper Elementary School
- Redwood Shores Lagoon System Improvement Project

The location of the cumulative projects is shown on Figure 5.4-2.



WASTE WATER TREATMENT PLANT/FRONT OF PLANT CUMULATIVE PROJECTS FIGURE 5.4-2

5.4.2.1 *Cumulative Aesthetic and Visual Impacts*

As discussed previously, the wastewater conveyance system Project as a whole would not substantially affect scenic views or scenic resources, nor result in substantial light or glare. At the WWTP/FoP site, neither the Sandpiper Elementary School expansion project nor the Lagoon System Improvement project are visible, as neither occurs in the same viewshed as the WWTP/FoP site. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts nor would they in combination create a substantial source of light and glare. **[Less Than Significant Cumulative Impact]**

5.4.2.2 *Cumulative Air Quality Impacts*

Cumulative projects with a potential to generate odors include wastewater, landfill and wetland restoration projects. The proximity of these projects to the same sensitive receptors could result in potential odor emissions. Odor-generating facilities currently exist at the WWTP/Front of the Plant area vicinity. Construction activities at the WWTP could result in odors associated with diesel exhaust that could be noticeable at times to residences in close proximity, but these are not anticipated to result in odor complaints. Per **Impact AIR-3**, odors from operation of the proposed Project at the WWTP/Front of the Plant area could adversely impact sensitive receptors in the Project area. The various components that may generate odors (i.e., RLS, New Flow Diversion Structure) shall have an odor control plan to promptly respond to odor complaints to reduce the impact to less than significant level (**MM AIR-3**).

The Redwood Shores Lagoon System Improvement project is in close proximity to the WWTP/Front of the Plant area and could lead to cumulative odor emissions to the same sensitive receptors. This project is a storm drainage/lagoon improvement project, and therefore, is not expected to generate operational odor emissions. Construction may have some odor emissions typical of the construction activities; but it is assumed that the project would have standard best management practices in place to reduce the odor impact to less than significant level. The Sandpiper Elementary School project is too far away from the WWTP/Front of the PlantFront of the Plant area to have localized cumulative odor impact on the same sensitive receptors, and is not anticipated to generate substantial odors during construction, and would not occur during school operations. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to odor emissions. **[Less Than Significant Cumulative Air Quality Impact]**

5.4.2.3 *Cumulative Biological Resources Impacts*

Given the Project’s biological resources impacts and the nature of the cumulative projects, the discussion below focuses on cumulative impacts related to California Ridgeway Rail, Salt Marsh Harvest Mouse, Salt Marsh Wandering Shrew, and impacts to wetlands nesting birds, and removal of trees.

Cumulative Impacts: CA Ridgeway Rail, Salt Marsh Harvest Mouse, Salt Marsh Wandering Shrew

The construction activity planned at the WTTP and Sandpiper Elementary School site may affect special status species (i.e. CRRR, SMHM, SMWS) which could be present on and/or adjacent to the

Project site or areas of proposed construction. The City of Redwood City's environmental review for the Lagoon System Management Plan is focused on water quality impacts during Project construction and conformance to NPDES requirements and does not identify impacts to any special status species in the Project area.

Measures would be implemented to avoid noise and visual disturbance impacts to special status species, which would reduce the Project's contribution to special status species cumulative impacts. Habitat avoidance, presence of a biological monitor during construction staging and continued consultation throughout Project construction, and incorporation of standard construction measures would reduce potential impacts to SMHM and SMWS to a less than significant level.

Initiation of construction activities during the CRR breeding season (February 1 through August 31) will be avoided to the extent feasible. If construction work would occur during the CRR breeding season, preconstruction surveys would be conducted prior to ground disturbance. Preconstruction surveys and breeding season avoidance would also reduce the potential loss or disturbance of nesting birds (i.e. CRR) individuals to a less than significant level.

Construction of the proposed Sandpiper Elementary School expansion would include standard construction measures and BMPs which would reduce or avoid species to a less than significant level, however, given the school expansion will occur on a developed site that is not directly adjacent to saltmarsh habitat, it is not anticipated that construction at the Sandpiper Elementary site would affect the special status species identified in this discussion.

For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to special status species. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Nesting Birds

Project construction activities in the Project footprint for the WWTP Improvements have the potential to result in direct impacts or indirect disturbance to special-status nesting birds and other native nesting birds protected by the MBTA and CFGC. Construction could directly destroy active nests or cause disturbance that results in nest abandonment. The combined effects of construction activity planned at the WWTP/FoP site and the Sandpiper Elementary School project may affect nesting raptors and migratory birds that could be present on and/or adjacent to the Project sites or areas of proposed construction.

Measures would be implemented to avoid impacts to nesting birds, which would reduce the Project's contribution to nesting bird cumulative impacts. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds.

For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to nesting birds. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Wetlands

The Influent Connector portion of the WWTP construction activity and the Sandpiper Elementary School project may result in the unintentional discharge or fill into wetlands or non-wetlands waters. Given the nature of the Redwood Shores Lagoon System Improvements project, it is anticipated that temporary impacts to wetlands would occur as inherent in the project design and construction.

Measures would be implemented to identify the wetland and non-wetland waters prior to ground disturbing activities, which would reduce the Project's contribution to wetlands cumulative impacts. Sensitive habitats within the construction area for the Influent Connector would be identified and silt fencing would be installed with oversight from a qualified biologist adjacent to identified waters, if necessary. Standard construction measures and BMPs would also likely be implemented at the Sandpiper Elementary School site, and as part of the Lagoon System improvements the City has indicated that the improvements will comply with all applicable local, state, and federal requirements in connection with lagoon dredging, shoreline alteration, or other applicable construction projects, to ensure that construction would avoid or reduce impacts to wetlands to a less than significant level.

For these reasons, the cumulative projects, including the proposed Project would not result in significant cumulative impacts to wetlands. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Trees

As previously discussed, the construction activity at the WWTP/FoP site will require the removal of trees. Per Impact **BIO-19**, construction of the WWTP Improvements will require tree removal of 24 trees protected by the Redwood City Tree Ordinance. All protected trees to be removed are non-native, ornamental species. Eleven of the 24 protected trees to be removed are considered invasive species and SVCW will replant appropriate native replacement trees in accordance with the City's standards requirements. The Sandpiper school expansion would remove 45 trees on site and plant 45 new replacement trees. It is not anticipated the Lagoon Improvement project will require removal of trees, but if required, the Lagoon Improvement project would also provide appropriate replacement planting per the City's standard requirements. The proposed Project, together with the cumulative projects, would not result in a cumulatively considerable contribution to a significant cumulative loss of protected trees. **[Less Than Significant Cumulative Biological Resources Impact]**

5.4.2.4 *Cumulative Noise Impacts*

Construction Noise/Vibration

The Project site is located in an essentially "built-out" area of Redwood City. The construction activity at the WWTP/Front of the Plant area may expose surrounding residences to elevated noise levels over an extended period of time. The Project has incorporated standard construction mitigation measures like utilizing quieter models of equipment and locating stationary noise sources as far from receptors as possible and developing a noise monitoring and control plan, which will further reduce construction noise levels as low as practical (**MM NOI-1**).

The Redwood Shores Lagoon System Improvement project is located close enough to the Project site to potentially result in a cumulative noise impact (See Figure 5.4-3). This project may involve noise generating equipment during construction and may overlap with the construction schedule of the proposed Project. The details of the construction activities are not yet known; however, it is assumed that the project would include typical mitigation measures to reduce any construction noise and vibration impacts to less than significant level. The Sandpiper Elementary Expansion project has mitigation measures in place to reduce the construction noise impacts to less than significant level, and due to its distance from the WWTP/Front of the Plant construction activity, it is unlikely residents would experience construction noise from both, other than trucks from each site using Redwood Shores Parkway. Neither the school expansion project nor the Lagoon System Improvements are anticipated to use pile driving or other extremely loud construction techniques.

Construction vibration levels are not expected to exceed 0.3 in/sec PPV due to Project construction at any of the surrounding buildings. Therefore, the cumulative impact would be less than significant. The proposed Project, in combination with the cumulative projects, would not result in significant cumulative noise and vibration impacts. **[Less than Significant Cumulative Noise and Vibration Impact]**

Operational Noise

The calculated operational noise from the proposed WWTP improvements would be at or below ambient noise levels. Additionally, a permanent 12-foot sound wall would be constructed as part of the WWTP Improvements Project, and the wall would be located around the perimeter of the property. A noise performance standard (limiting the operational noise to 50 dBA from regular operations and 60 dBA from the diesel engine generators) for operational noise will be incorporated by the proposed Project to ensure that noise from testing and operation of the generator does not disturb sensitive receptors in the vicinity (**MM NOI-2**). Neither the school expansion project nor the Lagoon System Improvement project are anticipated to generate ongoing operational noise that could combine with the Project to create cumulative noise impacts. **[Less than Significant Cumulative Noise and Vibration Impact]**

5.4.2.5 *Cumulative Hydrology and Water Quality Impacts*

Cumulative Impact: Local Flooding

As identified in the EIR, the Project component locations, with the exception of the Skyway Road and Monte Vista Drive area, are within the FEMA 100-year flood-plain. The WWTP/FoP improvements are located in Zone A, which are areas that are subject to inundation by the one-percent-annual-chance flood event. The location of the existing WWTP and future WWTP/FoP improvements would be vulnerable to the forecasted future increase of 55 inches of sea-level rise.

The WWTP/FoP Improvements Project site would not construct temporary or permanent structures that would alter the existing flooding patterns of the Project area, nor would activities at this site compromise the flood control levee system surrounding the Project site and that offer protection to the surrounding area. The Sandpiper Elementary School project and Redwood Shores Lagoon System Improvements Project would not construct or rehabilitate areas that would result in redirecting flood flows or compromise the existing flood control levee system.

It is, therefore, expected that the WWTP/FoP improvements and the other known projects would not result in a cumulative flooding impact. **[Less Than Significant Cumulative Hydrology Impact]**

5.4.2.6 *Cumulative Utilities and Service System Impacts*

Cumulative Impact: Storm Drainage Facilities

Storm drainage during Project construction at the WWTP/Front of the Plant Improvements site would utilize the existing storm drain storage basin and storm drainage pump stations on-site. During project operation, additional on-site drainage facilities would be required given the increased impervious surface area proposed. The construction of an onsite Stormwater Pump Station would ensure that all stormwater on-site would be collected after appropriate treatment.

The proposed improvements to the Sandpiper Elementary School would reduce the impervious surface area on site, and by the nature of the Redwood Shores Lagoon System Improvements project, implementation of the proposed lagoon improvements would result in improvements to storm drainage in the Project area. It is therefore, expected that construction and operational activities at the WWTP/FoP improvements site, in combination with other projects in the area, would not result in a cumulative impact to storm drainage facilities. **[Less Than Significant Cumulative Utilities and Service System Impacts]**

5.4.3 BAIR ISLAND COMPONENT CUMULATIVE CONDITIONS

Project Impacts at Bair Island Component Location

At the Bair Island construction site, the EIR that discloses the Project would result in the following impacts requiring mitigation to reduce impacts to less than significant levels:

AIR-3: Ongoing potential for odors from operations at the WWTP and all four pump stations
BIO-1: Bair Island construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-2: Flow Splitter Shaft, Bair Island construction disturbance of CA Ridgeway Rail
BIO-3: Bair Island construction disturbance of Western Burrowing Owl
BIO-14: Tunnel/Access Shafts and Bair Island construction impacts to wetlands
NOI-1: Construction noise in relation to ambient noise conditions

Additionally, the EIR discloses the Project would result in the following less than significant impacts, which could potentially combine with other cumulative projects to result in significant cumulative impacts:

Aesthetics: Less than significant impacts to scenic resources including scenic highways
Aesthetics: Less than significant impacts to light and glare
Hydrology: Less than significant impacts to flooding
Noise/Vibration: Less than significant impacts to construction vibration

Cumulative Projects for Bair Island Component Location

The following projects are under construction, planned, or may occur in the vicinity of the Bair Island construction site, and therefore could potentially combine with the Project for cumulative impacts:

- Whipple Avenue Overlay Project
- 557 East Bayshore Road Project
- One Marina Hotel Project
- Blu Harbor/Pete’s Harbor Project
- Stormwater Pump Stations and Pipeline Replacement and Rehabilitation Project

The location of the cumulative projects is shown on Figure 5.4-3.

BAIR ISLAND INLET STRUCTURE AND STAGING AREA CUMULATIVE PROJECTS

FIGURE 5.4-3

5.4.3.1 *Cumulative Aesthetic and Visual Impacts*

As discussed previously, the wastewater conveyance system Project as a whole would not substantially affect scenic views or scenic resources, nor result in substantial light or glare. At the Bair Island construction site, there would be temporary installation of construction equipment while the excavation and infrastructure installation process was underway. The temporary construction activity at the Bair Island site would not introduce new structures that would degrade the visual character or quality of the surrounding area. The other local cumulative projects would alter the appearance of the sites on which they are proposed, in particular the several private development applications, however individually and in combination, they are also not anticipated to substantially impact visual resources, as they would not result in the loss of significant visual resources nor the introduction of visually incompatible new structures in the area, as the private development would be designed in accordance with City standards as evaluated through the routine design review process used for all private development applications. As noted above, the proposed Project's visual impacts would be temporary, and would not combine with other projects in the vicinity to result in a significant adverse visual change, nor would they in combination create a substantial source of light and glare. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. **[Less Than Significant Cumulative Impact]**

5.4.3.2 *Cumulative Air Quality Impacts*

Cumulative projects with a potential to generate odors include wastewater, landfill and wetlands restoration projects. The proximity of these projects to the same sensitive receptors could result in potential cumulative odor emissions. Construction activities at the Bair Island Inlet Structure Staging Area could result in odors associated with diesel exhaust that could be noticeable at times to residences in close proximity, but these are not anticipated to result in odor complaints. Per **Impact AIR-3**, odors from ongoing operation of the proposed Project at the Bair Island Inlet Structure could adversely impact sensitive receptors in the project area. This Project component shall have an odor control plan to promptly respond to odor complaints to reduce the impact to less than significant level (**MM AIR-3**).

Among the cumulative projects in the vicinity, the Redwood City Stormwater Pump Station and pipeline replacement project and the mixed-use project at 557 East Bayshore Road project are located close enough to the Project site to result in cumulative odor emissions to the same sensitive receptors. The Stormwater Pump Station and pipeline replacement project was found categorically exempt by the City of Redwood City and, therefore, it is not expected to result in significant odor impact. The development proposed at 557 E. Bayshore Road is a mixed-use housing and commercial project and therefore is not expected to generate operational odor emissions. Construction may have some odor emissions typical of the construction activities; but it is assumed that the project would have best management practices in place to reduce the odor impact to less than significant level. Other cumulative projects are too far away from the Bair Island Inlet Structure and Staging Area to have localized cumulative odor impacts on the same sensitive receptors. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts from odor emissions. **[Less Than Significant Cumulative Air Quality Impact]**

5.4.3.3 *Cumulative Biological Resources Impacts*

Given the Project's biological resources impacts and the nature of the cumulative projects, the discussion below focuses on cumulative impacts related to Salt Marsh Harvest Mouse, Salt Marsh Wandering Shrew, CA Ridgeway Rail, Western Burrowing Owl, and impacts to wetlands.

Cumulative Impacts: CA Ridgeway Rail, Salt Marsh Harvest Mouse, Salt Marsh Wandering Shrew

The construction activity planned for the Bair Island Inlet Structure and 557 E. Bayshore Road, One Marina Hotel, Blu Harbor/Pete's Harbor, and Stormwater Pump Stations and Pipeline Replacement and Rehabilitation project sites may affect special status species (i.e. CRRR, SMHM, SMWS), which could be present on and/or adjacent to the Project site or areas of proposed construction.

Measures would be implemented to avoid noise and visual disturbance impacts to special status species, which would reduce the Project's contribution to special status species cumulative impacts. Habitat avoidance, presence of a biological monitor during construction staging and continued consultation throughout Project construction, and incorporation of standard construction measures would reduce potential impacts to SMHM and SMWS to a less than significant level.

Initiation of construction activities during the CRR breeding season (February 1 through August 31) will be avoided to the extent feasible. If construction work would occur during the CRR breeding season, preconstruction surveys would be conducted prior to ground disturbance. Preconstruction surveys and breeding season avoidance would also reduce the potential loss or disturbance of nesting birds (i.e. CRR) individuals to a less than significant level.

Construction of the proposed projects in the Project area, as described above, would include standard construction measures and BMPs, which would reduce or avoid special status species to a less than significant level. It is not anticipated that construction of the Whipple Avenue Overlay project would result in impacts to special status species.

For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to special status species. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Western Burrowing Owl

Project construction activities at Bair Island were identified to potentially impact overwintering burrowing owl individuals or species habitat through ground disturbance or construction staging.

Prior to construction staging, a pre-construction survey to determine the presence of burrowing owls within the Project area would be required as part of Project mitigation. Construction activity would be adjusted based on findings from the pre-construction survey.

The proposed locations for the other local projects that would be occurring within the Project area are primarily developed and devoid of natural habitat. It is assumed that project-specific measures would be adopted to reduce or avoid impacts to special status species in each project area, should they be known to occur. Given the only cumulative project with known owl habitat in the Project area is the Bair Island Inlet Structure, it is unlikely that the proposed Project at this location would combine with other local projects to result in a cumulative impact to the Western Burrowing Owl. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Wetlands

The construction area for the Bair Island Inlet structure would be adjacent to northern coastal salt marsh, freshwater marsh, seasonal wetlands and unvegetated waters which may be unintentionally filled or receive unintentional discharge during construction activity. The proposed construction activities planned at the Bair Island Inlet Structure site as well as the surrounding projects, including Blu Harbor/Pete's Harbor, One Marina Hotel, 557 E. Bayshore Rd. and the Whipple Avenue Overlay projects, may result in the unintentional discharge or fill into wetlands or non-wetlands waters.

Measures would be implemented to identify the wetland and non-wetland waters prior to ground disturbing activities, which would reduce the Project's contribution to wetlands cumulative impacts. Sensitive habitats within the construction area of the Bair Island Inlet Structure would be identified and silt fencing would be installed with oversight from a qualified biologist adjacent to identified waters, if necessary. It is expected that the other projects identified above would implement standard construction measures and BMPs that would avoid or reduce impacts to wetlands to a less than significant level.

For these reasons, the cumulative projects, including the proposed Project would not result in significant cumulative impacts to wetlands. **[Less Than Significant Cumulative Biological Resources Impact]**

5.4.3.4 *Cumulative Noise Impacts*

The construction activity at the Bair Island Inlet Structure would primarily occur during Redwood City's allowable daytime hours and would not increase noise levels by 5 dBA above ambient conditions, therefore, it would not result in a significant construction noise impact. The Project has incorporated standard construction mitigation measures like utilizing quieter models of equipment and locating stationary noise sources as far from receptors as possible, which will further reduce construction noise levels as low as practicable **(MM NOI-1)**. There will be no activity after the construction phase is over, and therefore, no operational noise impact would occur. Construction vibration levels are not expected to exceed 0.3 in/sec PPV due to Project construction at any of the surrounding buildings. Therefore, the noise and vibration impacts from Bair Island construction activity would be less than significant.

The City's Stormwater Pump Station and pipeline replacement project is located close enough to the Project site to potentially result in a cumulative noise impact (See Figure 5.4-2). Since the City found this project categorically exempt, however, it is not expected to result in any significant noise and vibration impacts. The Whipple Avenue Overlay Project is not expected to occur simultaneously with the proposed Project, and, therefore, would not combine to increase the severity of the proposed temporary construction noise impacts. The proposed mixed-use project at 557 E. Bayshore project will involve noise-generating equipment during demolition, site preparation, and construction. The duration and details of the construction activity are not known as the project has not undergone environmental evaluation; however, it is assumed that this project would include mitigation measures to reduce noise and vibration impacts to less than significant level. The One Marina and Blu Harbor projects are covered under the Marina Shores Village Project. Mitigation measures were incorporated as part of their project-level analysis to reduce the impacts to less than significant level. If these projects were to occur simultaneously with the proposed Project, these would therefore not result in significant noise impact. None of these projects will have a significant operational impact. The proposed Project, in combination with the cumulative projects, would not result in significant cumulative noise and vibration impacts. **[Less Than Significant Cumulative Noise and Vibration Impact].**

5.4.3.5 *Cumulative Hydrology and Water Quality Impacts*

Cumulative Impact: Local Flooding

As identified in the EIR, the Project component locations, with the exception of the Skyway Road and Monte Vista Drive area, are within the FEMA 100-year flood-plain. The Bair Island Inlet Structure is located in Zone A, which is defined as "areas that are subject to inundation by the one-percent-annual-chance flood event." The Bair Island Inlet Structure would also be located within the flood control levee system.

The Bair Island Inlet Structure Project site would not include temporary or permanent structures that would alter the existing flooding patterns of the Project area, nor would activities at this site compromise the flood control levee system surrounding the Project site. The other local projects that would be occurring within the area would not construct or rehabilitate areas that would result in redirecting flood flows or compromise the existing flood control levee system. Rather, the other local cumulative projects will largely redevelop sites with existing structures or improvements, and the new development will be required to comply with floodplain requirements and ensure the new development does not exacerbate or redirect flooding.

It is, therefore, expected that the Bair Island Inlet Structure and the other local cumulative projects would not result in a cumulative impact. **[Less Than Significant Cumulative Hydrology Impact]**

5.4.4 BELMONT PUMP STATION COMPONENT CUMULATIVE CONDITIONS

Project Impacts at Belmont Pump Station Component Location

At the Belmont Pump Station, the EIR discloses that the Project would result in the following impacts requiring mitigation to reduce impacts to less than significant levels:

AIR-3: Ongoing potential for odors from operations at the WWTP and all four pump stations
BIO-8: Belmont Pump Station construction disturbance of nesting birds
BIO-16: Belmont Pump Station construction impacts to wetlands
BIO-20: Belmont Pump Station removal of trees
NOI-1: Construction noise in relation to ambient noise conditions

Additionally, the EIR discloses that the Project would result in the following less than significant impacts, which could potentially combine with other cumulative projects to result in significant cumulative impacts:

Aesthetics: Less than significant impacts to scenic resources including scenic highways
Aesthetics: Less than significant impacts to light and glare
Hazards: Less than significant impacts to airport safety at San Carlos Airport
Hydrology: Less than significant impacts to flooding
Noise/Vibration: Less than significant impacts to construction vibration
Noise/Vibration: Less than significant impacts from operational noise at pump station

Cumulative Projects for Belmont Pump Station Location

The following projects are under construction, planned, or may occur in the vicinity of the Belmont Pump Station, and therefore could potentially combine with the Project for cumulative impacts:

- Redwood Shores Lagoon System Improvements Project
- Autobahn Motors Dealership Reconstruction Project
- Hilton Homewood Suites Hotel Project
- Marriott Springhill Suites Hotel
- Clear Channel Outdoor Pump Station Billboard Project

The location of the cumulative projects is shown on Figure 5.4-4.

BELMONT PUMP STATION CUMULATIVE PROJECTS

FIGURE 5.4-4

5.4.4.1 *Cumulative Aesthetic and Visual Impacts*

As discussed previously, the wastewater conveyance system Project as a whole would not substantially affect scenic views or scenic resources, nor result in substantial light or glare. At the Belmont Pump Station, there would be removal of non-native trees and temporary installation of construction equipment while the excavation and infrastructure installation process was underway. Most of the rehabilitation and replacement at the Belmont Pump Station is expected to occur within the existing Project site or immediate Project vicinity and these changes would be consistent with the existing materials and visual character of the building. As a result, the proposed improvements or upgrades at the Belmont Pump Station would not adversely degrade the existing visual character or quality of the sites and the surroundings during the operations phase. The other local cumulative projects would alter the appearance of the sites on which they are proposed, in particular the several private development applications, however individually and in combination, they are also not anticipated to substantially impact visual resources, as they would not result in the loss of significant visual resources nor the introduction of visually incompatible new structures in the area, as the private development would be designed in accordance with City standards as evaluated through the routine design review process used for all private development applications. As noted above, the proposed Project's visual impacts would be minimal, and would not combine with other projects in the vicinity to result in a significant adverse visual change, nor would they in combination create a substantial source of light and glare. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. **[Less Than Significant Cumulative Impact]**

5.4.4.2 *Cumulative Air Quality Impacts*

Cumulative projects with a potential to generate odors include wastewater, landfill and wetlands restoration projects. The proximity of these projects to the same sensitive receptors could result in potential odor emissions. Construction activities at the Belmont Pump Station could result in odors associated with diesel exhaust that could be noticeable at times to residences in close proximity, but these are not anticipated to result in odor complaints. Per **Impact AIR-3**, odors from operation of the proposed Project at the Belmont Pump Station could adversely impact sensitive receptors in the Project area. All Project components shall have an odor control plan to promptly respond to odor complaints to reduce the impact to a less than significant level (**MM AIR-3**).

