VOLUME II - REVISED EIR

FINAL ENVIRONMENTAL IMPACT REPORT

DENNISTON / SAN VICENTE WATER SUPPLY PROJECT
COASTSIDE COUNTY WATER DISTRICT

FEBRUARY 2015

LEAD AGENCY:

Coastside County Water District
766 Main Street
Half Moon Bay, CA 94109

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766 Main Street
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* Appendices printed in gray text (Appendices A – H) are attached to the Draft EIR dated August 2014 and are available online at http://www.coastsidewater.org/report-and-studies.html or by written request. The Appendix printed in black (Appendix I) is attached to this Final EIR.

Included as Appendices to the Draft EIR:

Included as an Appendix to the Final EIR:

SECTION 1.0

INTRODUCTION

1.0 INTRODUCTION

This section explains the purpose of the Coastside County Water District (CCWD) Denniston/San Vicente Water Supply Project (Proposed Project) Draft Environmental Impact Report (EIR), establishes the context and scope for the Draft EIR, identifies relevant previous studies, and outlines the process for reviewing the Draft EIR and preparing the Final EIR.

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

This Draft EIR has been prepared to provide the general public and interested parties with information about the potential environmental impacts of the Proposed Project. The CCWD may utilize this information in deciding whether to proceed with the Proposed Project. The diversion of water discussed as part of the Proposed Project is currently authorized by an existing water rights permit issued to CCWD in 1969 (Permit 15882). The California State Water Resources Control Board (SWRCB), Division of Water Rights (Division) may use this EIR in its role as a responsible agency to make a decision on the petition filed by the CCWD in 2004 to extend the time to put water diverted from Denniston and San Vicente Creeks under the existing permit to full beneficial use. This Draft EIR was prepared in compliance with the California Environmental Quality Act (CEQA, California Public Resources Code §§21000-21178), the CEQA *Guidelines* (California Code of Regulations [CCR], Title 14), and CCWD's procedures for completing environmental documents.

As described in CEQA *Guidelines* Section 15121(a), an EIR is an informational document that assesses potential environmental impacts of a proposed project and identifies mitigation measures and alternatives to the proposed project that could reduce or avoid adverse environmental impacts. As the CEQA Lead Agency for this project, CCWD is required to consider the information in the EIR along with any other available information in deciding whether to approve the project. The basic requirements for an EIR include discussions of the environmental setting, environmental impacts, mitigation measures, alternatives, growth inducing impacts, and cumulative impacts. The EIR is an informational document used in the planning and decision-making process. It is not the intent of an EIR to recommend either approval or denial of a project. This EIR is a "Project EIR," pursuant to CEQA *Guidelines* Section 15161. A Project EIR examines the environmental impacts of a specific project. This type of EIR focuses on the changes in the environment that would result from implementation of the project, including construction and operation.

CEQA requires that a lead agency neither approve nor carry out a project as proposed unless the significant environmental effects have been reduced to an acceptable level, or unless specific findings are made attesting to the infeasibility of altering the project to reduce or avoid

environmental impacts (CEQA *Guidelines*, Sections 15091 and 15092). An acceptable level is defined as eliminating, avoiding, or substantially lessening the significant effects. CEQA also requires that decision-makers balance the benefits of a proposed project against its unavoidable environmental impacts. If environmental impacts are identified as significant and unavoidable, the project may still be approved if it is demonstrated that social, economic, or other benefits outweigh the unavoidable impacts. The lead agency is then required to state in writing the specific reasons for approving the project based on information presented in the EIR, as well as other information in the record. This process is defined as a "Statement of Overriding Considerations" by the CEQA *Guidelines*, Section 15093.

1.2 PURPOSE AND NEED

CCWD is responsible for providing its customers with high quality, reliable water service at an affordable price. CCWD currently receives its water from four sources:

1) the diversion at Denniston Creek;
2) wells adjacent to Pilarcitos Creek;
3) wells near Denniston Creek; and
4) San Francisco Public Utilities Commission (SFPUC) water from Pilarcitos Lake and Crystal Springs Reservoir.