None of the cumulative projects (two hotels, billboard, cad dealership, and lagoon system improvements) are wastewater, landfill or wetlands restoration projects, and therefore, are not expected to generate operational odor emissions. While each is under construction, they may have some odors typical of the construction activities; but it is assumed that the respective projects would have best management practices in place to reduce the odor impact to less than significant level. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to odor emissions. **[Less Than Significant Cumulative Air Quality Impact]**

5.4.4.3 *Cumulative Biological Resources Impacts*

Given the Project's biological resources impacts and the nature of the cumulative projects, the discussion below focuses on cumulative impacts related to nesting birds, impacts to wetlands and removal of trees.

Cumulative Impacts: Nesting Birds

The construction activity planned at the Belmont Pump Station and the five other local cumulative projects may affect nesting raptors and migratory birds that could be present on and/or adjacent to the Project site or areas of proposed construction.

Measures would be implemented to avoid impacts to nesting birds, which would reduce the Project's contribution to nesting bird cumulative impacts. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds.
For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to nesting birds. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Wetlands

The construction activity planned at the Belmont Pump Station and the five other projects occurring within the Project area may result in the unintentional discharge or fill into wetlands or non-wetlands waters.

Measures would be implemented to identify the wetland and non-wetland waters prior to ground disturbing activities, which would reduce the Project's contribution to wetlands cumulative impacts. Sensitive habitats within the construction area of the Belmont Pump Station would be identified and silt fencing would be installed with oversight from a qualified biologist adjacent to identified waters, if necessary.

For these reasons, the cumulative projects, including the proposed Project would not result in significant cumulative impacts to wetlands. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Trees

As previously discussed, the construction activity at the Belmont Pump Station site will require the removal of trees. Per Impact **BIO-20**, surface disturbance at the Belmont Pump Station will require the removal of 11 trees protected by the City of Belmont. All protected trees to be removed are non-native invasive species, including blue gum and cherry plum, and SVCW will replant appropriate native replacement trees in accordance with the City's standards requirements. It is anticipated that other future projects planned within the Project area, including the Autobahn Motors Dealership Reconstruction, Hilton Homewood Suites Hotel, and Marriot Springhill Suites Hotel, will require removal of trees. These projects would provide appropriate replacement planting per the City's standard requirements. The proposed Project, together with the five other local cumulative projects, would not result in a cumulatively considerable contribution to a significant cumulative loss of protected trees. **[Less Than Significant Cumulative Biological Resources Impact]**

5.4.4.4 *Cumulative Hazards & Hazardous Materials Impacts*

Given the Project's hazards and hazardous materials impacts, the discussion below focuses on cumulative impacts related to the San Carlos Airport and emergency response during Project construction.

Cumulative Impacts: San Carlos Airport

As discussed previously, the wastewater conveyance system Project as a whole would not result in cumulative hazards impacts, however, since the Belmont Pump Station is within Area B influence zone of the San Carlos Airport, any construction equipment that would penetrate the airspace under FAA jurisdiction (FAA Code of Federal Regulations (CFR) Title 14 Part 77.9) would require a submittal of the FAA form 7460-1 for both on- and off-airport construction. Other Project components with construction equipment height restrictions include the Airport Access Shaft, San Carlos Drop Shaft, and the Bair Island Inlet Structure. Appropriate FAA form submittal would be required prior to project construction at each system component.

Other future projects occurring within the Belmont Pump Station project area that would use construction equipment or would construct structures that would penetrate the airspace under the FAA jurisdiction would also be required to submit the appropriate FAA form. Assuming that all future projects as well as the proposed Project receive approval from the FAA for temporary airspace intrusion, these projects would not result in significant cumulative aesthetic or visual impacts. **[Less Than Significant Cumulative Impact]**

Cumulative Impact: Emergency Response

As discussed in the EIR, during installation of the Belmont Force Main rehabilitation, areas along Shoreway Road may be needed for traffic detours. Any of the other identified local cumulative projects occurring in the area of the Belmont Pump Station construction may also need to utilize Shoreway Road for construction routes. However, given that the projects are likely to be under construction at different times, or that even if they were under construction at overlapping times, it is reasonable to assume the City of Belmont would coordinate the required traffic detours to ensure adequate traffic flow on Shoreway Road, including for emergency vehicles and during evacuation events. Therefore, the cumulative projects would not in combination interfere with the City's emergency response plans or emergency evacuation plans. **[Less Than Significant Cumulative Impact]**

5.4.4.5 *Cumulative Hydrology and Water Quality Impacts*

Cumulative Impact: Local Flooding

As identified in the EIR, the Project component locations, with exception of the Skyway Road and Monte Vista Drive area, are within the FEMA 100-year flood-plain. The Belmont Pump Station site is located in Zone A, which are areas that are subject to inundation by the one-percent-annual chance flood event.

The Belmont Pump Station site would be constructed within the same location as the existing facility, and would therefore not alter the existing flooding patterns of the Project area. The five other local projects would not construct, rehabilitate or improve the surrounding areas in such a way that would result in redirecting flood flows or compromise the existing flood control levee system. The new development occurring in the vicinity of the Belmont Pump Station will be required to comply with floodplain requirements and ensure the new development does not exacerbate or redirect flooding. It is, therefore, expected that the Belmont Pump Station and the other local cumulative projects would not result in a cumulative impact. **[Less Than Significant Cumulative Hydrology Impact]**

5.4.4.6 *Cumulative Noise Impacts*

While the construction of each of the San Carlos Drop Shaft and Belmont Conveyance San Carlos Pump Station Improvements would not exceed the temporary construction thresholds for more than one year, the projects are scheduled concurrently. The combination of the two projects would expose the nearby receptors to levels exceeding 60 dBA Leq at residences or exceeding 70 dBA Leq at commercial properties and exceeding the ambient noise environment by at least 5 dBA Leq for a period longer than one year. The Project has incorporated standard construction mitigation measures like utilizing quieter models of equipment, locating stationary noise sources as far from receptors as possible and developing a noise monitoring and control plan, which will make this construction noise impact less than significant (**MM NOI-1**). The operational noise from the improvements at the Belmont Pump Station would not result in a significant impact. Construction vibration levels are not expected to exceed 0.3 in/sec PPV due to Project construction at any of the surrounding buildings. Therefore, the impact would be less than significant.

Several of the projects on the cumulative list are located close enough to the Project site to have the potential to result in a cumulative noise impact (See Figure 5.4-4). These include the Marriott Hotel project and the Clear Channel Outdoor Pump Station Billboard project. Both of these projects are not expected to occur simultaneously with the Project, therefore, would not combine to increase the severity of the proposed project's noise impacts. The other cumulative projects are either too far away that nearby intervening structures would reduce noise levels to less than significant cumulative impact, or are not expected to occur simultaneously with the proposed Project. The proposed Project construction at the Belmont Pump Station, in combination with the cumulative projects, would not result in significant cumulative noise and vibration impacts. **[Less Than Significant Cumulative Noise and Vibration Impact].**

5.4.5 SAN CARLOS PUMP STATION COMPONENT CUMULATIVE CONDITIONS

Project Impacts at San Carlos Pump Station Component Location

At the San Carlos Pump Station, the EIR discloses that the Project would result in the following impacts requiring mitigation to reduce impacts to less than significant levels:

AIR-3: ongoing potential for odors from operations at the WWTP and all four pump stations
BIO-9: San Carlos Pump Station construction disturbance of nesting birds
BIO-21: San Carlos Pump Station removal of trees
NOI-1: construction noise in relation to ambient noise conditions
NOI-2: San Carlos Pump Station ongoing operational noise impacts on surrounding uses

Additionally, the EIR discloses that the Project would result in the following less than significant impacts, which could potentially combine with other cumulative projects to result in significant cumulative impacts:

Aesthetics: Less than significant impacts to existing visual resources or aesthetic character
Aesthetics: Less than significant impacts to scenic resources including scenic highways
Aesthetics: Less than significant impacts to light and glare
Hazards: Less than significant impacts to airport safety at San Carlos Airport
Hydrology: Less than significant impacts to flooding
Noise/Vibration: Less than significant impacts to construction vibration

Cumulative Projects for San Carlos Pump Station Component Location

The following projects are under construction, planned, or may occur in the vicinity of the San Carlos Pump Station, and therefore could potentially combine with the Project for cumulative impacts:

- Landmark Hotel
- Meridian 25 Office Project
- Honda Dealership Project
- U.S. 101/Holly Street Pedestrian Overcrossing Project
- Industrial Road Parallel Sanitary Sewer Project

The location of the cumulative projects is shown on Figure 5.4-5.

SAN CARLOS PUMP STATION CUMULATIVE PROJECTS

FIGURE 5.4-5

5.4.5.1 *Cumulative Aesthetic and Visual Impacts*

As discussed previously, the wastewater conveyance system Project as a whole would not substantially affect scenic views or scenic resources, nor result in substantial light or glare. At the San Carlos Pump Station location, there would be removal of non-native trees and temporary installation of construction equipment while the excavation and infrastructure installation process was underway. Activities taking place at the San Carlos Pump Station include improvements at the pump station to allow Belmont and San Carlos flows to connect to the proposed Gravity Pipeline and house a new Odor Control Facility at the site. External improvements include installation of pipe to connect the existing force main to the new Gravity Pipeline using open trench construction, as well as construction of several structures in developed areas to combine pipeline flows and house flowmeters and sampling structures. A 20-foot diameter shaft would be constructed at the front of the existing San Carlos Pump Station which would house the drop structure shaft.

The other local cumulative projects would alter the appearance of the sites on which they are proposed, in particular the several private development applications on the west side of U.S. 101, however individually and in combination, they are also not anticipated to substantially impact visual resources, as they would not result in the loss of significant visual resources nor the introduction of visually incompatible new structures in the area, as the private development would be designed in accordance with City standards as evaluated through the routine design review process used for all private development applications.

As the San Carlos Pump Station is no longer needed for pumping, the building would re-purposed to house the odor control equipment. All of these improvements and activities would take place within the pump station site, would be similar in character to the existing visual environment at the site, and would not combine with other projects in the vicinity to result in a significant adverse visual change, nor would they in combination create a substantial source of light and glare. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. **[Less Than Significant Cumulative Impact]**

5.4.5.2 *Cumulative Air Quality Impacts*

Cumulative projects with a potential to generate odors include wastewater, landfill and wetlands restoration projects. Other cumulative projects are not expected to generate odors. The proximity of these projects to the same sensitive receptors could result in potential odor emissions. Construction activities at the San Carlos Pump Station could result in odors associated with diesel exhaust that could be noticeable at times to residences in close proximity, but these are not anticipated to result in odor complaints. Per **Impact AIR-3**, odors from operation of the proposed Project at the San Carlos Drop Shaft and San Carlos Odor Control Facility could adversely impact sensitive receptors in the Project area. These Project components shall have an odor control plan to promptly respond to odor complaints to reduce the impact to less than significant level (**MM AIR-3**).

The U.S. 101/Holly Street Pedestrian Overcrossing Project and Industrial Road Parallel Sanitary Sewer Project are in close proximity to the San Carlos Pump Station and could lead to cumulative construction odor emissions to the same sensitive receptors. Two of these projects are sanitary sewer/wastewater projects that could potentially generate operational odor emissions. These projects are assumed to also operate according to odor control plans similar to the proposed Project and therefore, would not contribute to significant cumulative odor emissions. The U.S. 101 Holly Street Pedestrian Overcrossing project is a roadway project, and therefore, is not expected to generate operational odor emissions.

Construction at these other locations may have some odor emissions typical of normal construction activities; but it is assumed that the Project would have best management practices in place to reduce the odor impact to less than significant level. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to odor emissions either from construction or ongoing operations. **[Less Than Significant Cumulative Air Quality Impact]**

5.4.5.3 *Cumulative Biological Resources Impacts*

Given the Project's biological resources impacts and the nature of the cumulative projects, the discussion below focuses on cumulative impacts related to nesting birds and removal of trees.

Cumulative Impacts: Nesting Birds

The construction activity planned at the San Carlos Pump Station and the six nearby cumulative projects may affect nesting raptors and migratory birds that could be present on and/or adjacent to the Project site or areas of proposed construction.

Measures would be implemented to avoid impacts to nesting birds, which would reduce the Project's contribution to nesting bird cumulative impacts. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds.
For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to nesting birds. **[Less than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Trees

As previously discussed, the construction activity at the San Carlos Pump Station site will require the removal of trees. Per Impact **BIO-21**, surface disturbance at the San Carlos Pump Station will require the removal of seven trees protected by the City of San Carlos Tree Ordinance. An additional eight non-protected trees will be removed, and other non-protected trees will be trimmed. Protected trees to be removed are all non-native ornamental species, including Washington fan palm and lollypop tree, both considered invasive species and SVCW will replant appropriate native replacement trees in accordance with the City's standards requirements. It is not anticipated the nearby cumulative projects will require removal of trees beyond a few parking lot or landscape trees that do not provide important habitat, but if required, the cumulative projects near the San Carlos Pump Station would also provide appropriate replacement planting per the City's standard requirements. The proposed Project, together with the cumulative projects, would not result in a cumulatively considerable contribution to a significant cumulative loss of protected trees. **[Less Than Significant Cumulative Biological Resources Impact]**

5.4.5.4 *Cumulative Hazards & Hazardous Materials Impacts*

The San Carlos Pump Station is adjacent to the San Carlos Airport, and any construction equipment that would penetrate the airspace under FAA jurisdiction (FAA Code of Federal Regulations (CFR) Title 14 Part 77.9) would require a submittal of the FAA form 7460-1 for both on- and off-airport construction. Other Project components with construction equipment height restrictions include the Airport Access Shaft, San Carlos Drop Shaft, and the Bair Island Inlet. Appropriate form submittal would be required prior to Project construction.

Other future projects occurring within the San Carlos Pump Station Project area that would use construction equipment or would construct structures that would penetrate the airspace under the FAA jurisdiction would also be required to submit the appropriate FAA form. Assuming that all future projects as well as the proposed Project do submit and receive approval from the FAA for temporary airspace intrusion, these projects would not result in significant cumulative hazards impacts to the San Carlos Airport. **[Less Than Significant Cumulative Impact]**

5.4.5.5 *Cumulative Hydrology and Water Quality Impacts*

Cumulative Impact: Local Flooding

As identified in the EIR, the Project component locations, with exception of the Skyway Road and Monte Vista Drive area, are within the FEMA 100-year flood-plain. The San Carlos Pump Station site is located in Zone X and with an area with reduced flood risk due to the flood control levee system. Zone X identifies areas that are between the limits of the base flood and the 0.2-percent-annual-chance flood.

The San Carlos Pump Station Project site would be constructed within the same location as the existing facility, and would therefore not alter the existing flooding patterns of the Project area, nor would activities at this site compromise the flood control levee system surrounding the Project site. The other local projects that would be occurring within the area would not construct or rehabilitate areas that would result in redirecting flood flows or compromise the existing flood control levee system, rather the other local cumulative projects largely redevelop sites with existing structures or improvements, and the new development will be required to comply with floodplain requirements and ensure the new development does not exacerbate or redirect flooding. It is, therefore, expected that the San Carlos Pump Station and the other local cumulative projects would not result in a cumulative impact. **[Less Than Significant Cumulative Hydrology Impact]**

5.4.5.6 *Cumulative Noise Impacts*

While the construction of each of the San Carlos Drop Shaft and Belmont Conveyance San Carlos Pump Station Improvements would not exceed the temporary construction thresholds for more than one year, the projects are scheduled concurrently. The combination of the two projects would expose the nearby receptors to levels exceeding 60 dBA Leq at residences or exceeding 70 dBA Leq at commercial properties and exceeding the ambient noise environment by at least 5 dBA Leq for a period longer than one year. The Project has incorporated standard construction mitigation measures like utilizing quieter models of equipment, locating stationary noise sources as far from receptors as possible and developing a noise monitoring and control plan, which will make this construction noise impact less than significant (**MM NOI-1**). The new facility, once in operation, could potentially cause a permanent increase from existing ambient conditions at the Fairfield Inn and Suites. Therefore, a noise performance standard (limiting the operational noise to 52 dBA from regular operations and 60 dBA from the diesel engine generators) for the fans would ensure that noise from the new Odor Control Facility would not disturb sensitive receptors at the adjacent hotel **(MM NOI-2)**. Construction vibration levels are not expected to exceed 0.3 in/sec PPV due to Project construction at any of the surrounding buildings. Therefore, the impact would be less than significant.

Several of the projects on the cumulative list are located close enough to the Project site to possibly result in a cumulative noise impact (See Figure 5.4-5). These include U.S. 101/Holly Street Pedestrian Overcrossing project and Industrial Road Parallel Sanitary Sewer project. Two of these projects (Industrial Road pump station and sewer projects) are not expected to occur simultaneously with the proposed Project, therefore, they would not combine to increase the severity of the proposed Project's noise impacts. The U.S. 101/Holly Street pedestrian/bicycle overcrossing project may overlap with the construction phase of the proposed Project, however, the overcrossing project is not expected to exceed ambient noise levels at the interchange area and would incorporate standard best management practices for noise, as would the Project. None of the other cumulative projects are anticipated to employ heavy construction equipment or processes that would generate substantial groundbourne vibration. Therefore, the proposed Project, in combination with the cumulative projects, would not result in significant cumulative noise and vibration impacts. **[Less Than Significant Cumulative Noise and Vibration Impact].**

5.4.6 REDWOOD CITY PUMP STATION COMPONENT CUMULATIVE CONDITIONS

Project Impacts at Redwood City Pump Station Component Location

At the Redwood City Pump Station, the EIR discloses that the Project would result in the following impacts requiring mitigation to reduce impacts to less than significant levels:

AIR-2: Redwood City Pump Station construction toxic air contaminants
AIR-3: Ongoing potential for odors from operations at the WWTP and all four pump stations
BIO-10: Redwood City Pump Station construction disturbance of nesting birds
CUL-1: Redwood City Pump Station excavation into identified cultural resources
NOI-1: Construction noise in relation to ambient noise conditions
NOI-2: Redwood City Pump Station ongoing operational noise impacts on surrounding uses

Additionally, the EIR discloses that the Project would result in the following less than significant impacts, which could potentially combine with other cumulative projects to result in significant cumulative impacts:

Aesthetics: Less than significant impacts to existing visual resources or aesthetic character
Aesthetics: Less than significant impacts to scenic resources including scenic highways
Aesthetics: Less than significant impacts to light and glare
Hydrology: Less than significant impacts to flooding
Noise/Vibration: Less than significant impacts to construction vibration

Cumulative Projects for Redwood City Pump Station Component Location

The following projects are under construction, planned, or may occur in the vicinity of the Redwood City Pump Station, and therefore could potentially combine with the Project for cumulative impacts:

- Harbor View Project
- Watt Residential Project
- Walnut and Maple Sewer Improvement Project
- Recycled Water Distribution System Phase 2A Project
- Stormwater Pump Stations and Pipeline Replacement and Rehabilitation Project
- US-101/Woodside Rd Interchange Improvements Project
- Blomquist Street and Bridge Extension Project

The location of the cumulative projects is shown on Figure 5.4-6.

REDWOOD CITY PUMP STATION CUMULATIVE PROJECTS

FIGURE 5.4-6

5.4.6.1 *Cumulative Aesthetic and Visual Impacts*

As discussed previously, the wastewater conveyance system Project as a whole would not substantially affect scenic views or scenic resources, nor result in substantial light or glare. At the Redwood City Pump Station, activities include a new pump station that would be constructed adjacent to and to the west of the existing Redwood City Pump Station building and some above grade improvements including installation of surge control tanks, screening building, chemical storage facility, fuel tank, security lighting and fencing, and seismic upgrades and other improvements. The existing Redwood City Pump Station building would remain on the site and be repurposed to house new equipment needed for the long-term operation of the new pump station. The proposed upgrades or improvements would occur substantially within the existing boundaries of or immediately adjacent to the existing facilities. Moreover, the new improvements will be substantially similar in appearance and character to the existing structures and are thus not likely to detract from existing visual resource values. No direct modifications to the exterior of the building are planned unless required to do so for seismic upgrades. Therefore, the impacts to the visual character of the area would be less than significant.

The other local cumulative projects would alter the appearance of the sites on which they are proposed, in particular the several private development applications, however individually and in combination, they are also not anticipated to substantially impact visual resources, as they would not result in the loss of significant visual resources nor the introduction of visually incompatible new structures in the area, because the private development would be designed in accordance with City standards as evaluated through the routine design review process used for all private development applications. As noted above, the proposed Project's visual impacts would be minimal and in keeping with the existing visual character of the site, and would not combine with other projects in the vicinity to result in a significant adverse visual change, nor would they in combination create a substantial source of light and glare. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. **[Less Than Significant Cumulative Impact]**

5.4.6.2 *Cumulative Air Quality Impacts*

Cumulative Air Quality impacts: Toxic Air Contaminants

Construction activities at the Redwood City Pump Station, if unmitigated, would result in significant cancer risk (greater than 10.0 chances per million) at the maximally affected sensitive receptors. The Project would incorporate **MM AIR-2,** which requires portable diesel-powered equipment used at the Redwood City Pump Station construction sites for more than two days to include diesel particulate matter control devices and other standard construction measures to reduce the impact to less than significant level.

The Walnut and Maple Sewer Interceptor project, Recycled Water Distribution System Phase 2A project, Blomquist Street and Bridge Extension project and US 101/Woodside Road Interchange projects are in close proximity to the Redwood City Pump Station and could lead to cumulative TAC emissions to the same sensitive receptors. It can be reasonably assumed each of these other nearby projects will undergo separate analysis of its construction TAC impacts, and when found significant, to include mitigation measures similar to the proposed Project to reduce their TACs emissions below 10 cases per million, and therefore, would not contribute to the cumulative TAC emissions, for which the cumulative threshold is 100 cases per million. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to TAC emissions. **[Less than Significant Cumulative Air Quality Impact]**

Cumulative Air Quality impacts: Odors

Cumulative projects with a potential to generate odors include wastewater, landfill and wetlands restoration projects. The proximity of these projects to the same sensitive receptors could result in potential odor emissions. Construction activities at the Redwood City Pump Station could result in odors associated with diesel exhaust that could be noticeable at times to residences in close proximity, but these are not anticipated to result in odor complaints. Per **Impact AIR-3**, odors from operation of the proposed Project at the Redwood City Pump Station could adversely impact sensitive receptors in the Project area. All Project components shall have an odor control plan to promptly respond to odor complaints to reduce the impact to less than significant level (**MM AIR-3**).

The Walnut and Maple Sewer Interceptor project, Recycled Water Distribution System Phase 2A project, Blomquist Street and Bridge Extension project and the US 101/ Woodside Road Interchange projects are in close proximity to the Redwood City Pump Station and their construction may have odor emissions typical of the construction activities; but it is expected that these other projects would have best management practices in place to reduce their cumulative odor impacts to less than significant levels.

The Walnut and Maple Sewer Interceptor project is a sanitary sewer/wastewater project that connects to the proposed Project and could potentially generate odors emissions once in operation. However, this City sewer project can be expected to have an odor control plan similar to the proposed project and, therefore, would not contribute to the cumulative odor emissions. The other projects are roadway and recycled water projects, and therefore, are not expected to generate operational odors. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to odor emissions. **[Less Than Significant Cumulative Air Quality Impact]**

5.4.6.3 *Cumulative Biological Resources Impacts*

Given the Project's biological resources impacts and the nature of the cumulative projects, the discussion below focuses on cumulative impacts related to nesting birds.

Cumulative Impacts: Nesting Birds

The construction activity planned at the Redwood City Pump Station and the nearby cumulative projects may affect nesting raptors and migratory birds that could be present on and/or adjacent to the Project site or areas of proposed construction.

Measures would be implemented to avoid impacts to nesting birds, which would reduce the Project's contribution to nesting bird cumulative impacts. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas

where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds.
For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to nesting birds. **[Less than Significant Cumulative Biological Resources Impact]**

5.4.6.4 *Cumulative Cultural Resources Impact*

Cumulative Impact: Archaeological Resources

The Redwood City Pump Station site is located within the boundaries of the former Frank's Tannery, a documented archaeological site. As discussed in the cultural resources report prepared for the proposed Project, archaeological resources from Frank's Tannery likely extend beneath the Redwood City Pump Station site, and are anticipated to be located approximately three to 4.5 feet below ground surface (bgs) at the Redwood City Pump Station.

Construction activity at the Redwood City Pump Station would excavate soils to as deep as 35 feet bgs. The Project would implement measures including retaining a qualified historical archaeologist to monitor excavation at identified undisturbed areas on-site, anticipated to be less than 2,000 square feet of surface area. With implementation of these measures, potential impacts to buried archaeological resources on-site would be reduced to a less than significant level.

Other projects that would be occurring within the Project area and would be excavating undisturbed soil include projects considered under the Inner Harbor Specific Plan (Harbor View project and Watt Communities project). These projects would likely be occurring within the boundaries of the former Frank's Tannery and would, therefore, likely encounter buried archaeological deposits during project construction. It is reasonable to assume, however, that project-specific measures would be developed and implemented prior to and during project construction to avoid impacts to buried archaeological resources. Such measures would likely be similar to the measures proposed for the Redwood City Pump Station site, including avoidance where feasible and/or presence of a qualified historical archaeologist during excavation.

For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to archaeological resources. **[Less Than Significant Cumulative Cultural Resources Impact]**

5.4.6.5 *Cumulative Hydrology and Water Quality Impacts*

Cumulative Impact: Local Flooding

As identified in the EIR, the Project component locations, with exception of the Skyway Road and Monte Vista Drive area, are within the FEMA 100-year flood-plain. The Redwood City Pump

Station site is located in Zone AE, which are areas that are subject to inundation by the one-percent-annual chance flood event.

The Redwood City Pump Station site would be constructed within the same location as the existing facility, and would therefore not alter the existing flooding patterns of the Project area. The six other local projects, two of which include sewer improvement and/or rehabilitation projects, would not construct, rehabilitate or improve the surrounding areas in such a way that would result in redirecting flood flows or compromise the existing flood control levee system. The new development occurring in the Inner Harbor Specific Plan area will be required to comply with floodplain requirements and ensure the new development does not exacerbate or redirect flooding.

It is therefore, expected that the Redwood City Pump Station and the other nearby projects would not result in a cumulative flooding impact. **[Less Than Significant Cumulative Hydrology Impact]**

5.4.6.6 *Cumulative Noise Impacts*

Project Construction

The Project site is located in an essentially "built-out" urban area of Redwood City. The Project could expose some nearby receptors to temporary construction exceeding noise thresholds during multiple phases and for a period of more than one year which would result in a significant impact. The Project has incorporated standard construction mitigation measures like utilizing quieter models of equipment and locating stationary noise sources as far from receptors as possible and developing a noise monitoring and control plan (**MM NOI-1**). Construction vibration levels are not expected to exceed 0.3 in/sec PPV due to project construction at any of the surrounding buildings. Therefore, the impact would be less than significant. **[Less Than Significant Cumulative Noise and Vibration Impact]**

Project Operations

Operational noise at the site would be subject to a noise performance standard (limiting the operational noise to 46 dBA Leq from regular operations and 60 dBA from the diesel engine generators) to confirm that there is no substantial increase in ambient levels at sensitive receptors in the Project vicinity (**MM NOI-2**).

Some of the projects on the cumulative list are located close enough to the Project site to contribute to a cumulative noise impact (See Figure 5.4-6). These include the Walnut and Maple Street project, Recycled Water Distribution System Phase 2A project, Blomquist Street and Bridge Extension project and the US 101/ Woodside Road Interchange project. Two of these projects are not expected to occur simultaneously with the Project, therefore, they would not combine to increase the severity of the Project's temporary construction noise impacts. The US 101/Woodside and Blomquist Street extension projects are road improvement projects which may involve noise generating equipment during construction. The duration and details of the construction activity are not yet known as the projects have not undergone environmental evaluation; it is assumed that these projects would include mitigation measures to reduce construction noise and vibration impacts to less than significant level. Operational noise impacts are not expected from these cumulative projects. The Harbor View project and the Watt Residential Communities private development project are covered under the Inner Harbor Specific Plan EIR. Mitigation measures are in place to reduce their impacts to less than significant levels. If these projects were to occur simultaneously with the proposed Project, these would therefore not result in significant noise impact. The proposed Project, in combination with the cumulative projects, would not result in significant cumulative noise and vibration impacts. **[Less Than Significant Cumulative Noise and Vibration Impact]**

5.4.7 MENLO PARK PUMP STATION COMPONENT CUMULATIVE CONDITIONS

Project Impacts at Menlo Park Pump Station Component Location

At the Menlo Park Pump Station, the EIR discloses that the Project would result in the following impacts requiring mitigation to reduce impacts to less than significant levels:

AIR-3: Ongoing potential for odors from operations at the WWTP and all four pump stations
BIO-11: Menlo Park Pump Station disturbance of Salt Marsh Harvest Mouse, Salt Marsh Wandering Shrew
BIO-12: Menlo Park Pump Station construction disturbance of California Ridgeway Rail
BIO-13: Menlo Park Pump Station construction disturbance of nesting birds
BIO-17: Menlo Park Pump Station construction impacts to wetlands
BIO-22: Menlo Park Pump Station removal of trees

Additionally, the EIR discloses that the Project would result in the following less than significant impacts, which could potentially combine with other cumulative projects to result in significant cumulative impacts:

Aesthetics: Less than significant impacts to existing visual resources or aesthetic character
Aesthetics: Less than significant impacts to scenic resources including scenic highways
Aesthetics: Less than significant impacts to light and glare
Hydrology: Less than significant impacts to flooding
Noise/Vibration: Less than significant impacts to construction vibration

Cumulative Projects for Menlo Park Pump Station Component Location

The following projects are under construction, planned, or may occur in the vicinity of the Menlo Park Pump Station, and therefore could potentially combine with the Project for cumulative impacts:

- Atherton Channel Pedestrian & Bicycle Bridge Project
- St. Anton Project
- Menlo Gateway
- Greystar Project
- New Magnate High School
- Haven Avenue Streetscape Improvement Project
- Bedwell Bayfront Park Gas and Leachate Collection System Repair and Replacement and Electrical Panel Upgrade

The location of the cumulative projects is shown on Figure 5.4-7.

MENLO PARK PUMP STATION CUMULATIVE PROJECTS FIGURE 5.4-7

5.4.7.1 *Cumulative Aesthetic and Visual Impacts*

As discussed previously, the wastewater conveyance system Project as a whole would not substantially affect scenic views or scenic resources, nor result in substantial light or glare. At the Menlo Park Pump Station site, there would be removal of non-native trees and the proposed improvements, with the exception of the flow meter and flood protection wall, would be located within the existing Menlo Park Pump Station building, and therefore would not degrade the visual character or quality of the surrounding area. The other local cumulative projects would alter the appearance of the sites on which they are proposed, in particular the several private development applications. However, individually and in combination, they are also not anticipated to substantially impact visual resources, as they would not result in the loss of significant visual resources nor the introduction of visually incompatible new structures in the area, because the private development would be designed in accordance with City standards as evaluated through the routine design review process used for all private development applications. As noted above, the proposed Project's visual impacts would consist of tree removals and installation of a low flood protection wall, and would not combine with other projects in the vicinity to result in a significant adverse visual change, nor would they in combination create a substantial source of light and glare. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative aesthetic or visual impacts. **[Less Than Significant Cumulative Impact]**

5.4.7.2 *Cumulative Air Quality Impacts*

Cumulative projects with a potential to generate odors include wastewater, landfill and wetlands restoration projects. The proximity of these projects to the same sensitive receptors could result in potential cumulative odor emissions. Construction activities at the Menlo Park Pump Station could result in odors associated with diesel exhaust that could be noticeable at times to residences in close proximity, but these are not anticipated to result in odor complaints. Per **Impact AIR-3**, odors from operation of the proposed Project at the Menlo Park Pump Station could adversely impact sensitive receptors in the Project area. Per mitigation measure **MM AIR-3**, all Project components shall have an odor control plan to promptly respond to odor complaints to reduce the impact to less than significant level.

The Haven Avenue Streetscape project, Bedwell Bayfront Park projects, Atherton Channel Pedestrian and Bicycle Bridge project and Greystar project are in close proximity to the Menlo Park Pump Station and could lead to cumulative odor emissions to the same sensitive receptors. Bedwell Bayfront Park, adjacent to the Menlo Park Pump Station, is a former landfill and that could potentially generate odors emissions. The projects at Bedwell Bayfront Park are assumed to have odor control plans similar to the proposed project and, therefore, would not contribute to the cumulative odor emissions. The other projects are roadway and residential projects and are not expected to generate operational odor emissions.

Construction of the various projects may generate odors typical of construction activities, however, it is expected that these projects would have best management practices in place to reduce their odors to less than significant level. The other projects included in the Menlo Park Pump Station cumulative list of are too far away from the Menlo Park Pump Station area to have localized cumulative odor impacts on the same sensitive receptors. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative odor impacts. **[Less Than Significant Cumulative Air Quality Impact]**

5.4.7.3 *Cumulative Biological Resources Impacts*

Given the Project's biological resources impacts and the nature of the cumulative projects, the discussion below focuses on cumulative impacts related to Salt Marsh Harvest Mouse, Salt Marsh Wandering Shrew, California Ridgeway Rail, disturbance of nesting birds, impacts to wetlands, and removal of trees.

Cumulative Impacts: California Ridgeway Rail, Salt Marsh Harvest Mouse, Salt Marsh Wandering Shrew

The construction activity planned at the Menlo Park Pump Station and the other six other local cumulative projects may affect special status species (i.e. CRRR, SMHM, SMWS) which could be present on and/or adjacent to the Project site or areas of proposed construction.

Measures would be implemented to avoid noise and visual disturbance impacts to special status species, which would reduce the Project's contribution to special status species cumulative impacts. Habitat avoidance, presence of a biological monitor during construction staging and continued consultation throughout Project construction, and incorporation of standard construction measures would reduce potential impacts to SMHM and SMWS to a less than significant level.

Initiation of construction activities during the CRR breeding season (February 1 through August 31) will be avoided to the extent feasible. If construction work would occur during the CRR breeding season, preconstruction surveys would be conducted prior to ground disturbance. Preconstruction surveys and breeding season avoidance would also reduce the potential loss or disturbance of nesting birds (i.e. CRR) individuals to a less than significant level.

Construction of the proposed future projects occurring in the Project area would include standard construction measures which would reduce or avoid special status species to a less than significant level.

For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to special status species. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Nesting Birds

The construction activity planned at the Menlo Park Pump Station and the six other local cumulative projects listed above may affect nesting raptors and migratory birds that could be present on and/or adjacent to the Project site or areas of proposed construction.

Measures would be implemented to avoid impacts to nesting birds, which would reduce the Project's contribution to nesting bird cumulative impacts. Initiation of construction activities during the avian nesting season (February 1 through August 31) will be avoided to the extent feasible. For areas where direct impacts to vegetation will occur, vegetation removal will be conducted outside of the nesting season to avoid potential delays in construction schedule due to nesting activity, as is feasible. If construction initiation during the nesting season cannot be avoided, pre-construction nesting bird surveys will be conducted within 14 days of initial ground disturbance or water/vegetation removal to avoid disturbance to active nests, eggs, and/or young of nesting birds. Surveys can be used to detect the nests of special-status as well as non-special-status birds. For these reasons, the cumulative projects, including the proposed Project, would not result in significant cumulative impacts to nesting birds. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Wetlands

The construction area for the Menlo Park Pump Station would be adjacent to northern coastal salt marsh, freshwater marsh, seasonal wetlands and un-vegetated waters which may be unintentionally filled or receive unintentional discharge during construction activity. The proposed construction activities planned at the Menlo Park Pump Station site as well as the other known project sites within the area may result in the unintentional discharge or fill into wetlands or non-wetlands waters.

Measures would be implemented to identify the wetland and non-wetland waters prior to ground disturbing activities, which would reduce the Project's contribution to wetlands cumulative impacts. Sensitive habitats within the construction area of the Menlo Park Pump Station would be identified and silt fencing would be installed with oversight from a qualified biologist adjacent to identified waters, if necessary.

For these reasons, the cumulative projects, including the proposed Project would not result in significant cumulative impacts to wetlands. **[Less Than Significant Cumulative Biological Resources Impact]**

Cumulative Impacts: Trees

As previously discussed, the construction activity at the Menlo Park Pump Station site will require the removal of trees. Per Impact **BIO-22**, construction activity at the Menlo Park Pump Station will require the removal of 17 trees which are considered "heritage trees" per the City of Menlo Park Tree Ordinance, and 12 trees which are not protected per the Tree Ordinance. Heritage trees to be removed are predominantly non-native invasive species including lollypop tree and blue gum. An additional row of blue gum trees on the western border of the Pump Station may require trimming for overhead clearance. All trees to be removed by SVCW will be replaced by appropriate native replacement trees in accordance with the City's standards requirements. The other future projects which would occur within the Project area would require removal of trees, but would likely provide appropriate replacement planting per the City's standard requirements. The proposed Project, together with the cumulative projects, would not result in a cumulatively considerable contribution to a significant cumulative loss of protected trees. **[Less Than Significant Cumulative Biological Resources Impact]**

5.4.7.4 *Cumulative Noise Impacts*

The construction and operational noise from the improvements at the Menlo Park Pump Station would not result in a significant impact. Construction vibration levels are not expected to exceed 0.3

in/sec PPV due to Project construction at any of the surrounding buildings. Therefore, the noise and vibration impact would be less than significant.

Several of the Menlo Park Pump Station cumulative projects are located close enough to the project site to result in a cumulative noise impact (See Figure 5.4-7). These include the Haven Avenue Streetscape project, the Atherton Channel Pedestrian and Bicycle Bridge project, and the Greystar project. The Haven Avenue Streetscape project was found categorically exempt by the City, therefore it is not expected to result in any noise and vibration impact. The Atherton Channel Pedestrian project is not expected to occur simultaneously with the Project and, therefore, would not combine to increase the severity of the proposed Project's noise impacts. The Greystar project is a residential development project which may involve noise generating equipment during construction. The duration and details of the construction activity is not known as the project has not yet undergone environmental evaluation by the City; however, it is expected that this project would include mitigation measures to reduce construction noise and vibration impacts to less than significant level.

Operational noise impacts are not expected from these local cumulative projects. The other cumulative projects are either too far away and/or nearby intervening structures would reduce noise levels to less than significant cumulative impact. It is assumed that all the projects would incorporate mitigation measures to reduce the noise impact to a less than significant level. The proposed Project, in combination with the cumulative projects, would not result in significant cumulative noise and vibration impacts. **[Less Than Significant Cumulative Noise and Vibration Impact].**

5.4.7.5 *Cumulative Hydrology and Water Quality Impacts*

Cumulative Impact: Local Flooding

As identified in the EIR, the Project component locations, with exception of the Skyway Road and Monte Vista Drive area, are within the FEMA 100-year flood-plain. The Menlo Park Pump Station site is located in Zone AE, which is defined as "areas that are subject to inundation by the one-percent-annual chance flood event."

The Menlo Park Pump Station site would be constructed within the same location as the existing facility, and would therefore not alter the existing flooding patterns of the Project area. The seven other local projects would not construct, rehabilitate or improve the surrounding areas in such a way that would result in redirecting flood flows or compromise the existing flood control levee system. The new development occurring in the vicinity of the Menlo Park Pump Station will be required to comply with floodplain requirements and ensure the new development does not exacerbate or redirect flooding. It is, therefore, expected that the Menlo Park Pump Station and the other local cumulative projects would not result in a cumulative impact. **[Less Than Significant Cumulative Hydrology Impact]**

6.0 GROWTH-INDUCING IMPACTS

CEQA Guidelines section 15126.2(d) requires that the EIR evaluate the growth-inducing impact of a proposed Project. This chapter analyzes the growth inducement potential and associated secondary effects of growth impacts of the proposed Project, as required by the California Environmental Quality Act (CEQA). A growth-inducing impact is defined as follows:

> The ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (e.g. a major expansion of a wastewater treatment plant or substantial new water supply facilities). A project is also considered growth-inducing when it encourages and facilitates other activities that could significantly affect the environment, either individually or cumulatively. According to CEQA, the Lead Agency must never assume that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

The Project area is located entirely within San Mateo County. According to California Department of Finance 2010 census data, San Mateo County's population for 2010 was 718,451 persons (CDOF 2010). In 2010, there were 271,031 households with 2.72 persons per household within San Mateo County (CDOF 2010). ABAG projects the population for San Mateo County to be 842,600 in 2030 (ABAG 2006). In 2010, the population of the City of San Carlos was 28,406, the City of Belmont's was 25,835, City of Menlo Park was 32,026, and Redwood City's population was 76,815 (CDOF 2010).

As previously discussed, the Project evaluated in this EIR is a conveyance and treatment reliability improvements project located within the cities of Belmont, Menlo Park, Redwood City and San Carlos. The purpose of the project is to replace the aging infrastructure and improve the reliability of the conveyance system. The project is not intended to serve new geographic areas or to induce growth in the region. Local land use plans (e.g., General Plans and Specific Plans) of the jurisdictions served by SVCW establish land use development patterns and growth policies that are intended to allow for the orderly expansion of urban development supported by adequate public services, including wastewater services. The proposed Project would serve existing and planned customers already accounted for in the General Plans of the respective cities. No additional housing or residents would be added to the Project area as a direct result of the proposed Project. The proposed replacement/improvements of the four pump stations would occur on the same sites as the existing pump stations and would provide the same function as the existing pump stations. The proposed Project would also replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions. Therefore, the proposed Project would not directly induce population or economic growth, nor would it tax existing community service facilities or encourage other activities that could significantly affect the environment.

The Project would also provide recycled water which would mainly be used for irrigation and landscaping but not for drinking water. There is potential that the resulting improvements in the wastewater system could indirectly support population growth, but this growth would be within the growth framework of applicable local plans and the potential impact will be less than significant.

7.0 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

This section was prepared pursuant to CEQA Guidelines Section 15126.2(c), which requires a discussion of the significant irreversible changes that will result from the implementation of a proposed Project. Significant irreversible changes include the use of nonrenewable resources, the commitment of future generations to similar use, irreversible damage resulting from environmental accidents associated with the Project, and irretrievable commitments of resources. Applicable environmental changes are described in more detail below.

7.1 USE OF NONRENEWABLE RESOURCES

The construction and maintenance of the proposed and planned wastewater conveyance system improvements would require the use and consumption of nonrenewable resources. Nonrenewable resources include fossil fuels and metals, and cannot be regenerated over time.

8.0 SIGNIFICANT AND UNAVOIDABLE IMPACTS

As documented in the anlayis of each of the environmental topics presented previously in this EIR, the proposed Project would not result in any significant and unavdoiable impacts, as all significant impacts are capable of being reduced to less than significant levels through incorporation and implementation of feasible mitigation proposed by the Project.

9.0 ALTERNATIVES

Section 15126.6 of the CEQA Guidelines requires that an EIR describe a reasonable range of alternatives to the proposed Project that could feasibly attain most of the Project objectives while avoiding or considerably reducing any of the significant impacts of the proposed Project. In addition, the No Project Alternative must be analyzed in the document.

In order to comply with the purposes of CEQA, it is necessary to identify alternatives that reduce the significant impacts that are anticipated to occur if the Project is implemented while trying to meet most of the basic objectives of the Project. The Guidelines emphasize a common sense approach. The alternatives shall be reasonable, shall "foster informed decision making and public participation," and shall focus on alternatives that avoid or substantially lessen the significant impacts.

SVCW's stated Project objectives are to:

1. Replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions.
2. Reduce the likelihood of spills and discharges of untreated sewage to the surrounding environment, which has occurred numerous times with the existing 45 year old concrete sewer force main that operates above its design pressure.
3. Implement a Project that minimizes adverse environmental effects, adverse impacts to public health and private property owners, utility interference and disruption during construction, and short- and long-term cost.
4. Improve plant process reliability, and increase operational readiness.
5. Meet future regulatory requirements imposed by the RWQCB for nutrients discharged into the San Francisco Bay.

An EIR is required to include a "No Project" alternative that "compares the impacts of approving the proposed project with the impacts of not approving the proposed project."[28] The intent of identifying project alternatives is to reduce or avoid both significant short-term construction impacts and significant long-term operational impacts of the proposed Project. The impacts identified in this EIR as resulting from the proposed Project are listed below, according to whether they would occur during construction or as part of ongoing operations, as well as whether they are associated with a specific Project component location or with the conveyance system as a whole:

Construction Impacts:

AIR-1: construction criteria pollutants (NOx), resulting from construction activity at all sites
AIR-2: Redwood City Pump Station construction toxic air contaminants
BIO-1: Bair Island construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-2: Flow Splitter Shaft, Bair Island construction disturbance of CA Ridgeway Rail

[28] CEQA Guidelines Section 15126.6(e)(1)

BIO-3: Bair Island construction disturbance of Western Burrowing Owl
BIO-4: Tunnel/Access Shafts construction disturbance of nesting birds
BIO-5: WWTP/FoP construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-6: WWTP/FoP construction disturbance of California Ridgeway Rail
BIO-7: WWTP Improvements construction disturbance of nesting birds
BIO-8: Belmont Pump Station construction disturbance of nesting birds
BIO-9: San Carlos Pump Station construction disturbance of nesting birds
BIO-10: Redwood City Pump Station construction disturbance of nesting birds
BIO-11: Menlo Park Pump Station disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-12: Menlo Park Pump Station construction disturbance of California Ridgeway Rail
BIO-13: Menlo Park Pump Station construction disturbance of nesting birds
BIO-14: Tunnel/Access Shafts and Bair Island construction impacts to wetlands
BIO-15: Influent Connector portion of project construction impacts to wetlands
BIO-16: Belmont Pump Station construction impacts to wetlands
BIO-17: Menlo Park Pump Station construction impacts to wetlands
CUL-1: Redwood City Pump Station excavation into identified cultural resources
CUL-2: potential for all ground disturbing activities to impact unknown archaeological resources
HAZ-1: potential for all ground disturbing activities to encounter soil/groundwater contamination
HYD-1: potential for all ground disturbing activities to release soil and contaminants into stormwater
HYD-2: potential for dewatering of all ground disturbing activities extending below water table
NOI-1: construction noise in relation to ambient noise conditions
UTIL-1: potential to encounter utilities while excavating at all locations

All construction related impacts can be mitigated to a level of insignificance by the measures identified throughout the EIR. However, the purpose of an alternatives analysis, beyond identifying ways to avoid significant and unavoidable impacts, is to identify alternatives, for Project impacts requiring mitigation that can avoid the need for mitigation in the first place.

Operational Impacts:

AIR-3: ongoing potential for odors from operations at the WWTP and all four pump stations

NOI-2: WWTP, San Carlos and Redwood City Pump Station ongoing operational noise impacts on surrounding uses

GEO-1: exposure of equipment below ground to corrosive soils at all sites

Mitigation measures have also been identified for all significant operational impacts which would reduce the impacts to a less than significant level. There would be no significant and unavoidable impacts from ongoing operation of the proposed wastewater conveyance system upon implementation of mitigation measures identified throughout this EIR. However, as mentioned above, the purpose of an alternatives analysis, beyond identifying ways to avoid significant and unavoidable impacts, is to identify alternatives, for Project impacts requiring mitigation that can avoid the need for mitigation in the first place.

9.1 ALTERNATIVES DEVELOPMENT PROCESS

The alternative alignment evaluation process was initiated by SVCW in the spring of 2014. SVCW had initially identified five potential alignments for the new 63-inch force main and had approached regulatory agencies and members of the public with the initial alternative alignments. These included: 1) placing the pipeline within the levee along Steinberger Slough; 2) open cut trenching along Redwood Shores Parkway, 3) placing the new pipeline within Redwood Shores lagoon; 4) placing the pipeline within Steinberger Slough, and 5) a tunneling alternative. In March 2014, SVCW held five public meetings on these original conceptual alternatives. The goal of these meetings was to share with neighbors the need for the 63" Force Main Pipeline Reliability Improvement project (as it was called at the time), the potential design alternatives and options being explored, and to listen to questions, concerns and ideas from neighbors. SVCW also sent a mailing to the community and placed an ad in the 'Pilot', a magazine that goes to all local Redwood Shores households, about the meetings. About 100 people attended the five sessions. Prior to the five meetings, SVCW staff met with the president of the Redwood Shores Homeowners Association and the president of the Redwood Shores Owners Association at that time, to describe the then-proposed project.

At the five public meetings, strong public opposition was voiced by residents to these initial alternatives. On March 25, 2014, just 13 days after the final meeting, SVCW announced to Redwood Shores residents through email and social media what its next steps would be following strong public opposition to the alternatives discussed at the meetings.

The five initial alignments were also presented to State and Federal regulatory agencies at a Corps of Engineers-sponsored Interagency Meeting on April 9, 2014. In summary, the feedback from those agencies was that they would not be able to permit an alignment that had the potential to impact water if a feasible alternative existed that avoided those potential impacts. This meant that two of the five alignments, the lagoon and slough alternatives would likely not receive regulatory agency permits.

SVCW then held additional public outreach meetings to present the remaining alignments (Redwood Shores Parkway and levee) and solicit feedback from the community. Many members of the public indicated that the potential levee and roadway alignments would cause significant disruption and inconvenience to local residents.

Given the strong public opposition and feedback received, SVCW began a more extensive alternative evaluation process, in an effort to identify a viable solution for the Project which would reduce the impacts to the Redwood Shores community. The conveyance system alternatives analysis conducted by SVCW staff was exhaustive and identified over 140 conveyance methods that included different routes, construction methods, and modes of operation (e.g., gravity and pressurized transmission,).[29] Since the conveyance system is a "system", each alternative affects the scope, cost, and operation of the other conveyance system components. Variations included eliminating some pump stations,

[29] In a force main, raw wastewater is pumped into the pipelines, causing the pipeline to be under pressure and always full.

changing the capacity of the Headworks, operating the pipelines in a gravity mode versus a force main mode, and adding flow equalization capability at the WWTP.

Based on a systematic feasibility assessment, these 140 alternatives were reduced to 15 potentially feasible alternatives. A “success factor” based alternative analysis was developed and executed by the SVCW’s Conveyance System Planning Group to evaluate the top 15 alternatives. Success was defined in terms of operations, maintenance, safety, schedule, stakeholder impacts, and costs. Stakeholder impacts included impacts to the environment and public. An evaluation process was built around these success factors and used for an alternative analysis. Prior to commencing the evaluation, SVCW staff presented the success factors to the SVCW Commission for their input. The extensive evaluation method resulted in identifying Alternative 4BE as the recommended alternative for the Wastewater Conveyance System Reliability Improvement Project, which is the Project that is the subject of this EIR.

In July 2015, SVCW informed the public of three additional meetings to unveil a new direction to explore the deep tunneling options for the Redwood Shores portion of the conveyance program. The meetings were held on July 22, July 23, and July 25. About 40 people came to the three meetings, and like 2014, SVCW staff met with the presidents of the Redwood Shores Homeowners Association and Redwood Shores Owners Association to brief them prior to the meeting. The general response was that the tunneling options would be better for the community than the levee or roadway alternatives.

The environmental implications (benefits and impacts) of the other 14 alternatives are discussed below, as well as their potentially feasibility. The 14 alternatives are discussed below in two different categories. In the first group, 12 of the 14 alternatives are presented as “Alternatives Considered but Rejected,” while the other two alternatives are discussed as potentially feasible “Location Alternatives.” The 15th alternative is the preferred Project alternative itself, i.e. the proposed Project that is the subject of this EIR. A list of the 15 alternatives is provided in the table below along with where a full description can be found in this section.

Table 9.1-1: List of Alternatives and Result of EIR's Feasibility Analysis		
Id Number	**Title**	**Result of EIR's Feasibility Analysis**
1 Series	*Outer Bair Island Tunnel*	
1a	Bair Island Tunnel with Slip Lining	Considered but Rejected
1b	Bair Island Tunnel with 48" Units 1 and 2	Considered but Rejected
2 Series	*Slough Tunnel*	
2a	Slough Tunnel to Redwood City	Considered but Rejected
2b	Slough Tunnel to Redwood City Pump Station	Considered but Rejected
3	Lagoon Tunnel	Considered but Rejected
4 Series	*Middle Out Tunnel*	
4a	Middle Out Tunnel Redwood City Pump Station via 48-inch Units 1,2	Considered but Rejected
4b	Middle Out Tunnel Redwood City Pump Station via 48-inch Units 1,2	Considered but Rejected
4be	Middle Out and Tunnel to Inner Bair Island with Belmont Slipline	Selected as Proposed Project
4c	Middle Out Tunnel to Redwood City Pump Station	Considered but Rejected
4d	Middle Out Tunnel to Redwood City Pump Station	Considered but Rejected
4de	Middle Out Tunnel with Belmont Slip Line	Considered but Rejected
5	Redwood Shores Parkway Microtunnel Alignment	Evaluated Further: Location Alternative
6 Series	*Redwood Shores Open Cut*	
6a	Redwood Shores Parkway Open Cut Alignment	Considered but Rejected
6b	Redwood Shores Parkway Multiple Pipe Open Cut Alignment	Considered but Rejected
7	Remote FEF	Evaluated Further: Location Alternative

9.2 FEASIBILITY

9.2.1 Feasibility of Alternatives

Feasible is defined in the CEQA Guidelines as "capable of being accomplished in a successful manner in a reasonable period of time taking into account economic, environmental, legal, social, and technological factors." CEQA, the CEQA Guidelines, and the case law on the subject have found that feasibility can be based on a wide range of factors and influences. The Guidelines advise that such factors *can* include (but are not necessarily limited to) the suitability of an alternate site, economic viability, availability of infrastructure, consistency with a General Plan or with other plans or regulatory limitations, jurisdictional boundaries, and whether the Project proponent can "reasonably acquire, control or otherwise have access to the alternative site" [§15126.6(f)(1)]. Case law *(California Native Plant Society v. City of Santa Cruz,* August 20, 2009, 177 Cal. App. 4th 957*)* provides guidance for considering alternatives a) in an EIR, and subsequently, b) as part of the agency's decision-making process.

The EIR: Potentially Feasible Alternatives

When assessing feasibility in connection with the alternatives analysis in the EIR, the question is whether the alternative is *potentially* feasible. While it is up to the EIR preparer (i.e. staff, often with consultant support) to identify alternatives as potentially feasible, the decision-making body may or may not reject those alternatives as being infeasible when it comes to Project approval. When the decision-making body certifies the EIR, it has made a determination that the EIR contains the required consideration of *potentially feasible* alternatives necessary to facilitate an informed decision that takes environmental considerations into account. Like mitigation measures, potentially feasible alternatives are suggestions which may or may not be adopted by the decision-makers, in this case the SVCW Commission as it decides whether to approve and carry out the proposed Project.

Project Approval: Ultimate Determination of Feasibility

When it comes time to decide on Project approval, the public agency's decision-making body (e.g. SVCW Commission) evaluates whether the alternatives are *actually* feasible, taking into account available information in the entire administrative record (i.e. beyond the EIR itself). While staff may draft the necessary findings, the decision-making body is responsible for the ultimate determination of feasibility, which cannot be delegated. At this final stage of Project approval, after the certification of the EIR, the agency considers whether "[s]pecific economic, legal, social, technological, or other considerations ... make infeasible the mitigation measures or alternatives identified in the environmental impact report" (§ 21081, subd. (a)(3).) and whether "specific overriding economic, legal, social, technological, or other benefits of the Project outweigh the significant effects on the environment." (Pub. Resources Code, § 21081, subds. (a)(3), (b).) Broader considerations of policy thus come into play when the decision-making body is considering *actual* feasibility than when the EIR preparer is assessing *potential* feasibility of the alternatives.

Accordingly, the alternatives analyzed in this EIR under Section 4.0 below have been developed with the goal of being at least *potentially* feasible, given Project objectives and site constraints, while avoiding or reducing the Project's identified environmental effects. The ultimate feasibility of the alternatives discussed in this EIR will be determined by the SVCW Commission as it makes a decision concerning the proposed Project, taking into account all information in the administrative record.

9.2.2 Selection of Alternatives

In addition to the "No Project Alternative," the CEQA Guidelines advise that the range of alternatives discussed in the EIR should be limited to those that would avoid or substantially lessen any of the significant impacts of the Project [§15126.6(f)]. The Project's environmental effects are determined by comparison with the existing baseline physical conditions, in this case the existing SVCW wastewater conveyance system and the environment in which it exists.

9.3 ALTERNATIVES CONSIDERED BUT REJECTED

As noted above in the discussion of the feasibility of alternatives, the purpose of an EIR's presentation of alternatives is to provide a range of at least *potentially* feasible alternatives for the decision-makers to consider. However, an additional purpose of the EIR's presentation of alternatives is to document various alternatives that were developed but rejected for various reasons and are not therefore being offered up for consideration by the decision-makers. The various alternatives presented in this section fall into that category as being formally rejected from further consideration by the preparers of the EIR (i.e. SVCW staff and consultant team), and are not being offered up for the SVCW Commission's consideration, unlike the several Alternatives that are being presented for Commission consideration as at least potentially feasible in Section 9.4 below.

Many of the figures in this section do not show all of the Project components that would be included in each alternative. The intent of the figures is to highlight the differences between the many alternatives, and therefore the Project components associated with the Menlo Park Pump Station and the 33-inch Force Main are not shown, as they are not elements that differentiate the approach taken for the alternatives, unless specifically noted and depicted in the accompanying figure.

9.3.1 ALTERNATIVE 1a: Bair Island Tunnel with Slip Lining

9.3.1.1 *Description of alternative:*

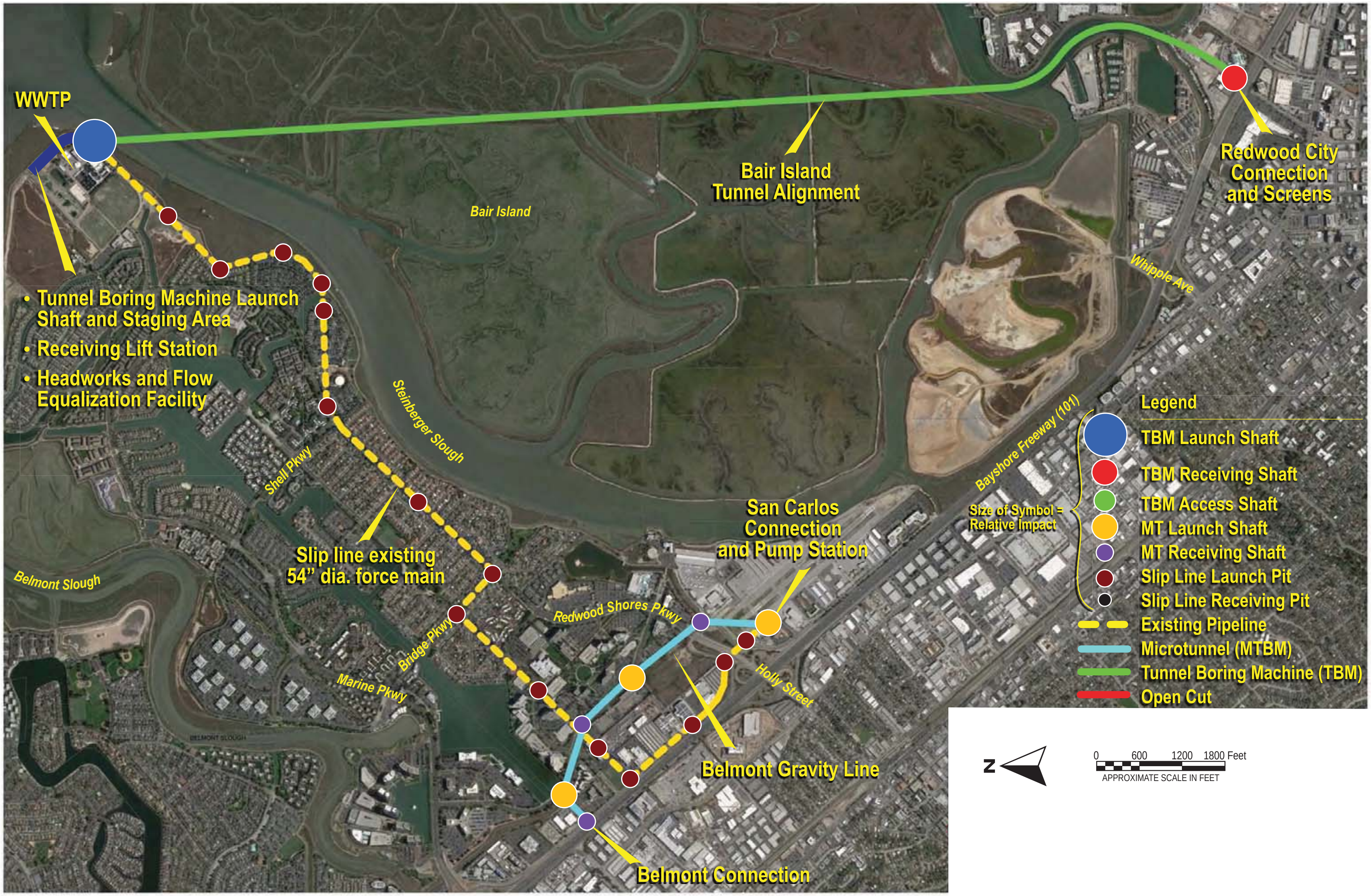
Redwood City: Flow from Redwood City would be screened through a new screening facility and, combined with West Bay Sanitary District (WBSD) flow, enter a new tunnel that would flow directly to the WWTP. The tunnel would be constructed using a TBM that is launched at the WWTP site, travels under Outer Bair Island, directly to the site of the existing Redwood City Pump Station. The existing Redwood City Pump Station would be abandoned.

San Carlos: Flow from San Carlos would be pumped through a new San Carlos Pump Station into the existing 54-in Force Main to WWTP. This would require that the existing 54-in force main be sliplined.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques that would flow to the San Carlos Pump Station. At that point, the flow would be combined with San Carlos flow and be pumped to the WWTP. The existing Belmont Pump Station would be abandoned.

Wastewater Treatment Plant: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in force main to the location of the existing Redwood City Pump Station.



ALTERNATIVE 1A – BAIR ISLAND TUNNEL WITH SLIP LINING

FIGURE 9.3-1

9.3.1.2 *Reasons Alt 1a rejected from further consideration:*

Tunneling Alternative

Alternative 1a includes tunneling from the WWTP to the Redwood City Pump Station. The tunnel would go beneath Outer and Middle Bair Island. Extensive subsurface geotechnical investigations are required to collect the site-specific data engineers need to design a tunnel. *WRA* biologists found that geotechnical drilling under Outer and Middle Bair Island would require approval from the USFWS and CDFW. The approval would require a formal consultation and Biological Opinion from the USFWS in addition to temporary construction access easement approval by the CDFW Lands Program. Proposed geotechnical drilling in areas of endangered species habitat would also require an application for a Nationwide Permit from the Corps, as well as other resource agency permits. The geotechnical drilling would be restricted to the time period between September 1 and January 15 of any given year.

Tunneling under Outer and Middle Bair Island would require easements from the USFWS and CDFW. Federal National Environmental Policy Act (NEPA) review would be required by USFWS for the new easement that would be necessary for the tunnel, and CDFW would need to find that the easement was consistent with their land management goals. The easements from USFWS and CDFW would be required before a BCDC permit could be obtained. This would compromise the construction schedule during the permitting process due to the regulatory requirements tying together NEPA, USFWS real estate managers, and BCDC.

Additionally, tunneling under Outer and Middle Bair Island would require the use of helicopters to transport drill operators and personnel onto the island for the required geotechnical evaluations during the design phase. The location of the prospective drilling sites would also require coordination with the adjacent San Carlos Airport and the Federal Aviation Administration. This alternative would pose not only an increased human safety risk, but the presence of drilling equipment in and adjacent to sensitive habitat areas and unstable soils carries with it the risk for equipment becoming stranded, as well as risk of spills and other accidents that could affect safety. For these reasons, Alternative 1a Outer Bair Island Tunnel with Slipline 54- inch San Carlos to WWTP is rejected from further consideration as infeasible.

9.3.2 ALTERNATIVE 1b: Bair Island Tunnel with 48” Units 1,2

9.3.2.1 *Description of alternative:*

Redwood City: Flow from Redwood City would be screened through a new screening facility and (combined with WBSD, San Carlos, and Belmont flow) enter a new tunnel that would flow directly to the WWTP. The tunnel would be constructed using a TBM that is launched at the WWTP site, travels under Outer Bair Island, directly to the site of the existing Redwood City Pump Station. The existing Redwood City Pump Station would be abandoned.

San Carlos: Flow from San Carlos would be pumped through a new San Carlos Pump Station through a new force main, constructed using microtunneling techniques, that connects to the existing 48” Force Main at the north end of Inner Bair Island. The flow is conveyed to the location of the existing Redwood City Pump Station where it discharges into the tunnel and flows to the plant.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques that would flow to the San Carlos Pump Station. At that point, the flow would be combined with San Carlos flow and be pumped to the inlet to the Tunnel. The existing Belmont Pump Station would be abandoned.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

Menlo Park: Flow from WBSD would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station.

ALTERNATIVE 1B – BAIR ISLAND TUNNEL WITH 48" UNITS 1 AND 2 FIGURE 9.3-2

9.3.2.2 *Reasons 1b rejected from further consideration:*

As with Alternative 1a discussed above, Alternative 1b proposes a tunnel beneath Outer Bair Island, which presents an unacceptable and potentially insurmountable set of resource agency permit requirements due to biological resources impacts.

Additionally, Alternative 1b include a microtunneling *launch* shaft on Inner Bair Island. This compared to the proposed Project that has a *receiving* shaft on Inner Bair Island. Based on observations of activities at the launch shaft for the recently completed 48-inch force main project, a microtunneling *launch* shaft has a much greater footprint in terms of size of construction and staging areas, level of disturbance from noise and dust/debris, and continuous duration of disturbance during Project construction compared to a tunnel boring machine *receiving* shaft, as proposed by the Project. This would in turn result in potential effects to schedule and safety. A larger launch shaft on Inner Bair Island carries a potential risk that construction would be required to cease completely between January 15 and May 1 for each year of construction because of the presence of the Clapper Rail, an endangered species known to inhabit this location. Additionally, since completion of the 48 Inch project, the wetlands restoration project spearheaded by the Don Edwards San Francisco USFWS was recently completed which means the larger launch shaft would now be located adjacent to a restored wetland. Lastly a larger launch shaft could require the need to renegotiate the existing right-or-way agreement between the USFWS and SVCW. The current agreement already acknowledges the presence of the future receiving shaft that is included in the preferred alternative.

For these reasons, Alternative 1b Bair Island Tunnel with 48” Units 1,2 is rejected from further consideration as infeasible.

9.3.3 Alternative 2a: Slough Tunnel to Redwood City Pump Station

9.3.3.1 *Description of alternative:*

Tunnel from WWTP underneath Steinberger Slough to the existing Redwood City Pump Station site.

Redwood City: Flow from Redwood City would be screened through a new screening facility and, combined with WBSD flow, enter a new tunnel that would flow to the WWTP. The tunnel would be constructed using a TBM that is launched at the WWTP site, travels through deep soil under Steinberger Slough, and up an alignment that approximately parallels U.S. 101 and terminates at a retrieval shaft at the location of the existing Redwood City Pump Station. The existing Redwood City Pump Station would be abandoned.

San Carlos: Flow from San Carlos would enter the new tunnel via a short pipeline, constructed using microtunneling techniques that starts at the San Carlos Pump Station and connects to an access shaft on Skyway near the existing San Carlos Pump Station Site. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques that would enter the tunnel through an access shaft near Airport Way. The existing Belmont Pump Station would be abandoned.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station.

ALTERNATIVE 2A – SLOUGH TUNNEL TO REDWOOD CITY PUMP STATION

FIGURE 9.3-3

9.3.3.2 *Reasons Alt. 2a rejected from further consideration:*

Alternative 2a proposes a tunnel beneath Steinberger Slough, which presents an unacceptable and potentially insurmountable set of resource agency permit requirements due to biological resources impacts. This alternative was specifically discussed with staff from various regulatory agencies at an interagency coordination meeting on April 9, 2014. At that meeting, staff from the agencies indicated that this alternative would have substantial biotic impacts and would not be desirable.

<u>Extent of Project in BCDC Jurisdiction</u>
The extent of Project in BCDC jurisdiction, measured in linear feet, would pose a permitting constraint which would cause schedule delays. A Project with significant alignment length within BCDC jurisdiction would be more constrained by the need to complete and extensive acquisition and BCDC permitting effort prior to Project construction. Alternative 2a has substantial portions of the tunnel alignment within BCDC jurisdiction.

For these reasons, Alternative 2a Slough Tunnel to Redwood City Pump Station is rejected from further consideration as infeasible.

9.3.4 ALTERNATIVE 2b: Slough Tunnel with Redwood City Pump Station 48-Inch Units 1,2

9.3.4.1 *Description of alternative:*

Tunnel: The tunnel would be constructed using a TBM that is launched at the WWTP site, travels through deep soil under Steinberger Slough, and terminates at a receiving shaft near Pico Blvd. and Airport Way.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City Flows as it enters the existing 48-in Force Main.

Redwood City: Flows from Redwood City would be pumped through a new Redwood City Pump Station into the existing 48-in Force Main, combining with the West Bay Sanitary District flow. The recently constructed 48-in force main Units 1 and 2 extend from the Redwood City Pump Station to the northern tip of Inner Bair Island. A new pipeline construction project, labeled 'Airport Segment Alignment' in the figure depicting this Alternative, that includes a microtunnel launch shaft on Inner Bair Island, will connect the recently constructed force main to the San Carlos Pump Station site.

San Carlos: Flow from San Carlos would be combined with Redwood City and Menlo Park flow at a microtunnel launch shaft located on the San Carlos Pump Station Site. From this shaft a new microtunneled pipeline will connect to the new tunnel at an access shaft located near Airport Way. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques, that would enter the tunnel through an access shaft located near the Airport Way. The existing Belmont Pump Station would be abandoned.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

ALTERNATIVE 2B – SLOUGH TUNNEL TO REDWOOD CITY PUMP STATION

FIGURE 9.3-4

9.3.4.2 *Reasons 2b rejected from further consideration:*

Alternative 2b proposes a tunnel beneath Steinberger Slough, which would present an unacceptable and potentially insurmountable set of resource agency permit requirements due to biological resources impacts. This alternative was specifically discussed with staff from various regulatory agencies at an interagency coordination meeting on April 9, 2014. At that meeting, staff from the agencies indicated that this alternative would have substantial biotic impacts and would not be desirable.

<u>Launch Shafts on Inner Bair Island</u>
Alternative 2b would include a microtunneling *launch* shaft on Inner Bair Island. The proposed Project has a TBM *receiving* shaft on Inner Bair Island. Based on observations of activities at the launch shaft for the recently completed 48-inch force main project, a microtunneling *launch* shaft would have a much greater footprint in terms of size of construction and staging areas, level of disturbance from noise and dust/debris, and continuous duration of disturbance during Project construction compared to a tunnel boring machine *receiving* shaft, as proposed by the Project. This would in turn, result in potential effects to schedule and safety. A launch shaft on Inner Bair Island would carry a very likely risk that construction would be required to cease completely between January 15 and May 1 for each year of construction because of the presence of the Clapper Rail, an endangered species know to inhabit this location. Additionally, since completion of the 48 Inch project, the wetlands restoration project spearheaded by the Don Edwards San Francisco USFWS was recently completed which means the larger launch shaft would now be located adjacent to a restored wetland. Lastly a larger launch shaft could require the need to renegotiate the existing right-or-way agreement between the USFWS and SVCW. The current agreement already acknowledges the presence of the future receiving shaft that is included in the preferred alternative.

<u>Extent of Project in BCDC Jurisdiction</u>
The extent of Project in BCDC jurisdiction, measured in linear feet, would pose a permitting constraint which would cause schedule delays. A project with significant alignment length within BCDC jurisdiction would be more constrained by the need to complete and extensive acquisition and BCDC permitting effort prior to Project construction. Alternative 2b has substantial portions of the tunnel alignment within BCDC jurisdiction.

For these reasons, Alternative 2b Slough Tunnel with Redwood City Pump Station 48-inch Units 1,2 is rejected from further consideration as infeasible.

9.3.5 ALTERNATIVE 3: Lagoon Tunnel

9.3.5.1 *Description of alternative:*

Tunnel: The Lagoon Tunnel alternative would place a new gravity tunnel under Redwood Shores Lagoon, past the Belmont Pump Station site, past San Carlos Pump Station, and terminating at the Redwood City Pump Station site. Flows from Redwood City, San Carlos, and Belmont would all connect via the new tunnel to the WWTP. Flows from Menlo Park Pump Station are conveyed in the existing pipeline.

The tunnel would be constructed using a TBM that is launched at the WWTP site, travels through deep soil under the Redwood Shores lagoons, and up an alignment that approximately parallels U.S. 101 and terminates at a retrieval shaft at the location of the existing Redwood City Pump Station.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station.

Redwood City: Flow from Redwood City would be screened through a new screening facility and, combined with WBSD flow, enter a new tunnel that would flow to the WWTP. The existing Redwood City Pump Station would be abandoned.

San Carlos: Flow from San Carlos would enter the new tunnel via a short pipeline, constructed using microtunnel technique that connects to an access shaft near to the existing San Carlos Pump Station site. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

Belmont: Flow from Belmont would enter the new tunnel via a short pipeline that connects to an access shaft adjacent to the existing Belmont Pump Station Site. The existing Belmont Pump Station would be repurposed to provide odor control for the system.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

ALTERNATIVE 3 – LAGOON TUNNEL

FIGURE 9.3-5

9.3.5.2 *Reasons Alt. 3 rejected from further consideration:*

Alternative 3 would construct a large diameter tunnel by launching a tunnel boring machine at the WWTP. This compares to the proposed Project that locates the launch shaft near Airport Way and closer to U.S. 101. This difference would require that the substantial soil excavation and trucking off-haul activities occur in the Redwood Shores neighborhood along Redwood Shores Parkway. This would result in increased traffic, noise, and air quality impacts compared to the proposed Project, and create significant negative impacts on Redwood Shores residents from construction activity, including increased truck trips on Redwood Shores Parkway, and substantial increases in construction noise and air quality impacts on Redwood Shores from increased activity at the WWTP. Additionally, the TBM would have to pass under various bridges as it travelled under the lagoon, with the risk that the TBM could hit a bridge piling and get stuck or damaged.

For these reasons, Alternative 3 Lagoon Tunnel would have substantially increased impacts on Redwood Shores neighborhood, and would provide no substantial environmental benefits. Therefore, this alternative is not environmentally superior, and is rejected from further consideration as infeasible.

9.3.6 <u>ALTERNATIVES 4a, b: Middle Out Tunnel Redwood City Pump Station via 48-inch Units 1,2</u>

9.3.6.1 *Description of alternatives:*

Alternatives 4a and 4b both involve a tunnel Gravity Pipeline from the Airport Access Shaft to the WWTP. The tunnel would be constructed using a TBM that is launched at a launch shaft near Pico Blvd. and Airport Way, travels through deep soil under Redwood Shores Parkway, and terminates at the WWTP site.

Variations involve how the Belmont Pump Station, San Carlos Pump Station and Redwood City Pump Station connect to the conveyance system. For both alternatives Menlo Park Pump Station is rehabilitated and flows are conveyed in the existing pipeline to Redwood City Pump Station.

Alternative 4a:

The Middle Out Tunnel 4a alternative would construct a new tunnel from the Airport Access Shaft in San Carlos to the WWTP, and a microtunnel Gravity Pipeline from Belmont to the Airport Access Shaft. A microtunnel force main pipeline runs from the north end of the 48-inch force main on Inner Bair Island, under the Airport, past the San Carlos Pump Station site, to the Airport Access Shaft. The Redwood City Pump Station pumps Redwood City wastewater flows through the 48-inch force main, discharging to the Gravity Pipeline under the Airport where flows from San Carlos are added, and discharging to tunnel at the location of the Airport Access Shaft.

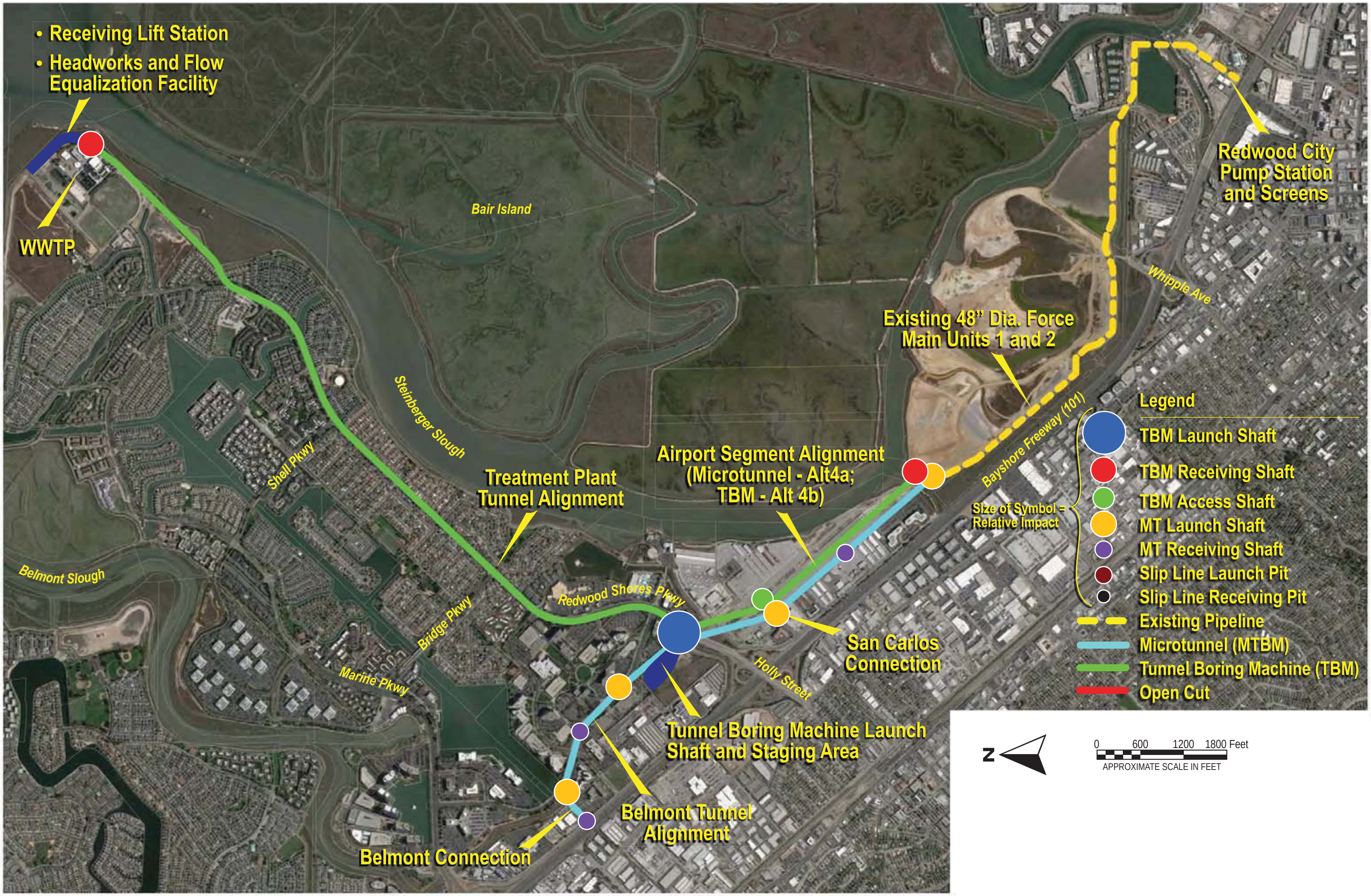
Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City Flows as it enters the existing 48-in Force Main.

Redwood City: Flows from Redwood City would be pumped through a new Redwood City Pump Station into the existing 48-in Force Main, combining with the West Bay Sanitary District flow. A new construction project will connect the existing newly built 48-in Force Main Units 1 and 2 to the Airport Access Shaft.

San Carlos: Flow from San Carlos would be combined with Redwood City and Menlo Park flow and enter the new tunnel via a short, microtunneled pipeline that connects to the new tunnel at the San Carlos Pump Station site. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques, which would enter the tunnel through the Airport Access shaft near the Airport Way. The existing Belmont Pump Station would be abandoned.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.



MIDDLE OUT TUNNEL RCPS VIA 48" UNITS 1 AND 2

FIGURE 9.3-6

Alternative 4b:

The Middle Out Tunnel 4b alternative would construct a new tunnel from the Airport Access Shaft in San Carlos to the WWTP. At the WWTP site, the TBM would be pulled out of the ground, trucked back to the Airport Access Shaft, and launched again, towards the receiving shaft at Inner Bair Island. The tunnel would go past the San Carlos Pump Station, under the Airport, and terminates at the north end of the 48-inch Unit 2 on Inner Bair Island. The Redwood City Pump Station pumps Redwood City flows through 48-inch Units 1 and 2 and discharges to the tunnel. Flows from San Carlos are connected to the tunnel by a gravity microtunneled connection. A microtunnel Gravity Pipeline from Belmont to the Airport Access Shaft would be built.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City Flows as it enters the existing 48-in Force Main.

Redwood City: Flows from Redwood City would be pumped through a new Redwood City Pump Station into the existing 48-in Force Main, combining with the WBSD flow. The existing 48-in Force Main extends to the northern tip of Inner Bair Island. At this location, the flow would enter the tunnel through an inlet structure constructed in the receiving shaft.

San Carlos: Flow from San Carlos would be combined with Redwood City and Menlo Park flow and enter the tunnel via a short, microtunneled pipeline that connects to the tunnel through a TBM access shaft located on the San Carlos Pump Station site. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques, which would enter the tunnel through the launch shaft near the San Carlos Airport. The existing Belmont Pump Station would be abandoned.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

9.3.6.2 *Reasons Alternatives 4a and 4b are rejected from further consideration:*

Alternatives 4a and 4b are variations of the proposed Project, with the primary difference involving the connection between the gravity tunnel and the Belmont Pump Station, which in this alternative consists of a new microtunnel between the pump station and Airport Access shaft, while the proposed Project utilizes a sliplining of existing 54-inch force mains between San Carlos and Belmont Pump Stations. Additionally, the proposed Project includes rehabilitating the Belmont Pump Station, while Alternatives 4a and 4b include abandoning it. The environmental impact of microtunneling the approximately 3,900 linear feet between the Belmont Pump Station and the San Carlos Pump Station would be much higher than the impact of rehabilitating the pump station, which would involve minimal below ground construction, and includes replacing the mechanical and electrical elements of the pump station within the existing structure.

In summary, Alternatives 4a and 4b Middle Out Tunnel Redwood City Pump Station via 48-inch Units 1,2 are similar in many respects to the proposed Project, but have no substantial environmental benefits and would incrementally increase construction impacts associated with a new microtunnel between the Airport Access shaft and Belmont Pump Station. Therefore, this alternative is not environmentally superior, and is rejected from further consideration.

9.3.7 ALTERNATIVESS 4c, d: Middle Out Tunnel to Redwood City Pump Station

9.3.7.1 *Description of alternatives:*

Alternative 4c:

Tunnel: The tunnel would be constructed using a TBM that is launched at a launch shaft near the San Carlos Airport, travels through deep soil under Redwood Shores Parkway, and terminates at the WWTP site. At the WWTP site, the TBM would be pulled out of the ground, trucked back to the Airport Launch Shaft, and launched again, towards the receiving shaft at the existing Redwood City Pump Station. Then the TBM would be pulled out again, trucked back to the Airport Launch Shaft and then launched again, towards a receiving shaft near the location of the existing Belmont Pump Station.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station.

Redwood City: Flow from Redwood City would be screened through a new screening facility and, combined with WBSD flow, enter a new tunnel that would flow to the WWTP. The existing Redwood City Pump Station would be abandoned.

San Carlos: Flow from San Carlos would enter the new tunnel via a short pipeline that connects to an access shaft adjacent on Skyway to the existing San Carlos Pump Station site. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

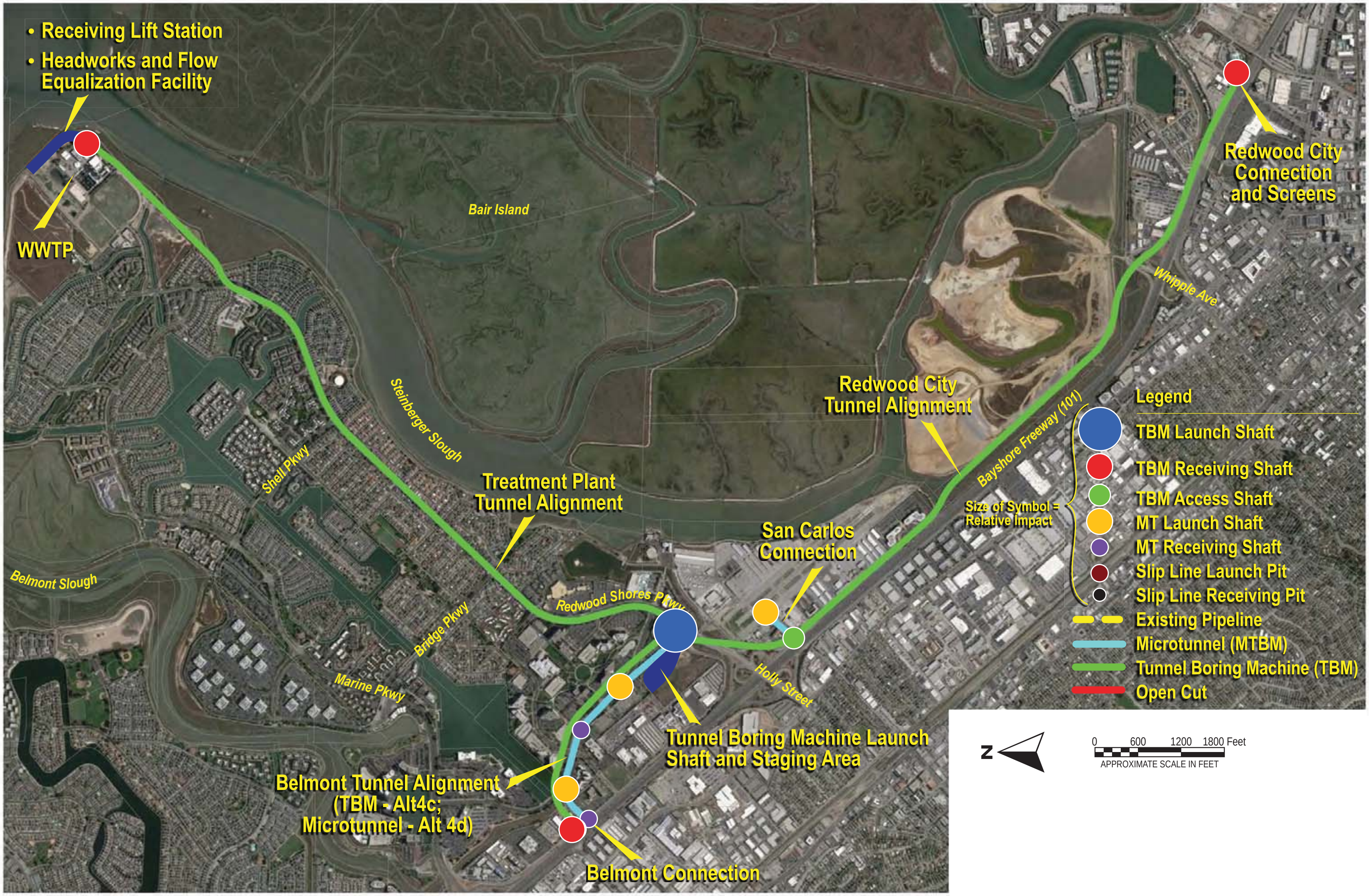
Belmont: Flow from Belmont would enter the new tunnel at an inlet structure constructed in the Belmont TBM Receiving Shaft.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

Alternative 4d:

Tunnel: The tunnel would be constructed using a TBM that is launched at a launch shaft near the San Carlos Airport, travels through deep soil under Redwood Shores Parkway, and terminates at the WWTP site. At the WWTP site, the TBM would be pulled out of the ground, trucked back to the Airport Launch Shaft, and launched again, towards the receiving shaft at the existing Redwood City Pump Station.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station.



MIDDLE OUT TUNNEL TO RCPS

FIGURE 9.3-7

Redwood City: Flow from Redwood City would be screened through a new screening facility and, combined with WBSD flow, enter a new tunnel that would flow to the WWTP. The existing Redwood City Pump Station would be abandoned.

San Carlos: Flow from San Carlos would enter the new tunnel via a short pipeline that connects to an access shaft on Skyway near the existing San Carlos Pump Station site. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques, which would connect the Belmont Pump Station to the Airport Shaft. The existing Belmont Pump Station would be abandoned.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

9.3.7.2 *Reasons Alt. 4c and Alt. 4d rejected from further consideration:*

Alternatives 4c and 4d area variations of the proposed Project, with the primary difference involving the connection between the gravity tunnel and the Belmont Pump Station, which in these alternatives consists of either a new microtunnel or large diameter tunnel between the Belmont Pump Station and Middle Out (Airport Access) shaft, while the proposed Project utilizes a sliplining of the existing force mains between San Carlos and Belmont Pump Stations. Also, Alternatives 4c and 4d include the construction of the tunnel all the way to the Redwood City Pump Station Location, while the proposed Project terminates the tunneling operation on Inner Bair Island. Therefore, Alternatives 4c and 4d involve additional new construction of approximately 12,200 linear feet of underground construction. Alternatives 4C and 4D would eliminate the Belmont Pump Station and Redwood City Pump Station components included in the proposed Project, but it would not eliminate construction activities in those areas.

In addition, Alternatives 4c and 4d Middle Out Tunnel Redwood City Pump Station are similar in many respects to the proposed Project, but have no substantial environmental benefits and would incrementally increase construction impacts associated with either a new microtunnel or large diameter tunnel between the pump station and the Airport Access shaft, and are therefore not environmentally superior, and is rejected from further consideration.

9.3.8 ALTERNATIVE 4DE: Middle Out Tunnel w/Belmont Slip Line

9.3.8.1 *Description of alternative:*

Tunnel: Alternative 4DE entails a variation of the proposed Project's design. The tunnel would be constructed using a TBM that is launched at a launch shaft near the San Carlos Airport, travels through deep soil under Redwood Shores Parkway, and terminates at the WWTP site. At the WWTP site, the TBM would be pulled out of the ground, trucked back to the Airport Launch Shaft, and launched again, towards the receiving shaft at the existing Redwood City Pump Station where it would terminate.

From the San Carlos Pump Station, the flows from San Carlos Pump Station would be connected by a gravity microtunneled connection to a tunnel drop shaft on the San Carlos Pump Station site. The existing force mains would be sliplined from Belmont Pump Station to San Carlos Pump Station. The existing pipeline from Menlo Park Pump Station to Redwood City Pump Station would remain.

Menlo Park: Flow from West Bay Sanitary District would be pumped through a rehabilitated Menlo Park Pump Station into the existing 33-in Force Main to the location of the existing Redwood City Pump Station.

Redwood City: Flow from Redwood City would be screened through a new screening facility and, combined with WBSD flow, enter a new tunnel that would flow to the WWTP. The existing Redwood City Pump Station would be abandoned.

San Carlos: Flow from San Carlos would enter the new tunnel via a short pipeline that connects to an access shaft near the existing San Carlos Pump Station Site. The existing San Carlos Pump Station would be repurposed to provide odor control for the system.

Belmont: Flow from Belmont would be pumped by the rehabilitated pump station through the sliplined 24- and 54-in force mains to the San Carlos Pump Station site where it would connect to the San Carlos flow and enter the tunnel.

WWTP: At the WWTP site, a new RLS would be constructed to lift the flow out of the tunnel. Additionally, a Headworks and Flow Diversion Basin would be constructed at the WWTP site.

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ALTERNATIVE 4DE – MIDDLE OUT TUNNEL WITH BELMONT SLIP LINE

FIGURE 9.3-8

9.3.8.2 *Reasons Alt 4de rejected from further consideration:*

This alternative is a variation of the proposed Project, with the primary difference involving the connection between the San Carlos Pump Station and the Redwood City Pump Station, which in this alternative consists of a new gravity tunnel between the two pump stations, while the proposed Project utilizes the recently constructed 48-inch force main Units 1 and 2 along Inner Bair Island. Therefore, Alternative 4de involves additional new gravity tunnel construction of approximately 8,900 linear feet, which would entail increased construction impacts for air quality and noise. Alternative 4de is similar in many respects to the proposed Project, but has no substantial environmental benefits and would incrementally increase construction impacts associated with increased construction TBM activity associated with a new tunnel between San Carlos Pump Station and Redwood City Pump Station. The additional TBM activity would require significantly more off haul of material, increasing truck trips, and extending the construction schedule. It is therefore not environmentally superior, and is rejected from further consideration.

9.3.9 ALTERNATIVE 6a: Redwood Shores Parkway Open Cut Alignment

9.3.9.1 *Description of alternative:*

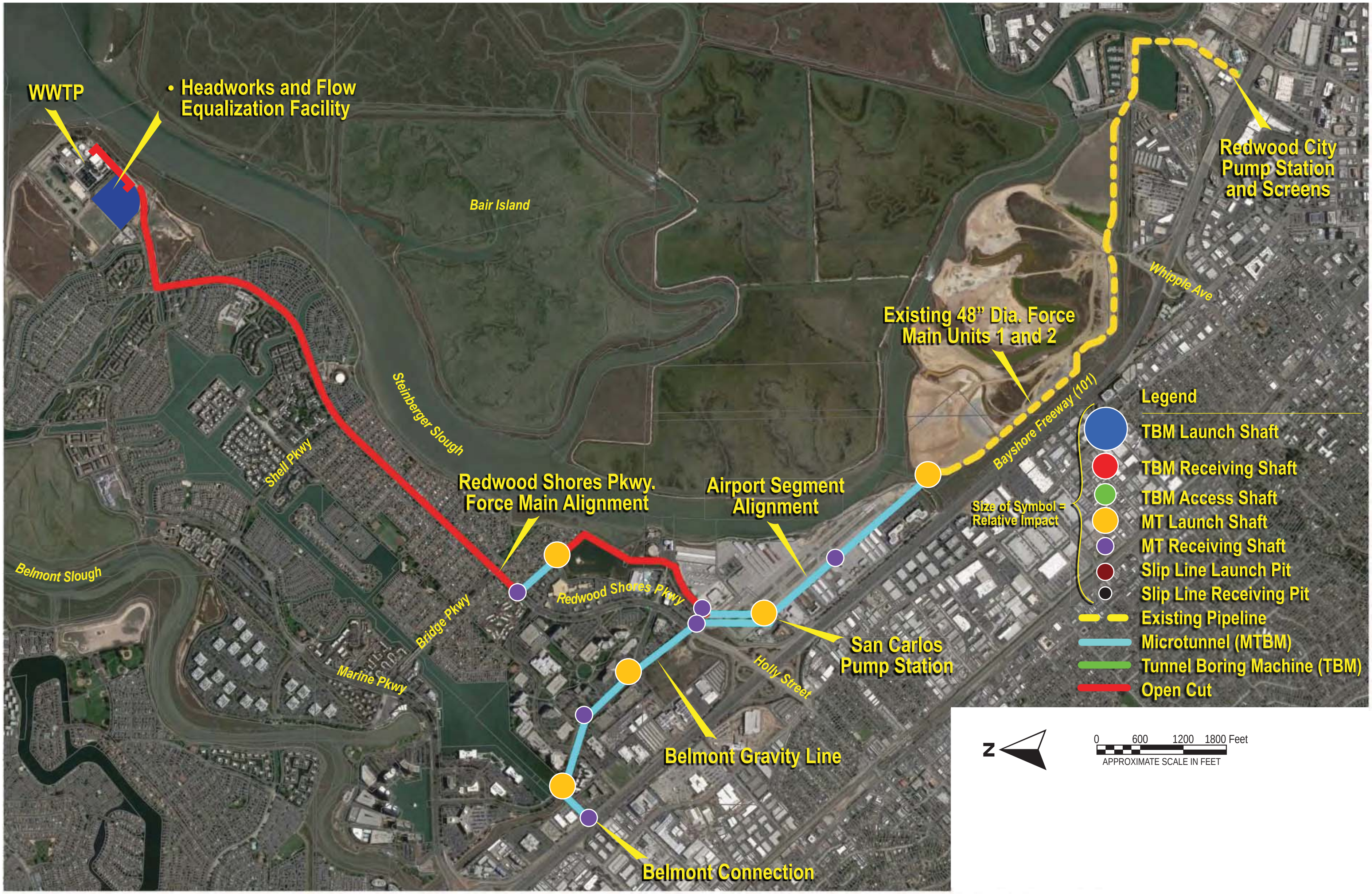
Menlo Park: Flow from West Bay Sanitary District would be pumped through a reconstructed Menlo Park Pump Station into a new 33-in force main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City flows as it enters the existing 48-in force main.

Redwood City: Flows from Redwood City would be pumped through a new Redwood City Pump Station into the existing 48-in force main, combining with the WBSD flow. The existing 48-in force main extends to the northern tip of Inner Bair Island. A new construction project will connect the existing force main to the location of the existing San Carlos Pump Station.

San Carlos: Flows from San Carlos would be pumped through a new San Carlos Pump station into a new 63-in force main, which would carry the flow from all four Member Agencies. The new 63-in force main would be constructed almost primarily in Redwood Shores Parkway using open cut construction methods, except for a few locations that will be microtunneled.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques, and would be pumped into the new 63-in force main by the San Carlos Pump Station.

WWTP: At the WWTP site, a Headworks and Flow Diversion Basin would be constructed at the WWTP site. Without the large Gravity Pipeline for storage, a large earthen basin would be built (11 million gallons) and a much more complex flow diversion facility would need to be constructed at the WWTP site in order to make up for the loss of the storage volume in the Gravity Pipeline component of the proposed Project. The earthen basin would have 12-foot tall berms for walls and would require a couple of feet excavation from the existing elevation. The total area of the basin would be about three acres. This would result in much higher construction impacts for the earthwork-intensive project, and significant operational odor control challenges.



ALTERNATIVE 6A – REDWOOD SHORES PARKWAY OPEN CUT ALIGNMENT

FIGURE 9.3-9

9.3.9.2 *Reasons Alt. 6a rejected from further consideration:*

This alternative would construct a force main pipe by cutting an open trench along Redwood Shores Parkway. As compared to the proposed Project, this would shift substantial construction activity from the Middle Out (Airport Access) launch shaft area to the primary roadway serving the Redwood Shores neighborhood. This shift in construction activity would require that the alternative's substantial amount of excavated soil would be trucked through the Redwood Shores neighborhood using Redwood Shores Parkway. This would result in increased traffic, noise, air quality impacts compared to the proposed Project, and create substantial negative impacts on Redwood Shores residents from open cut trenches on Redwood Shores Parkway.

<u>Receiving and Launch Shafts on Inner Bair Island</u>
As an alternative to the receiving shaft proposed by the Project for Inner Bair Island, Alternative 6a includes a microtunneling launch shaft on Inner Bair Island. Based on observations of activities at the launch shaft for the recently completed 48-inch force main project, a microtunneling *launch* shaft has a much greater footprint in terms of size of construction and staging areas, level of disturbance from noise and dust/debris, and continuous duration of disturbance during project construction compared to a tunnel boring machine *receiving* shaft, as proposed by the Project. This would in turn result in potential effects to schedule and safety. A launch shaft on Inner Bair Island would carry a very likely risk that construction would be required to cease completely between January 15 and May 1 for each year of construction because of the presence of the Clapper Rail, an endangered species know to inhabit this location. Additionally, since completion of the 48 Inch project, the wetlands restoration project spearheaded by the Don Edwards San Francisco USFWS was recently completed which means the larger launch shaft would now be located adjacent to a restored wetland. Lastly a larger launch shaft could require the need to renegotiate the existing right-or-way agreement between the USFWS and SVCW. The current agreement already acknowledges the presence of the future receiving shaft that is included in the preferred alternative.

<u>Tree Removal/Nesting Bird Disturbance along Redwood Shores Parkway</u>
The Monterey Pine trees lining Redwood Shores Parkway offer abundant habitat for birds during the nesting season. Other project alignments would traverse areas with fewer trees. Based on Federal law and the State Fish and Game Code, CEQA documentation and regulatory permits limit construction during the breeding bird season to avoid impacting active nests. These limits require bird surveys and avoidance of active nests from February 15 to August 31 in any given year. Alternatively, vegetation within the alignment can be removed outside of the breeding season and prior to the beginning of Project construction, which would cause a potential scheduling conflict during construction. However, it would be infeasible to completely avoid breeding birds in the trees along Redwood Shores Parkway that are outside the alignment itself but would be close enough to potentially be disturbed during construction for the proposed Project and alternatives that propose surface disturbance along Redwood Shores Parkway.

For these reasons, Alternative 6a Redwood Shores Open Cut Alignment would have substantially increased impacts on the Redwood Shores neighborhoods, and would provide no substantial environmental benefits. Therefore, this alternative is not environmentally superior, and is rejected from further consideration as infeasible.

9.3.10 <u>ALTERNATIVE 6b: Redwood Shores Parkway Multiple Pipe Open Cut Alignment</u>

9.3.10.1 *Description of alternative:*

There is a large difference between Alternatives 6a and 6b in the portion of the alignment between the San Carlos Pump Station and the WWTP. In Alternative 6b, a smaller pipe would be installed by open cut methods down Redwood Shores Parkway and the existing 54-inch force main would be slipped lined. The remainder of Alternatives 6a and 6b are the same.

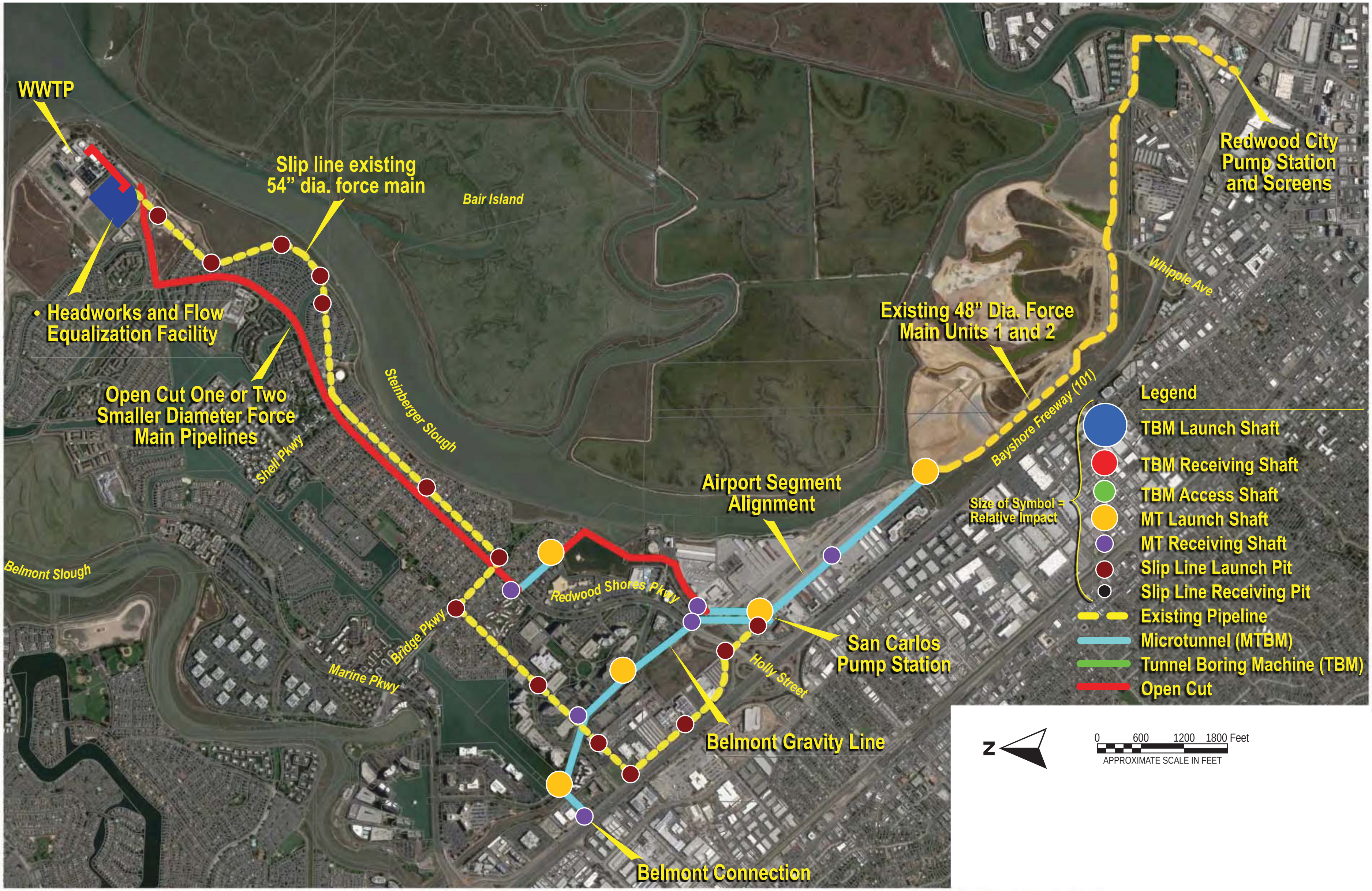
Menlo Park: Flow from West Bay Sanitary District would be pumped through a reconstructed Menlo Park Pump Station into a new 33-in Force Main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City Flows as it enters the existing 48-in Force Main.

Redwood City: Flow from Redwood City would be pumped through a new Redwood City Pump Station into the existing 48-in Force Main, combining with the West Bay Sanitary District flow. The existing 48-in Force Main extends to the northern tip of Inner Bair Island. A new construction project will connect the existing force main to the location of the existing San Carlos Pump Station with a new pipe built with microtunneling technology.

San Carlos: Flow from San Carlos would be pumped through a new San Carlos Pump Station that would pump into two force mains to the WWTP. The first force main would be open cut construction, but a smaller diameter pipeline than would be needed in Alternative 6A. The second force main would be the existing 54-in Force Main, which would be sliplined to prevent leaks. Both force mains would be needed in the event of a wet weather event. During dry weather only one force main would have to be in service.

Belmont: Flow from Belmont would enter a new Gravity Pipeline from Belmont Pump Station to San Carlos Pump Station, constructed using microtunneling techniques. The Belmont flow would be combined with the San Carlos flows and would be pumped into the two Redwood Shores Force Mains by the San Carlos Pump Station.

WWTP: At the WWTP site, a Headworks and Flow Diversion Basin would be constructed. Without the large Gravity Pipeline for storage, a large earthen basin would be built (11 million gallons) and much more complex flow diversion facility would need to be constructed at the WWTP site in order to make up for the loss of the storage volume in the Gravity Pipeline component of the proposed Project. The earthen basin would have 12-foot tall berms for walls and would require a couple of feet excavation from the existing elevation. The total area of the basin would be about three acres. This would result in much higher construction impacts for the earthwork-intensive project, and significant operational odor control challenges.



ALTERNATIVE 6B – REDWOOD SHORES PARKWAY MULTIPLE PIPE OPEN CUT ALIGNMENT

FIGURE 9.3-10

9.3.10.2 *Reasons Alt. 6b rejected from further consideration:*

Alternative 6b would construct a large diameter pipe by cutting an open trench along Redwood Shores Parkway, which would require a shift in the substantial construction activity the Project proposes at the Middle Out (Airport Access) launch shaft to the primary roadway serving the Redwood Shores neighborhood. This shift in construction activity would require that the Project's substantial soil excavation and trucking off-haul activities be run through the Redwood Shores neighborhood using Redwood Shores Parkway. This would result in increased traffic, noise, air quality impacts compared to the proposed Project, and create substantial negative impacts on Redwood Shores residents from open cut trenches on Redwood Shores Parkway.

<u>Receiving and Launch Shafts on Inner Bair Island</u>
Alternative 6b includes a microtunneling retrieval shaft on Inner Bair Island. Based on observations of activities at the launch shaft for the recently completed 48-inch force main project, a microtunneling *launch* shaft has a much greater footprint in terms of size of construction and staging areas, level of disturbance from noise and dust/debris, and continuous duration of disturbance during project construction compared to a tunnel boring machine *receiving* shaft, as proposed by the Project. This would in turn result in potential effects to schedule and safety. A launch shaft on Inner Bair Island carries a very likely risk that construction would be required to cease completely between January 15 and May 1 for each year of construction.

<u>Tree Removal/Nesting Bird Disturbance along Redwood Shores Parkway</u>
The Monterey Pine trees lining Redwood Shores Parkway offer abundant habitat for birds during the nesting season. Other project alignments would traverse areas with fewer trees. Based on Federal law and the State Fish and Game Code, CEQA documentation and regulatory permits limit construction during the breeding bird season to avoid impacting active nests. These limits require bird surveys and avoidance of active nests from February 15 to August 31 in any given year. Alternatively, vegetation within the alignment can be removed outside of the breeding season and prior to the beginning of project construction, which would cause a potential scheduling conflict during construction. However, it would be infeasible to completely avoid breeding birds in the trees along Redwood Shores Parkway that are outside the alignment itself but would be close enough to potentially be disturbed during construction for the proposed Project and alternatives that propose surface disturbance along Redwood Shores Parkway.

For these reasons, Alternative 6b Redwood Shores Parkway Multiple Pipe Open Cut Alignment would have substantially increased impacts on Redwood Shores neighborhood, and would provide no substantial environmental benefits. Therefore, this alternative is not environmentally superior, and is rejected from further consideration as infeasible.

9.3.11 Design alternative To The Proposed Project

The purpose of this alternative is to construct the proposed facilities and improvements at the same location as proposed by the Project, but evaluate whether an alternative design that could potentially be implemented at those same locations would avoid or reduce impacts.

9.3.11.1 *Description of design alternative:*

Aboveground Project Design

Most of the impacts identified in this EIR are primarily the result of construction activity that would adversely affect air quality, biological resources, and noise and vibration in the Project area. The construction activity causing the adverse impacts is related to the underground design of the conveyance system. The nature of the below-ground Gravity Pipeline design requires soil excavation and removal to construct the underground tunnel, which will house the Gravity Pipeline. This results in impacts to air quality (AIR-1, -2), cultural resources (1,2), geology and soils (GEO-1), hazards and hazardous materials (HAZ-1), hydrology and water quality (HYD-1,2), noise and vibration (NOI-1,3), and utilities (UTIL-1) that are mainly a function of the Project's underground design.

To avoid or reduce the impacts related to the Project's underground design, the Project could instead construct an aboveground conveyance system which may reduce ground disturbance and soil excavation during Project construction. This would involve abandoning the existing underground pipeline system in place and constructing the Gravity Pipeline above ground along the right-of-ways in the Project area. The proposed above ground pipeline would reduce the amount of excavation but excavations would still be required for foundations to support the pipeline, and for either raising the pipe to allow access under the pipeline or to bury the pipe to allow access over the pipe at intersections and driveways. The excavation that is causing the impacts, either due to the amount of construction or the depth that construction would reach sensitive areas or resources (e.g. archaeological or water table, and/or encounters issues such as contamination), would be reduced. The pump stations would still need to be deep, because the sewers coming from the Member Agencies are 20 to 30 feet underground, therefore the impacts from excavation and construction at Redwood City Pump Station related to construction toxic air contaminants and potential disturbance of buried cultural resources would remain under this alternative, and the mitigation measures identified for the project to reduce the impacts to acceptable levels would continue to be required. An above ground conveyance system design may, taken as a the whole, incrementally, reduce the following impacts primarily associated with the amount of construction or soil disturbance. although the construction impacts of an above-ground system would be disruptive and would shift the impacts to other locations where the pipeline foundations would be located.

Construction Impacts:

AIR-1: construction criteria pollutants (NOx), resulting from construction activity at all sites
CUL-2: potential for all ground disturbing activities to impact unknown archaeological resources
HAZ-1: potential for all ground disturbing activities to encounter soil/groundwater contamination
HYD-1: potential for all ground disturbing activities to release soil and contaminants into stormwater
HYD-2: potential for dewatering of all ground disturbing activities extending below water table
NOI-1,3: construction noise at all locations

UTIL-1: potential to encounter utilities while excavating at all locations

Operational Impacts:

GEO-1: exposure of equipment below ground to corrosive soils at all sites

The aboveground design would present additional challenge that would compromise achievement of Project Objectives to construct a project with long-term reliable operations, a conveyance system that would presumably reduce the likelihood of spills and discharge of untreated sewage to the surrounding environment, and meet future regulatory requirements imposed by the RWQCB An above ground system would be much less reliable due to vandalism and earthquake risks from exposed pipes. The likelihood of spills would be dramatically increased with exposed above ground pipes relative to the proposed alternative, and could perhaps even worse than the existing aging system. Soils and air are corrosive due to proximity to Bay. So, while the pipes would not be placed in corrosive soils, salt in air would damage exposed above ground foundations and support systems.

9.3.11.2 *Reasons Design Alternative rejected from further consideration:*

The large above-ground pipelines would be visually obtrusive to the surrounding Project area. Locating the pipeline alignment along rights-of-way would visually diminish the existing aesthetic quality of the Project area, which would impact residents in the area. The Design Alternative would result in the need for further land acquisition through private or public areas to accommodate the aboveground pipeline. This would delay Project construction as land acquisitions would need to be determined prior to final Project design.

While the Design Alternative may reduce some of the construction impacts identified in this EIR, it would not be feasible to consider implementing this alternative. Based on the extensive and exhaustive alternatives analysis completed by SVCW, none of the final 15 alternatives proposed an aboveground conveyance system. With a large diameter above ground pipeline, it would be difficult to assure shoreline access and a BCDC permit would be unattainable. An above ground pipeline mostly along the levee would minimize disruption to vehicular access but would have a large impact on pedestrian access to the bay and viewing of the bay. An above ground system would attract vandals including graffiti and leakage from destructive vandalism, and would be more susceptible to earthquake damage since ground movement at or above the surface is greater than 20 to 60 feet below grade. At street intersections, driveways and access locations, the pipeline would either need to be raised up above the height required for access. Additional surface disturbance, both during construction and long term, would likely lead to increased impacts to special status species and their habitats, depending on the selected above ground alignment. An above ground system would require substantial ground improvements to maintain current access to residential areas, commercial areas, and institutional facilities, and could potentially block emergency access to some areas. Therefore, given the immense visual obtrusion and the likely poor reception of an aboveground conveyance system among residents in the project area, the Design Alternative proposed does not have merit to warrant actual consideration. For the reasons stated above, the Design Alternative would not be practical or feasible to consider for implementation and is not be considered for further evaluation.

9.4 ALTERNATIVES CONSIDERED AND EVALUATED FURTHER IN EIR

When assessing feasibility in connection with the alternatives analysis in the EIR, the question is whether the alternative is *potentially* feasible. While it is up to the EIR preparer (i.e. staff, often with consultant support) to identify alternatives as potentially feasible, the decision-making body may or may not reject those alternatives as being infeasible when it comes to Project approval. Like mitigation measures, potentially feasible alternatives are suggestions which may or may not be adopted by the decision-makers. When it comes time to decide on Project approval, the public agency's decision-making body evaluates whether the alternatives are *actually* feasible, taking into account available information in the entire administrative record (i.e. beyond the EIR itself).

The following alternatives are presented in more detail, as they are considered at least potentially feasible, and should be considered as part of the decision-making process for the Project for their ability to reduce or avoid some of the Project's impacts, while achieving some of the basic Project objectives. The following discussion also highlights when an alternative would result in new or increased impacts compared to the project. As noted previously, the alternatives analyzed in this EIR have been developed with the goal of being at least *potentially* feasible, given project objectives and site constraints, while avoiding or reducing the project's identified environmental effects. The ultimate feasibility of the alternatives discussed in this EIR will be determined by the SVCW Commission as it makes a decision concerning the proposed Project, taking into account all information in the administrative record.

9.4.1 <u>NO PROJECT ALTERNATIVE</u>

The CEQA Guidelines [§15126(d)4] require that an EIR discuss specifically a "No Project" alternative, which shall address both "the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the project is not approved, based on current plans and consistent with available infrastructure and community services. Where failure to proceed with the Project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment."

Under the No Project Alternative SVCW would retain the existing system in its current condition, i.e. pipeline infrastructure, pump stations, and wastewater treatment plant, without pursuing improvements as proposed in this EIR. Existing equipment would be maintained and replaced as needed for the foreseeable future.

Comparison of Environmental Impacts

The No Project Alternative may avoid some of the construction impacts disclosed in this EIR associated with the Project, although as discussed below, emergency work or other urgent construction activity is reasonably foreseeable to repair the failing system, which would result in construction-related impacts. When a failure occurs on the pipeline or at a pump station, a contractor is brought on site on an emergency basis to fix the failure. This almost always means digging excavations, and some of the same activities that SVCW would be trying to avoid by choosing the No Project Alternative.

Construction Impacts Avoided:

AIR-1: construction criteria pollutants (NOx), resulting from construction activity at all sites
AIR-2: Redwood City Pump Station construction toxic air contaminants
BIO-1: Bair Island construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-2: Flow Splitter Shaft, Bair Island construction disturbance of CA Ridgeway Rail
BIO-3: Bair Island construction disturbance of Western Burrowing Owl
BIO-4: Tunnel/Access Shafts construction disturbance of nesting birds
BIO-5: WWTP/FoP construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-6: WWTP/FoP construction disturbance of California Ridgeway Rail
BIO-7: WWTP Improvements construction disturbance of nesting birds
BIO-8: Belmont Pump Station construction disturbance of nesting birds
BIO-9: San Carlos Pump Station construction disturbance of nesting birds
BIO-10: Redwood City Pump Station construction disturbance of nesting birds
BIO-11: Menlo Park Pump Station disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-12: Menlo Park Pump Station construction disturbance of California Ridgeway Rail
BIO-13: Menlo Park Pump Station construction disturbance of nesting birds
BIO-14: Tunnel/Access Shafts and Bair Island construction impacts to wetlands
BIO-15: Influent Connector portion of project construction impacts to wetlands
BIO-16: Belmont Pump Station construction impacts to wetlands
BIO-17: Menlo Park Pump Station construction impacts to wetlands
CUL-1: Redwood City Pump Station excavation into identified cultural resources
CUL-2: potential for all ground disturbing activities to impact unknown archaeological resources
HAZ-1: potential for all ground disturbing activities to encounter soil/groundwater contamination
HYD-1: potential for all ground disturbing activities to release soil and contaminants into stormwater
HYD-2: potential for dewatering of all ground disturbing activities extending below water table
NOI-1: construction noise in relation to ambient noise conditions
UTIL-1: potential to encounter utilities while excavating at all locations

The No Project Alternative may avoid some of the short-term, construction-related impacts associated with the Project, including air quality and noise impacts from construction activities, impacts to special status species, potential excavation effects on buried cultural resources, waterway crossing, construction noise and vibration, and temporary utility services disruptions to residents. Some of these impacts may be avoided by the No Project Alternative, however,some impacts would be replaced with other construction impacts such as increased frequency of repairs and emergency repairs.

Operational Impacts Avoided:

The No Project Alternative would avoid the operational noise impacts disclosed in this EIR associated with the project:

NOI-2: WWTP, San Carlos and Redwood City Pump Station ongoing operational noise impacts on surrounding uses

However, as noted above, there are likely to be emergency operations that require generators due to existing pump station failures and when pump station repairs require construction activity. Additionally, the No Project Alternative would not avoid or substantially reduce the following two operational impacts as the current, aging system presents these same issues as long as it remains in operation:

GEO-1: exposure of equipment below ground to corrosive soils at all sites (not avoided, as existing pipes faces this now)

AIR-3: ongoing potential for odors from operations at the WWTP and all four pump stations

Additional Environmental Implications:

As described in **Section 3.0 Project Description**, the existing wastewater conveyance system is in varying states of condition, ranging from poor to very poor. In most instances, equipment is at the end of its useful life and the condition has degraded to the extent that the system requires extensive maintenance to ensure functionality and reliability. The 40-year old concrete force main's condition is poor, with a history of joint leaks caused by unstable young bay mud soil conditions. The pipelines leak frequently, with SVCW frequently experiencing two or three leaks a year.

Without Project implementation, the state of the existing wastewater conveyance system is expected to further deteriorate, with increased frequency of pipeline failure and a high probability of a catastrophic leak that could reach waters of the State. The current conveyance system experiences recurring minor leaks due to settlement of the pipe. Given the accelerated deterioration of the existing 54-inch force main, it is probable that minor uncontrolled discharges (leaks), or major damage could occur. A major leak could be caused by a break in the force main. A break or rupture could be caused by a power failure at a pumping plant, a natural disaster (i.e. earthquake), or collapse of the pipe wall due to the deterioration of the wall thickness and differential settlement of the pipe. Major damage to the 54-inch force main could lead to an uncontrolled discharge, similar to the unpermitted release that occurred in August 2002. This 2002 dry weather flow event discharged approximately 160,000 gallons. If such an event occurred during peak wet weather flow, the discharged volume could be as great as 260,000 gallons. The potential fines issued by the RWQCB could be between $1,600,000 and $2,600,000, based on $10/gallon spilled.

If SVCW were to choose the No Project Alternative, choosing instead to perform more frequent maintenance and to fix leaks when they occur, any failures that result in environmental damage would result in significant fines from regulatory agencies. The SVCW NPDES permit requires that SVCW maintain, repair and replace infrastructure as required for the ***reliable*** transportation and treatment of wastewater. Because a "more maintenance" option is not a functionally effective solution for various failures under wet weather conditions, choosing a "no project option" in itself would represent cause for additional fines once those failures occurred. Failing to satisfy other regulatory permit requirements placed on SVCW, including air quality, odor control and safety requirements may result in fines, as violations would be more frequent with failing infrastructure. In addition to the potential fine leveed by the RWQCB, SVCW could have to defend civil lawsuits and suits filed by non-governmental organizations.

The ongoing maintenance and replacement of the existing equipment would require occasional construction impacts, as at times emergency repairs would have significant night time impacts and pose significant public health risks near neighborhood alignments. When a failure occurs on the pipeline or at a pump station, a contractor is brought on site on an emergency basis to fix the failure. This almost always means digging excavations, and some of the same activities that SVCW would be trying to avoid by choosing the No Project alternative. The emergency work may require noisy work 24-hours, and may need to occur during bird nesting season. So, while the No Project alternative construction impacts, taken as a whole, would probably be less than construction the proposed new conveyance system, the emergency work likely to occur on occasion with the No Project alternative would at times have impacts that approach and perhaps exceed that of the proposed Project due to the need to abate an emergency.

A significant section of the existing force main is located in the residential area of the Redwood Shores neighborhood and in young bay mud. If a major release occurred in this section of the force main, the public's exposure to these health risks would require displacing residents for the duration of the clean up and repair operations, which could take several weeks, or even months. Significant failures under wet weather scenarios, within the narrowest alignments of the Redwood Shores neighborhood, could result in damage significant enough that repairs would involve entire residential structures needing to be replaced after repairs were completed on the force main.

The Flow Equalization Facility (FEF) is currently being utilized for storage of wastewater in wet weather periods or other periods whereby the sewage needs to be diverted to accommodate treatment plant or conveyance system operations and maintenance. Based on SVCW's and the Member Agencies' influent flow projections, flows will increase over the next seven to nine years. Currently in high 'King' tide or in storm conditions, the San Francisco Bay is within inches of overtopping the levee surrounding the FEF, and it is possible that an overtopping of the FEF could occur if conditions line up with King tides and a storm should occur simultaneously. Given the proximity to the San Francisco Bay and adjacent wetland, an uncontrolled discharge caused by overflow or levee failure (caused by a natural hazard), poses an environmental risk. Containment and clean-up of the spill would be highly difficult and costly and have significant construction impacts.

Relationship to Project Objectives

The No Project Alternative would not achieve any of the Project's objectives as it:

1. Would **not** replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions.
2. Would **not** reduce the likelihood of spills and discharges of untreated sewage to the surrounding environment, which has occurred numerous times with the existing 45 year old concrete sewer force main that operates above its design pressure.
3. Would **not** implement a project that minimizes adverse environmental effects, disruption to public and private property owners, utility interference and disruption during construction, and short- and long-term cost.
4. Would **not** meet future regulatory requirements imposed by the RWQCB for nutrients discharged into the San Francisco Bay.

Conclusion: Despite avoiding some of the impacts related to construction of the specific Project components and some related to system operations disclosed in this EIR, the No Project Alternative would fail to achieve any and all of the stated objectives of the Project proponent. The existing baseline conditions would continue to deteriorate, which would jeopardize the health and safety of residents in the Project area from failing to address the deteriorating infrastructure. The likely future emergency repairs for the failing infrastructure would result in impacts not discussed in this EIR, the extent of which would be relative to the magnitude of the emergency and the location of the damage to the conveyance system. There is also the high likelihood that more system failures (leaks, valve failures, pump failures, etc.) could result in sewage spills to the bay which would result in significant fines which could eventually result in a cease and desist order from the Regional Water Quality Control Board requiring the cessation of building permit issuance for SVCW's Member Agencies. Therefore, the No Project Alternative is not environmentally superior to the proposed Project.

9.4.2 LOCATION ALTERNATIVES

The purpose of a location alternative is to identify whether placing the proposed Project elsewhere would reduce or avoid impacts by virtue of locating the Project in a different, less environmentally sensitive setting. Therefore, the discussion below evaluates the environmental effects and potential feasibility of constructing and operating the proposed conveyance system in two alternate alignments or configurations. The first alternative would construct a smaller tunnel in roughly the same alignment as the Project and adjust the location of construction activity. The second alternative would expand the Flow Equalization Facility (FEF) in Menlo Park and construct a new FEF pump station, and a new pipeline from Menlo Park Pump Station to the FEF, thereby shifting the location of significant Project construction activity compared to the proposed Project.

There is no rule requiring an EIR to explore off-site project alternatives in every case. As stated in the Guidelines: "An EIR shall describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives of the Project but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." (Guidelines, § 15126.6, subd. (a), italics added.) As this implies, "an agency may evaluate on-site alternatives, off-site alternatives, or both." (*Mira Mar, supra*, 119 Cal.App.4th at p. 491.) The Guidelines thus do not require analysis of off-site alternatives in every case.

In considering an alternative location in an EIR, the CEQA Guidelines advise that the key question is "whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location".[30] The proposed Project is the replacement of an existing wastewater conveyance system that provides service to residents of Redwood City, Belmont, San Carlos, and the WBSD service area.

[30] CEQA Guidelines Section 15126.6(f)(2)(A)

Impacts not addressed by location alternative:

The following impacts are not attributable to the specific location of planned system components and therefore are not addressed through a location alternative. These impacts disclosed in this EIR related to regional air quality, cultural resources, geology, hazards and hazardous materials, hydrology and water quality, and utility resources are primarily standard measures that would be recommended for the proposed Project, regardless of the location of the Project components. It is therefore, not meaningful to consider relocating Project components to avoid these impacts.

AIR-1: construction criteria pollutants (NOx), resulting from construction activity at all sites. This impact is not related to location, but rather the amount of construction criteria pollutants is due to the Project's scale and magnitude of construction activity, primarily excavation, and not location. Accordingly, this impact is addressed in other alternatives, including Design Alternative, No Project Alternative, and Reduced Scale/Component Alternative.

HAZ-1: potential for all ground disturbing activities to encounter soil/groundwater contamination

HYD-1: potential for all ground disturbing activities to release soil and contaminants into stormwater

HYD-2: potential for dewatering of all ground disturbing activities extending below water table

UTIL-1: potential to encounter utilities while excavating at all locations

GEO-1: exposure of equipment below ground to corrosive soils at all sites, any placement of equipment given soils)

AIR-3: ongoing potential for odors from operations at the WWTP and all four pump stations

Location specific impacts:

The following impacts are attributable to the specific location of planned system components and therefore can potentially be addressed through a location alternative.

<u>Bair Island:</u>
BIO-1: Bair Island construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-2: Bair Island construction disturbance of CA Ridgeway Rail
BIO-3: Bair Island construction disturbance of Western Burrowing Owl
BIO-14: Bair Island construction impacts to wetlands

<u>WWTP/Front of Plant:</u>
BIO-2: Flow Splitter Shaft construction disturbance of CA Ridgeway Rail
BIO-5: WWTP/FoP construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-6: WWTP/FoP construction disturbance of California Ridgeway Rail
BIO-7: WWTP Improvements construction disturbance of nesting birds
BIO-15: Influent Connector portion of project construction impacts to wetlands
NOI-2: WWTP ongoing operational noise impacts on surrounding uses

Tunnel/Access Shafts:
BIO-4: Tunnel/Access Shafts construction disturbance of nesting birds
BIO-14: Tunnel/Access Shafts construction impacts to wetlands

Menlo Park Pump Station:
BIO-2: construction disturbance of CA Ridgeway Rail
BIO-11: Menlo Park Pump Station disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-12: Menlo Park Pump Station construction disturbance of California Ridgeway Rail
BIO-13: Menlo Park Pump Station construction disturbance of nesting birds
BIO-17: Menlo Park Pump Station construction impacts to wetlands

Redwood City Pump Station:
AIR-2: Redwood City Pump Station construction toxic air contaminants
BIO-10: Redwood City Pump Station construction disturbance of nesting birds
CUL-1: Redwood City Pump Station excavation into identified cultural resources
NOI-2: Redwood City Pump Station ongoing operational noise impacts on surrounding uses

Belmont Pump Station:
BIO-8: Belmont Pump Station construction disturbance of nesting birds
BIO-16: Belmont Pump Station construction impacts to wetlands

San Carlos Pump Station:
BIO-9: San Carlos Pump Station construction disturbance of nesting birds
NOI-2: San Carlos Pump Station ongoing operational noise impacts on surrounding uses

Construction Impacts at all locations:

The following impacts are present at all planned locations and could potentially be addressed by an alternative relocating one or more of the system components.

CUL-2: potential for all ground disturbing activities to impact unknown archaeological resources

NOI-1: construction noise in relation to ambient noise conditions

Impacts potentially reduced/avoided by location alternative:

The purpose of a location alternative is to relocate conveyance system components to avoid impacts that are a result of the planned location. Given the identified location of Project impacts above, the location alternatives would attempt to reduce the following impacts:

Construction Impacts

AIR-2: Redwood City Pump Station construction toxic air contaminants

BIO-1 through BIO-22 in some combination, depending upon component locations

CUL-1: Redwood City Pump Station excavation into identified cultural resources. (It should be noted this impact is limited to less than 2,000 sq.ft. of area needing monitoring, and is a limited impact that can be monitored in one day, so there is minimal value for good decision-making purposes in a location alternative avoiding this impact)

NOI-1: construction noise in relation to ambient noise conditions

<u>Operational Impacts</u>

NOI-2: WWTP/FoP, San Carlos Pump Station, Redwood City Pump Station ongoing operational noise impacts on surrounding uses.

The noise impacts (NOI-2) related to operational noise at the WWTP, San Carlos Pump Station, and Redwood City Pump Station were identified as occurring from regular operations at these facilities. The noise-generating operational activities would be mostly located within the proposed WWTP buildings and through incorporation of **MM NOI-2**, would reduce potential noise impacts to a less than significant level. The position of the odor control fans within the San Carlos Pump Station would reduce the likelihood of exposing patrons of the adjacent Fairfield Inn and Suites to noise in excess of City standards. If the fans were to be located elsewhere on site (i.e. roof), the fans would exceed the daytime and nighttime ambient noise levels.

Among the impacts that could potentially be reduced or avoided by relocating system components, several are relatively routine and not a high priority to address, for the following reasons.

As discussed in the Biological Resources section of this EIR, none of the tree removals are significant, so it is not a priority to design alternatives around those. All biological resources impacts related to tree removal at the site locations (Airport Access Shaft, Belmont Pump Station, San Carlos Pump Station, Menlo Park Pump Station and WWTP) would result in the removal of non-native, ornamental species that are considered invasive species to the area. Avoidance of the removal of these trees would not result in a meaningful alternative.

Nesting bird surveys are also routine, so not a priority to design around those specifically by identifying sites without trees.

Therefore, the primary focus for a location alternative is avoiding construction and operational noise, construction toxic air contaminants, and special status species biological impacts. This could involve moving the following components:

- Moving WWTP/FoP improvements to avoid biological impacts, and construction and operational noise impacts
- Moving tunnel launch, receiving and access shafts to avoid biological impacts, and construction noise impacts
- Moving Menlo Park Pump Station functions to avoid biological impacts, and construction noise impacts

- Moving Redwood City Pump Station functions to avoid TACs, biological impacts, and construction and operational noise impacts
- Moving Belmont Pump Station functions to avoid biological impacts, and construction noise impacts
- Moving San Carlos Pump Station functions to avoid construction and operational noise impacts

Given the physical reality of the WWTP existing location, it is most meaningful to consider relocating specific Project components that convey wastewater to the WWTP that would result in the greatest reduction of impacts. Proposed improvements to the WWTP would occur in the 10-acre ornamental pond in front of the WWTP that would be drained at the time of Project construction. Construction activities at this location would result in biological impacts BIO-2, 5, 6, and 7, all of which are related to the potential mortality and/or harassment of Federal and State endangered species. As described in *Section 3.1.2*, SVCW had explored several land development options to locate the required WWTP improvements and only the ten-acre ornamental pond southwest of the existing WWTP offers the acreage needed for the required improvements. Biological impacts related to construction activities at the WWTP in the ornamental pond area would be avoided if the WWTP proposed improvements were located elsewhere, however, as stated above, the geographic availability for land to accommodate these improvements as well as the engineering logistics (additional pump stations and pipelines) of locating such equipment away from the WWTP, make this not feasible. The mitigation developed for the Project and described in this EIR would reduce the impacts at the WWTP to a less than significant level, and therefore, an alternative location for these system components is not considered further.

Biological resource impacts to Bair Island would occur during Project construction of the inlet structure. These impacts include BIO-1, -2, -3, -14 which relate to the mortality and/or harassment of Federal and State Endangered species, loss of potential habitat for burrowing owls during construction staging, and potential fill or discharge into wetlands or non-wetland waters. Given that the 48-inch force main pipe project was recently completed, it would not be reasonable to consider relocating the proposed functions of Inner Bair Island to reduce impacts to biological resources. The mitigation measures proposed for this current Project are consistent with those implemented successfully for the 48-in force main project, resulting in successful Project completion while completely avoiding biological impacts. The mitigation developed for the project and described in this EIR would reduce the impacts at the Bair Island site to a less than significant level, and therefore, an alternative location for these system components is not considered further.

Given the discussion above of the Project's environmental impacts that could reasonably be reduced or avoided by relocation various components to alternate locations, two Location Alternatives are discussed among the final five alternatives that SVCW developed and subjected to refined scoring. Given both alternatives were among the five finalists, based on a number of scoring criteria, they are at least potentially feasible for detailed consideration in this EIR given their ability to reduce or avoid impacts while achieving most Project objectives.

9.4.2.1 *LOCATION ALTERNATIVE "5 MICROTUNNEL BORING MACHINE REDWOOD SHORES PARKWAY"*

Description of alternative:

This alternative would employ a microtunnel (i.e. smaller diameter) pipeline in roughly the same alignment under Redwood Shores Parkway as the proposed Project, yet the smaller tunnel with more frequent shafts would require less tunnel soil excavation but increased related construction activity on Redwood Shores Parkway compared to the larger diameter tunnel the Project proposes. The modified components are as follows:

Alternative 5 consists of using microtunneling technology to replace all original force mains between Inner Bair Island, Belmont Pump Station and San Carlos Pump Station and the WWTP. The new 63-in force main would be constructed almost primarily in Redwood Shores Parkway using microtunneling boring machines, with jacking shafts and receiving shafts constructed approximately every 1,000 to 1,200 feet.

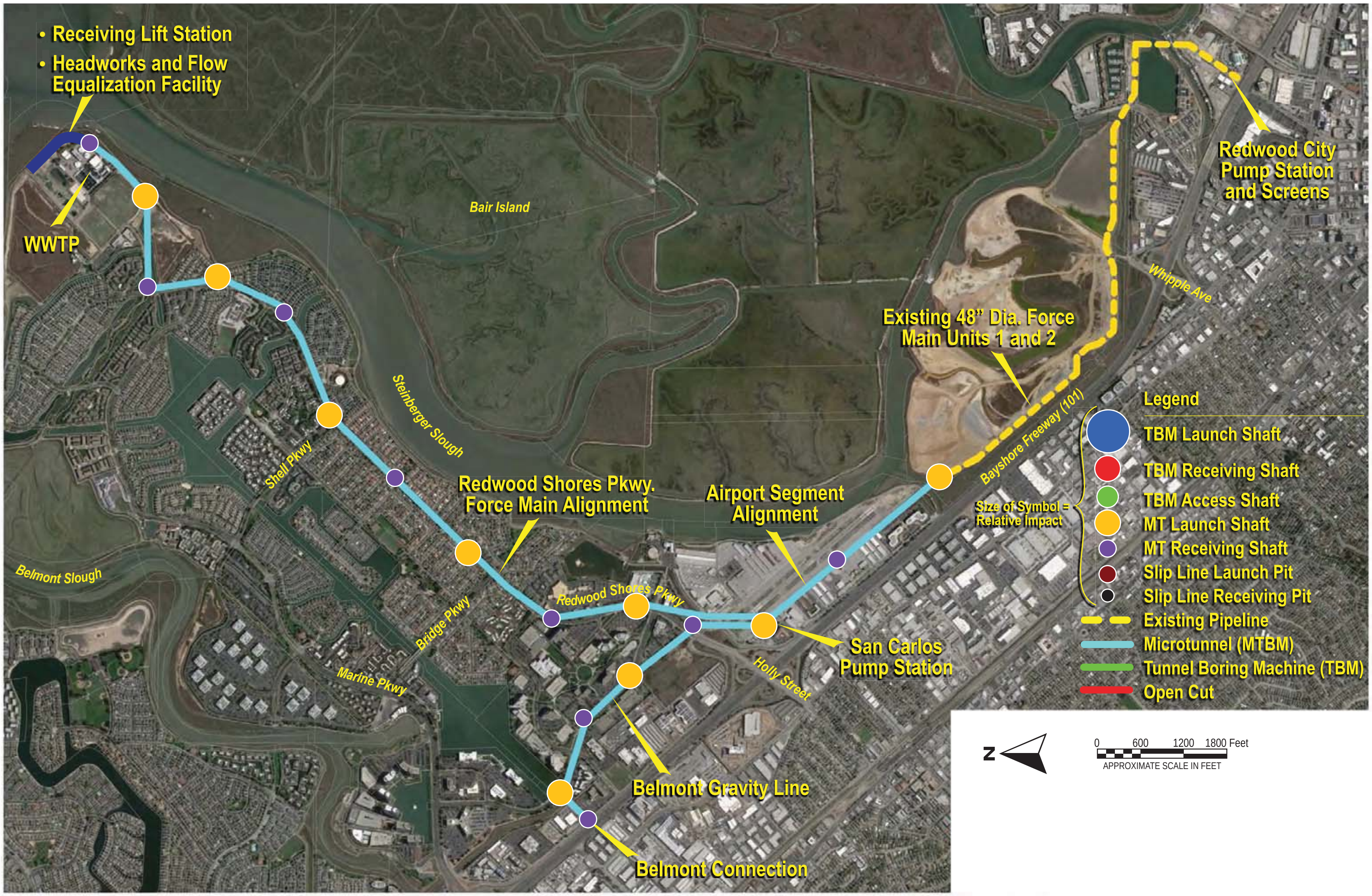
Menlo Park: Flow from WBSD would be pumped through a reconstructed Menlo Park Pump Station into a new 33-in Force Main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City Flows as it enters the existing 48-in force main.

Redwood City: Flows from Redwood City would be pumped through a new Redwood City Pump Station into the existing 48-in force main, combining with the WBSD flow. The existing 48-in force main extends to the northern tip of Inner Bair Island. A new construction project will connect the existing force main to the location of the existing San Carlos Pump Station.

San Carlos: Flows from San Carlos would be pumped through a new San Carlos Pump station into a new 63-in force main, which would carry the flow from all four Member Agencies.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques from the Belmont Pump Station to the San Carlos Pump Station, and would be pumped into the new 63-in force main by the San Carlos Pump Station.

WWTP: At the WWTP site, a Headworks and Flow Diversion Basin would be constructed. Without the large Gravity Pipeline for storage, a large earthen basin would be built (11 million gallons) and much more complex flow diversion facility would need to be constructed at the WWTP site in order to make up for the loss of the storage volume in the Gravity Pipeline component of the proposed Project. The earthen basin would have 12-foot tall berms for walls and would require a couple of feet excavation from the existing elevation. The total area of the basin would be about three acres. The FDS would remain the same size at 3 million gallons. This would result in much higher construction impacts for the earthwork-intensive project, and significant operational odor control challenges.



ALTERNATIVE 5 – REDWOOD SHORES PARKWAY MICROTUNNEL ALIGNMENT

FIGURE 9.4-1

Comparison of Environmental Impacts

This alternative would replace the Airport Access Tunnel launch shaft with a series of microtunnel launch and receiving shafts on Redwood Shores Parkway, as well as near the Belmont Pump Station and San Carlos Pump Station sites. By replacing the Airport Access launch shaft with a series of dispersed microtunnel shafts, this alternative would substantially reduce the construction activity required by the Project at the proposed access shafts, thereby reducing the biological impacts and construction noise impacts at the Airport Access shaft, but relocating those impacts to the series of microtunnel launch and receiving shafts, particularly on Redwood Shores Parkway. Additionally, this alternative would not require the RLS at the WWTP/Front of Plant, so would entail fewer impacts associated with that Project component, but the Flow Diversion Facility would need to be much larger and much more complex in this location. The benefits of removing the RLS would be countered by the additional impacts from building a large Flow Diversion Basin.

This alternative would **not** move the Menlo Park Pump Station functions to avoid biological impacts, and construction noise impacts.

This alternative would **not** move the Redwood City Pump Station functions to avoid toxic air contaminant health risk effects, biological impacts, and construction and operational noise impacts.

This alternative would employ microtunneling rather than sliplining the existing pipeline connecting the Belmont Pump Station, which would not avoid biological impacts, and construction noise impacts.

This alternative would employ microtunneling rather than a larger tunnel construction process to connect the San Carlos Pump Station functions, which would not avoid construction and operational noise impacts.

Construction Impacts:

Alternative 5 would involve microtunneling new pipelines which would involve less soil excavation and off-haul than constructing the proposed large diameter gravity tunnel, thereby reducing construction equipment and trucking noise impacts in general, i.e. Impact NOI-1,3 (construction noise at and near the Airport Access Shaft site). Alternative 5 excavates 125,997 cubic yards of material, about 25% less than the proposed Project which excavates 167,206 cubic yards. However, this alternative would involve substantial construction activity at a series of microtunnel launch and receiving shafts along the length of Redwood Shores Parkway including slurry recovery plants and pile driving next to the back yards of homes, while the Project would not impact any portions of Redwood Shores Parkway. Alternative 5 would require approximately 42 trucks per day through the Redwood Shores residential area for 16 months, and would entail eight trenching shafts or pits in residential areas for 18 months, and 14 trenching shafts or pits in commercial areas for 1 year.

Alternative 5 would not alter planned improvements at the Redwood City Pump Station, and therefore, Impact AIR-2 (Redwood City Pump Station construction toxic air contaminants) would not be reduced or avoided, nor would Impact CUL-1 (Redwood City Pump Station excavation into identified cultural resources.) It should be noted this cultural impact is limited to less than 2,000 sq.ft. of area needing monitoring, and is a limited impact that can be monitored in one day, so there is minimal value for good decision-making purposes in a location alternative avoiding this impact.

Biological Implications:

Alternative 5 would involve the following biological impacts:

- Surface disturbance in the WWTP/Front of the Plant with potential impacts to SMHM and SMWS
- Disturbance on Inner Bair Island
- Surface disturbance in designated BCDC public access areas
- Tree removal/nesting bird disturbance along Redwood Shores Parkway
- Work in or adjacent to potential salt marsh harvest mouse and/or Ridgway's rail habitat

Receiving and Launch Shafts on Inner Bair Island

As an alternative to the launch shaft proposed by the Project for Inner Bair Island, Alternative 5 includes a microtunneling launch shaft on Inner Bair Island. Based on observations of activities at the launch shaft for the recently completed 48-inch force main project, a microtuneling *launch* shaft has a much greater footprint in terms of size of construction and staging areas, level of disturbance from noise and dust/debris, and continuous duration of disturbance during project construction compared to a Tunnel Boring Machine *receiving* shaft, as proposed by the Project. This would in turn result in potential effects to schedule and safety. A launch shaft on Inner Bair Island carries a very likely risk that construction would be required to cease completely between January 15 and May 1 for each year of construction due to construction disturbance impacts on CRR, SMHM and SMWS.

Tree removal/Nesting Bird Disturbance along Redwood Shores Parkway

The Monterey Pine trees lining Redwood Shores Parkway offer abundant habitat for birds during the nesting season. Based on Federal law and the State Fish and Game Code, CEQA documentation and regulatory permits limit construction during the breeding bird season to avoid impacting active nests. These limits require bird surveys and avoidance of active nests from February 15 to August 31 in any given year. Alternatively, vegetation within the alignment can be removed outside of the breeding season and prior to the beginning of Project construction, which would cause a potential scheduling conflict during construction. However, it would be infeasible to completely avoid breeding birds in the trees along Redwood Shores Parkway that are outside the alignment itself but would be close enough to potentially be disturbed during construction for the proposed Project and alternatives that propose surface disturbance along Redwood Shores Parkway.

Operational Impacts:

The proposed Project's noise impacts (NOI-2) related to operational noise at the WWTP, San Carlos Pump Station, and Redwood City Pump Station were identified as occurring from regular operations at these facilities. The noise-generating operational activities would be mostly located within the proposed WWTP buildings and through incorporation of **MM NOI-2**, would reduce potential noise impacts to a less than significant level. The position of the odor control fans within the San Carlos Pump Station would reduce the likelihood of exposing patrons of the adjacent Fairfield Inn and

Suites to noise in excess of City standards. Alternative 5 would present the same noise impacts from ongoing operations at the WWTP, San Carlos Pump Station, and Redwood City Pump Station, and require the same mitigation.

The change from a Gravity Pipeline to a force main involves operational impacts. Wastewater in a gravity pipe flows to the treatment plant and then is pumped up to the plant elevation for treatment. With a force main, wastewater is pumped at higher pressure through a smaller pipe and does not need pumping at the downstream end upon reaching the plant. Therefore, as part of Alternative 5 employing a force main, pumps would need to be higher head pumps compared to the pumps required for the proposed Project, which has pumps just pumping to the Gravity Pipeline, then the RLS lifts the sewage to the treatment plant. Accordingly, Alternative 5 would require increased operational energy due to pumping wastewater in a force main compared to the proposed Project Gravity Pipeline.

Additional Environmental Implications:

Locating a slip line shaft on the San Carlos Airport taxiway would significantly disrupt airport operations and for that reason would likely not be approved by the airport operations staff, nor the County (airport owner) nor the FAA (airport regulator).

Relationship to Project Objectives

Alternative 5 substantially meets all of the Project objectives, except for Objective 3: *Implement a project that minimizes adverse environmental effects, disruption to public and private property owners, utility interference and disruption during construction, and short- and long-term cost.* It has significantly more disruption to the public along Redwood Shores Parkway including greater construction traffic impacts, including lane closures that will impact local businesses and traffic near schools within Redwood Shores than the proposed Project.

Conclusion: Alternative 5 is not environmentally superior to the proposed Project, although it avoids or reduces the Project's impacts at a number of locations in commercial areas near the freeway by shifting those impacts to residential areas by constructing system components at new locations, in particular resulting in increased impacts to the residents than travel on or live by Redwood Shores Parkway.

9.4.2.2 *LOCATION ALTERNATIVE "7 REMOTE FLOW EQUALIZATION FACILITY AND SLIPLINE FROM WWTP TO INNER BAIR ISLAND"*

Description of alternative:

This alternative would expand the Flow Equalization Facility (FEF) in Menlo Park and construct a new FEF pump station, and a new pipeline from Menlo Park Pump Station to the FEF. The FEF is used currently for wet weather storage of the WBSD flows and it would continue to be used while the aging pipeline is in service and construction of the conveyance system improvements continues. There is currently no equalization structure at the SVCW facility on Radio Road. There is, however, an existing FEF utilized by SVCW and owned by the WBSD and located at an out-of-commission wastewater treatment plant that is adjacent to Bedwell Bayfront Park in the City of Menlo Park, refer to Figure 2.1-7 in the Project Description. During wet weather, flow would be pumped from the Menlo Park Pump Station to the FEF. This wet weather flow would be pumped through a new FEF pipeline into the rehabilitated FEF.

Menlo Park: Flow from WBSD would be pumped through a rehabilitated Menlo Park Pump Station into a new 33-in force main to the location of the existing Redwood City Pump Station, where it would be combined with Redwood City flows as it enters the existing 48-in force main. A new pump station at the FEF site would need to be constructed to pump the water out of the FEF back to the Menlo Park Pump Station once the wet weather subsided. In order to build the new 33-in force main, an above-ground bypass pipe would need to be installed to carry the flow temporarily, the old force main would be demolished, and the new force main would be installed in its place. This remote facility would need extensive improvements and permitting in a sensitive area.

Redwood City: Flow from Redwood City would be pumped through a new Redwood City Pump Station into the existing 48-in force main, combining with the WBSD flow. The existing 48-in force main extends to the northern tip of Inner Bair Island. A new construction project will slipline the remainder of the existing 48-in force main (to San Carlos Pump Station). In order to slipline this force main, an above-ground bypass pipe would need to be installed to carry the flow temporarily.

San Carlos: Flow from San Carlos would be pumped through a new San Carlos Pump Station that would pump into the existing 54-in force main, which would be sliplined to prevent leaks. In order to slipline the 54-in force main, an above-ground bypass pipe would need to be installed to carry the flow. This above-ground bypass pipe would be constructed adjacent to or on top of the Redwood Shores Levee.

Belmont: Flow from Belmont would enter a new Gravity Pipeline, constructed using microtunneling techniques, and would be pumped to the San Carlos Pump Station. It would combine with the San Carlos flow and be pumped into the sliplined 54-inch force main at the San Carlos Pump Station.

WWTP: At the WWTP site a Headworks would be constructed.

ALTERNATIVE 7 – REMOTE FEF FIGURE 9.4-2

Comparison of Environmental Impacts

Construction Impacts:

Alternative 7 would eliminate the tunnel launch shaft near Airport Way, the receiving shafts at the WWTP and Inner Bair Island, and the access shaft at the San Carlos Pump Station site and thereby avoid biological impacts, and construction noise impacts associated with the shafts.

Alternative 7 would **not** move Menlo Park Pump Station functions to avoid biological impacts, and construction noise impacts.

Alternative 7 would **not** move Redwood City Pump Station functions to avoid construction toxic air contaminants, biological impacts, and construction and operational noise impacts. This alternative would not avoid Impact CUL-1: Redwood City Pump Station excavation into identified cultural resources. It should be noted this impact is limited to less than 2,000 sq.ft. of area needing monitoring, and is a limited impact that can be monitored in one day, so there is minimal value for good decision-making purposes in a location alternative avoiding this impact.

Alternative 7 would employ microtunneling rather than sliplining the existing pipeline connecting the Belmont Pump Station, which would not avoid biological impacts, and would increase construction noise impacts.

Alternative 7 would employ sliplining the existing pipeline rather than a larger tunnel boring machine construction process to connect the San Carlos Pump Station functions to the existing 48” HDPE pipeline in Bair Island, which would reduce construction noise impacts at the Airport launch shaft while increasing noise impacts at the slip-lining shafts.

<u>Construction Disturbance on Inner Bair Island</u>
As an alternative to the receiving and launch shafts proposed by the Project for Inner Bair Island, Alternative 7 conveys Redwood City flows via 48-inch Units 1 and 2 by sliplining the remaining original 48-inch from San Carlos Pump Station to Inner Bair Island. A slipline launch pit has a much smaller footprint in terms of size of construction and staging areas, level of disturbance from noise and dust/debris, and continuous duration of disturbance during Project construction compared to a tunnel boring machine receiving shaft, as proposed by the Project. However, more shafts are needed for sliplining than for the tunnel. The sliplining shafts would need to be in the Airport operations area which would have significant negative impacts on airport operations requiring airport night time closures or possibly cause the Project to not be approved by the three agencies involved in approving the work.

<u>Tree Removal/Nesting Bird Disturbance along Redwood Shores Parkway</u>
The Monterey Pine trees lining Redwood Shores Parkway offer abundant habitat for birds during the nesting season. Other project alignments would traverse areas with fewer trees. Based on Federal law and the State Fish and Game Code, CEQA documentation and regulatory permits limit construction during the breeding bird season to avoid impacting active nests. These limits require bird surveys and avoidance of active nests from February 15 to August 31 in any given year. Alternative 7 proposes a series of slip line launch and receiving pits that could disturb seasonal

nesting activity on or near Redwood Shores Parkway. Alternatively, vegetation can be removed outside of the breeding season and prior to the beginning of project construction, which would cause a potential scheduling conflict during construction. However, it would be infeasible to completely avoid breeding birds in the trees along Redwood Shores Parkway that are outside the alignment itself but would be close enough to potentially be disturbed during construction for the proposed Project and alternatives that propose surface disturbance along Redwood Shores Parkway.

Impacts to Special Status Species and Habitat
Alternative 7 would entail additional disturbance from constructing new pipelines and FEF improvements between Redwood City Pump Station and Menlo Park Pump Station and between Menlo Park Pump Station and the Remote FEF, as well as disturbance from constructing the Redwood Shores Parkway Bypass pipeline along Steinberger Slough. The marsh outboard of the Menlo Park FEF has an abundant and consistent population of CRR that could be disturbed by construction, and therefore required measures to avoid disturbing CRR would significantly affect construction feasibility. The most significant biological issue associated with Alternative 7 is likely the impacts to CRR where there is a known population, contrasted with construction of the proposed Project in areas of suitable habitat where there is no known population. In addition, the bypass pipe from Inner Bair Island to Skyway Blvd would also have potential tidal marsh impacts and potential impacts resulting from pile driving to carry the bypass pipe across the slough.

Operational Impacts:

The noise impacts related to operational noise at the WWTP, San Carlos Pump Station, and Redwood City Pump Station (NOI-2: WWTP/FoP, San Carlos Pump Station, Redwood City Pump Station ongoing operational noise impacts on surrounding uses) were identified as occurring from regular operations at these facilities. The Remote FEF Alternative 7 would continue to locate new pump stations at Belmont Pump Station, San Carlos Pump Station, Redwood City Pump Station, and Menlo Park Pump Station, and in addition would construct a new pump station at the FEF facility. All new pump stations will require odor control with exhaust fans. The operational noise mitigation identified for each Project component would continue to be required for Alternative 7, as well as for the new FEF pump station.

Additional Environmental Implications:

Alternative 7 would result in a substantial shift in construction activity away from the Airport Access TBM launch shaft and at the TBM receiving shaft at the WWTP/FoP to the following areas:

1) the area between Redwood City Pump Station and Menlo Park Pump Station with a new open cut trench to replace existing pipe in place and also construct a bypass pipeline. Bypass piping would generally be installed on the surface and in trenches underground at intersections and driveway locations.
2) a new open cut trench from Menlo Park Pump Station to the FEF, as well as a new FEF Pump Station and
3) along Redwood Shores Parkway where the existing 54-inch force main would be sliplined.

This presents a trade-off in construction activity at the WWTP/Front of the Plant and around the Airport Access shaft area since there would be no TBM launch and receiving shafts, thereby reducing construction air quality, noise, and biological impacts at the proposed shaft locations in Redwood Shores and around San Carlos, and adding new construction impacts associated with bypass piping, slip lining and new trenched piping along residential and commercial roadways.

Alternative 7 is expected to have more impacts to stakeholders that the proposed Project. There will be significantly more truck traffic along heavily traveled roadways such as Redwood Shores Parkway and Shoreway. Alternative 7 has higher likelihood for schedule delays compared to the proposed Project because of more uncertainty of property rights acquisitions and overall time to acquire regulatory and environmental permits. The above-ground bypass pipe included in Alternative 7 Remote FEF would be constructed adjacent to or on top of the Redwood Shores Levee. This would result in long term public access impacts that would make it difficult to obtain a BCDC permit.

Relationship to Project Objectives

Alternative 7 at least partially meets all of the Project objectives, except for Objective 3: *Implement a project that minimizes adverse environmental effects, disruption to public and private property owners, utility interference and disruption during construction, and short- and long-term cost.* It has more disruption to the public and greater traffic impacts than the proposed Project.

Alternative 7 Remote FEF does not achieve Objective 4: *Improve plant process reliability, and increase operational readiness* to the same degree as the Project, as there would be increased operational risks compared to the proposed Project due to expanded use of a remote sewage storage facility next to the bay as well as increased pressures in pipelines. The remote FEF would only allow WBSD flows to be equalized there and all other flows must continue to the Plant, which reduces SVCW's ability to equalize flows to reduce energy use and operational staffing.

Conclusion

Alternative 7 Remote FEF is not environmentally superior to the proposed Project, although it avoids or reduces the Project's impacts at a number of locations by shifting those impacts elsewhere by constructing system components at new locations, in particular resulting in increased impacts between the Redwood City Pump Station and Menlo Park Pump Station and between the Menlo Park Pump Station and the FEF facility leased from WBSD. Alternative 7 would have significantly increased impacts along Redwood Shores Parkway and levee due to slip line pits and bypass construction.

9.4.3 REDUCED SCALE/COMPONENT ALTERNATIVE

The Reduced Scale/Component Alternative would include constructing some, but not all, of the project components based on extent of impact. The purpose of a Reduced Scale/Fewer Components Alternative is to eliminate conveyance system components to avoid impacts that are either a result of the planned location or the combined magnitude of conveyance system construction activity, simply by maintaining the existing component equipment in its current condition as long as possible.

The proposed Gravity Pipeline and tunnel would remain as described in the proposed Project, as this infrastructure is critical to achieving the Project objectives. This would include retaining all of the access, launch, and receiving shafts to facilitate the construction of the new pipeline and connections of other components to the pipeline. The Reduced Scale/Component alternative would forego some of the planned improvements included in the proposed Project, as listed below:

1. Flow Diversion Structure

As part of the proposed Project, the **Flow Diversion Structure (FDS)** could be used in conjunction with the Gravity Pipeline to temporarily store incoming wastewater to allow for a more consistent flowrate into the WWTP processes. Under the Reduced Scale/Component Alternative, the FDS would be eliminated. The Gravity Pipeline would be used as the primary method of storage. When additional storage is needed, existing Drying Bed “A” at the WWTP would be used for extra storage. A pipeline would be constructed from the Headworks to Drying Bed “A”.

2. Menlo Park Pump Station Rehabilitation and Redwood City Pump Station Replacement

As part of the proposed Project, the proposed **Menlo Park Pump Station Rehabilitation** component would rehabilitate the pump station and replace the pumps with lower pressure pumps that are appropriate for future flow rates and pressures, along with seismic upgrades to the existing structure, odor control, and electrical facilities including standby power and control system upgrades.

As part of the proposed Project, at the location of the existing **Redwood City Pump Station**, a new pump station would be built to pump the wastewater flow from Redwood City into the SVCW Conveyance System, including a new screening system. The current pump station building would be repurposed to house odor control and electrical facilities including standby power and control system upgrades. Under the proposed Project, the operation of these two pump stations would be interrelated. During wet weather, the Menlo Park Pump Station flow would be pumped directly into the wet well of the Redwood City Pump Station and then pumped into the 48” force main by the Redwood City Pump Station. The purpose of this wet weather operation is to reduce the pressure in the 33” force main, which would not be replaced or repaired as part of the proposed Project.

Under the Reduced Scale/Component Alternative, each of these pump stations would simply be outfitted with pumps that match the new flows and pressures, and the seismic improvements would be made to the existing structures. Most of the underground construction at the Redwood City Pump Station would be eliminated because the existing structure would continue to be used.

3. Belmont Pump Station Rehabilitation

The **Belmont Pump Station Rehabilitation** would rehabilitate the pump station with seismic structural upgrades, replace the pumps with lower pressure pumps that are appropriate for future flow rates and pressures, and install piping and electrical upgrades. Under the Reduced Scale/Component Alternative, this component would be reduced to simply replace the pumps with new pumps that are appropriately sized to meet the flow and pressure demands of the new system and to perform the seismic upgrades. The electrical and structural systems would not be updated.

4. Belmont Force Main Improvements

The **Belmont Force Main Improvements** component would consist of lining the existing force main that conveys the wastewater flow from the City of Belmont to the SVCW system. Under the Reduced Scale/Component Alternative, this component would be reduced and the existing 54-inch force main would be used, without lining, to convey the flow to the existing San Carlos Pump Station site. The shorter, 24-inch section of the pipeline would still be sliplined. The existing 54-inch force main would need to be terminated at the Belmont Tee so the Belmont flows are directed to San Carlos and not the WWTP.

5. San Carlos Pump Station Repurposing

The **San Carlos Odor Control Facility** at the San Carlos Connection would be installed to contain and treat foul air venting from the drop shaft where the Belmont and San Carlos flows connect into the Gravity Pipeline. Equipment includes chemical scrubbers (or other treatment methods such as carbon), storage tanks for chemicals used in the scrubbers, metering pumps, secondary containment piping, electrical equipment, and other ancillary equipment which will be located at the existing San Carlos Pump Station building. The installation of the new odor control equipment includes removal of existing equipment and interior walls, and major upgrades and renovations to maintain the long-term operation of the Odor Control Facility. Under the Reduced Scale/Component Alternative, this component would be eliminated. The existing pump station would not need to be operated, so it would remain idle.

6. Front of Plant Site Civil Improvements

Civil improvements are needed for the Front of the Plant area to accommodate the new RLS, Headworks, and a Flow Diversion Structure, such as: electrical improvements for the necessary new components, setting the site elevations to allow access to new facilities and for proper drainage; storm drainage improvements to prevent site flooding and to treat stormwater runoff; driveway and roadway improvements to create safe vehicle routing; walls and fencing for site security and screening; and tree planting for further site screening and visual improvements. Under the Reduced Scale/Component Alternative, this component would be reduced to support the construction of the tunnel and RLS, the rest eliminated. These reductions in civil improvements are only possible if the FDS is eliminated. Items remaining would include electrical improvements, treating stormwater runoff from a smaller area, site security and screening along Radio Road, and new paving around the RLS area. Items eliminated would include raising and stabilizing the remainder of the 10 acres, new access road, new parking.

Comparison of Environmental Impacts

The Reduced Scale/Components Alternative avoids or at least reduces construction and operational noise, construction criteria pollutants, construction toxic air contaminants, and special status species biological impacts by foregoing replacement/improvements to the components identified above.

- Foregoing FDS and FoP improvements avoids/reduces biological impacts, and construction and operational noise impacts due to elimination of many piles to be placed for the Flow Diversion Structure and reduction in trucking and equipment
- Foregoing Menlo Park Pump Station improvements avoids/reduces biological impacts, and construction noise impacts
- Foregoing Redwood City Pump Station improvements avoids/reduces TACs, buried cultural resources, and construction and operational noise impacts
- Foregoing Belmont Pump Station improvements avoids/reduces biological impacts, and construction noise impacts
- Foregoing San Carlos Pump Station improvements avoids/reduces construction and operational noise impacts

Impacts Avoided/Reduced:

Foregoing the identified system components would avoid or reduce the following impacts at the identified locations:

<u>FDS/Front of Plant:</u>
BIO-5: WWTP/FoP construction disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-6: WWTP/FoP construction disturbance of California Ridgeway Rail
BIO-7: WWTP Improvements construction disturbance of nesting birds
BIO-15: Influent Connector portion of project construction impacts to wetlands
NOI-1: construction noise in relation to ambient noise conditions

<u>Menlo Park Pump Station:</u>
BIO-2: construction disturbance of CA Ridgeway Rail
BIO-11: Menlo Park Pump Station disturbance of Salt Marsh Harvest Mouse, SM Wandering Shrew
BIO-12: Menlo Park Pump Station construction disturbance of California Ridgeway Rail
BIO-13: Menlo Park Pump Station construction disturbance of nesting birds
BIO-17: Menlo Park Pump Station construction impacts to wetlands
NOI-1: construction noise in relation to ambient noise conditions

<u>Redwood City Pump Station:</u>
AIR-2: Redwood City Pump Station construction toxic air contaminants
BIO-10: Redwood City Pump Station construction disturbance of nesting birds
CUL-1: Redwood City Pump Station excavation into identified cultural resources
NOI-2: Redwood City Pump Station ongoing operational noise impacts on surrounding uses
NOI-1: construction noise in relation to ambient noise conditions

Belmont Pump Station:
BIO-8: Belmont Pump Station construction disturbance of nesting birds
BIO-16: Belmont Pump Station construction impacts to wetlands
NOI-1: construction noise in relation to ambient noise conditions

San Carlos Pump Station:
BIO-9: San Carlos Pump Station construction disturbance of nesting birds
NOI-2: San Carlos Pump Station ongoing operational noise impacts on surrounding uses
NOI-1: construction noise in relation to ambient noise conditions

Among the impacts that could potentially be reduced or avoided by foregoing planned improvements to system components, several are relatively routine and not considered a high priority to address, for the following reasons:

It should be noted that cultural resources Impact CUL-1 (Redwood City Pump Station excavation into identified cultural resources) is limited to less than 2,000 sq.ft. of area needing monitoring, and is an impact that can be monitored in one day, so there is minimal value for good decision-making purposes in a Reduced Scale/Components Alternative that avoids this impact.

The noise impacts (NOI-2) related to operational noise at the FoP, San Carlos Pump Station, and Redwood City Pump Station were identified as occurring from regular operations at these facilities. The noise-generating operational activities would be mostly located within the proposed FoP buildings and through incorporation of **MM NOI-2**, would reduce potential noise impacts to a less than significant level. The position of the noisy odor control fans within the San Carlos Pump Station would reduce the likelihood of exposing patrons of the adjacent Fairfield Inn and Suites to noise in excess of City standards. If the fans were to be located elsewhere on site (i.e. roof), the fans would exceed the daytime and nighttime ambient noise levels, and require screening and other treatments to comply with the noise performance standards set by **MM NOI-2**.

Pre-construction nesting bird surveys related to MBTA-protected non-special status raptors and migratory birds are routine, so it is not a priority to specifically design an alternative around the need to avoid bird nesting activity. Impacts to special status species (California Ridgeway Rail, Western Burrowing Owl) are treated separately and relevant to development of a Reduced Scale/Components Alternative.

The Project system component hydrology and utility impacts are typical of similar projects, and mitigatable through standard measures, and so it is not a priority to design a Reduced Scale/Components Alternative around those impacts.

*Impacts **not** reduced/avoided by scaling back program components:*

The Reduced Scale/Components Alternative would not avoid or substantially reduce the following two operational impacts as the current aging system presents these same issues as long as the aging components remain in operation, and the new system components constructed under this alternative would also present the same issues:

Impact GEO-1: exposure of equipment below ground to corrosive soils at all sites (not avoided by eliminating system components, as existing pipes faces this now)

Impact AIR-3: ongoing potential for odors from operations at the WWTP and all four pump stations

If multiple components were eliminated as presented above, the construction activity would likely be reduced to bring annual construction criteria pollutant emissions in aggregate below BAAQMD significant thresholds, thereby avoiding the need for mitigation measures MM-AIR-1. If the Redwood City Pump Station were eliminated, the construction toxic air contaminant impact to nearby residents would be reduced below significance thresholds, thereby eliminating the need for mitigation at that location.

Relationship to Project Objectives

In the Reduced Scale/Components Alternative, proposed above ground and below ground modifications to the pump stations would not proceed, and the pump stations would continue to operate as-is for as long as they can. This would avoid or delay construction related impacts. It should be noted that ongoing maintenance and construction would still be needed to replace various component such as valves and piping that are failing due to corrosion to keep the pump stations operational and these will have construction related impacts. The current pumps are not sized appropriately for SVCW's future conveyance system flow pressures thus future flow rates would need to be adjusted to ensure that flows would not exceed the capacity and capability of the pumps. If the pump stations cannot keep up with the incoming sewage, sewer overflows in the Member Agencies collection systems are likely to happen in future years.

Foregone FDS

Removing the FDS component from the Project would result in more operational complexity, which would mean that the Project would not meet the Project objective of "Improve plant process reliability, and increase operational readiness."

Foregone Menlo Park Pump Station and Redwood City Pump Station

The Reduced Scale/Component Alternative would mean that the Menlo Park Pump Station and Redwood City Pump Station would operate differently from the proposed Project in the following ways:

- The existing Redwood City Pump Station's wet well is not large enough to handle incoming flow from both the Redwood City and West Bay Sanitary District Systems, so it would only pump the Redwood City Flow during wet weather. Therefore, its replacement pumps would be smaller than its existing pumps.
- The existing Redwood City Pump Station does not have a screening facility on site and receives a lot of large material from the upstream jails. This material would continue to not be screened at the Redwood City Pump Station, requiring frequent attention by Operations staff.

- Since the Redwood City Pump Station would not be able to handle the Menlo Park Pump Station flow, the Menlo Park Pump Station pumps would need to be sized to pump the wastewater all the way to the north end of Bair Island, where it enters the gravity tunnel. This means that the pumps would need to be larger under this alternative than proposed for the Project. The electrical and standby power systems would not be sized appropriately to accommodate these larger pumps, resulting in more frequent repairs and more operator attention, and possible failure of the pump station.
- Another consequence of the larger pumps at Menlo Park Pump Station would be that the 33" force main would experience higher pressures than it was originally designed for, increasing the chance of a leak or of a force main failure.
- In addition to the above issues, the electrical and mechanical equipment (except for the pumps) at each pump station would continue to age, increasing the attention required by Operations and Maintenance staff and increasing the chance of a pump station failure.

Reducing the scale of these components would mean that the Project does not achieve the following objectives:

- "Replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions." Reducing these alternatives reduces the reliability of the pump stations with respect to the proposed Project.
- "Reduce the likelihood of spills and discharges of untreated sewage to the surrounding environment, which has occurred numerous times with the existing 45 year old concrete sewer force main that operates above its design pressure." This alternative increases the chance that the 33" force main will leak or fail.
- "Implement a project that minimizes adverse environmental effects, adverse impacts to public health and private property owners, utility interference and disruption during construction, and short- and long-term cost." The pump stations not being improved in this alternative would increase the chance of having adverse environmental impacts.
- "Improve plant process reliability, and increase operational readiness." The pump stations would continue to have reliability issues, and would continue to require significant operator attention due to deteriorating conditions.

Foregone Belmont Pump Station Rehabilitation

The result of this reduction in scope would be increased maintenance required as the mechanical equipment at the pump station continues to deteriorate and the electrical and automation controls equipment age past the point of their useful life. Under this alternative, the Reduced Scale Project would not achieve the following goals:

- "Improve plant process reliability, and increase operational readiness." The pump station would continue to have reliability issues, and would continue to require significant operator attention due to deteriorating conditions.

- "Replace the existing wastewater infrastructure and other improvements to the conveyance system to ensure reliable operation of the overall wastewater conveyance system in accordance with San Francisco Bay RWQCB NPDES permit conditions." Critical equipment inside the pump station would not be replaced.

Foregone Belmont Force Main Improvements

Operational problems are anticipated in the Belmont line in the Reduced Scale/Components Alternative. The Belmont Pump Station would be pumping less than two mgd on an average day into a 54-inch pipe that is being repurposed to carry only Belmont flow, instead of how it is currently used: to carry flow from Menlo Park Pump Station, Redwood City Pump Station, and San Carlos Pump Station combined. This smaller flow rate from Belmont is not compatible with this 54-inch diameter pipe, which currently, as part of the existing conveyance system, carries flows exceeding 65 mgd during wet weather. The flow velocity in the pipe would be so low, even under peak wet weather conditions that grit would continually settle, harden and eventually fill up the pipe. The new Belmont pumps would be damaged overtime as the design condition would change and the pumps would be operating outside of at their design range. As grit build up is anticipated, SVCW might need to install other permanent facilities in order to enable routine cleaning out of the line. Building and operating the pigging facilities would have associated construction and operation impacts. Additionally, the detention time in the pipeline would be dramatically increased, resulting in sewage becoming septic and increasing odor and operational problems in the downstream treatment process. Eliminating this component would mean that the Project objective to "Improve plant process reliability, and increase operational readiness" would not be met.

Foregone San Carlos Pump Station Repurposing

The elimination of this component would result in significant odors at this location since air handling apparatus to allow air movement at this location would still be required, affecting nearby businesses, restaurants, and the adjacent hotel. Eliminating this component would mean that the Project goal of "Implement a project that minimizes adverse environmental effects, adverse impacts to public health and private property owners, utility interference and disruption during construction, and short- and long-term cost" would not be met by the Project, due to the adverse impacts of odors.

Foregone Front of Plant Site Civil Improvements

As described above, under the Reduced Scale/Component Alternative, this component would be reduced to support the construction of the tunnel, RLS and Headworks, the rest eliminated. These reductions in civil improvements are only possible if the FDS is eliminated. Items remaining would include electrical improvements, treating stormwater runoff from a smaller area, site security and screening along Radio Road, and new paving around the RLS and Headworks area. Items eliminated would include raising and stabilizing the remainder of the 10 acres, new access road, new parking. The elimination of these items would cause more construction challenges and increased costs due to work being in a tight construction area while maintaining safe vehicular and pedestrian access to other SVCW facilities during construction. Since the reduction of this component is related to the elimination of the FDS component, it would result in the Project not meeting the Project goal to "Improve plant process reliability, and increase operational readiness."

Conclusion: By avoiding or reducing impacts resulting from the overall scale of Project construction, and by eliminating construction and operational impacts at specific locations, the Reduced Scale/Components Alternative would be environmentally superior to the Project. However, the Reduced Scale/Components Alternative would only partially meet the Project Objectives and would result in environmental impacts similar to the No Project Alternative for those components that are retained as-is and maintained as long as possible. While the alternative would replace some of the existing wastewater infrastructure with improved technology, it would fail to ensure the reliable operation of the conveyance system as a whole since it would exclude various components from improvements. For those system components not improved under this alternative, there is the risk of spill or permit violation or discharge of untreated waters into areas of the public which the SVCW Commission would have to weigh against the alternative's various environmental benefits in deciding its feasibility.

9.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA Guidelines state that an EIR shall identify an environmentally superior alternative.

On balance, the Reduced Scale/Fewer Components Alternative would be environmentally superior to the Project in that it avoids or reduces environmental impacts associated with particular system components while achieving several critical Project objectives. However, while the alternative would replace some of the existing wastewater infrastructure with improved technology, it would fail to ensure the reliable operation of the conveyance system as a whole since it would exclude various components from improvements. For those system components not improved under this alternative, there is the risk of spill or permit violation or discharge of untreated waters into areas of the public which the SVCW Commission would have to weigh against the alternative's various environmental benefits in deciding its feasibility.

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