CCWD is seeking approval from the SWCRB of a petition for extension of time for water right Permit 15882 (Application 22860), which authorizes the direct diversion of water from two local streams, Denniston and San Vicente Creeks. The approval of this extension of time would allow CCWD to complete the construction of the remaining infrastructure improvements needed to integrate these local water supplies into the CCWD distribution system and to facilitate full beneficial use of authorized diversions under Permit 15882. This would increase the availability of and reliance on local water sources, thereby lessening dependence on imported water from the SFPUC. This is discussed further in **Section 3.0**, Project Description.

1.3 EIR PROCESS

1.3.1 LEAD AGENCY

CCWD is the Lead Agency for the Proposed Project for purposes of environmental review under CEQA. "Lead agency" is defined by CEQA *Guidelines* Section 21067 as "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment." In this case, the project being considered for approval is the construction and operation of facilities that would allow full beneficial use of water diverted under an existing water rights permit. Prior to making a decision whether to approve a project,

the Lead Agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the Lead Agency.

1.3.2 RESPONSIBLE AGENCY

"Responsible Agency" is defined by CEQA *Guidelines* Section 21069 as "a public agency, other than the lead agency which has responsibility for carrying out or approving a project." The Responsible Agency is responsible for considering only the effects of those activities involved in a project which it is required by law to carry out or approve. The SWRCB is a Responsible Agency for the Proposed Project because it must consider and act on CCWD's petition for Extension of Time for Water Right Permit 15882.

1.3.3 NOTICE OF PREPARATION AND SCOPING

In accordance with CEQA *Guidelines* Section 15082, a Notice of Preparation (NOP) was circulated to the public, local, state and federal agencies, and other known interested parties for a 30(+)-day public and agency review period on October 19, 2011 (**Appendix A**). The purpose of the NOP was to provide notification that an EIR for the Proposed Project was being prepared and to solicit public input on the scope and content of the document. An Initial Study (IS) was prepared as part of the NOP (**Appendix A**), providing background information and brief analyses of resources and potential impacts associated with the Proposed Project. Comments from agencies and the public provided in written comments submitted in response to the NOP and IS are included within **Appendix B**. Significant issues raised during this scoping process are summarized in **Section 1.4**.

All individuals/organizations that provided comments on the NOP/IS will also be advised as to the availability of this Draft EIR.

1.3.4 DRAFT EIR AND PUBLIC REVIEW

This Draft EIR will be circulated for public review and comment for a period of 45 days. During this period, the general public, organizations, and agencies can submit comments to the Lead Agency on the Draft EIR's accuracy and completeness. Public release of the Draft EIR marks the beginning of a 45-day public review period pursuant to CEQA *Guidelines* Section 15105. The public can review the Draft EIR at CCWD's website at:

www.coastsidewater.org

or at the following addresses during normal business hours, Monday through Friday, except holidays:

Coastside County Water District
766 Main Street
Half Moon Bay, CA 94019

Half Moon Bay Library
620 Correas Street
Half Moon Bay, CA 94019

Comments may be submitted both in written form and/or orally at the public hearing on the Draft EIR. Notice of the time and location of the hearing will be published in local newspapers, mailed to property owners and residents surrounding the project site, posted on CCWD's website, and posted at and adjacent to the site prior to the hearing. All comments or questions regarding the Draft EIR submitted in writing should be addressed to:

Coastside County Water District
c/o David R. Dickson, General Manager
766 Main Street
Half Moon Bay, CA 94019
(650) 726-4405
ddickson@coastsidewater.org

1.3.5 FINAL EIR AND EIR CERTIFICATION

Upon completion of the public review period, a Final EIR will be prepared. It will include written comments on the Draft EIR received during the public review period and CCWD's responses to those comments. The Final EIR will also include the Mitigation Monitoring and Reporting Plan (MMRP) prepared in accordance with Section 21081.6 of the Public Resource Code. The Final EIR will describe any revisions to the Draft EIR made in response to public comments. The Draft EIR and Final EIR together will comprise the EIR for the Proposed Project. Before CCWD can approve the project, it must first certify that the EIR has been completed in compliance with CEQA, that CCWD's Board of Directors has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of CCWD. CCWD's Board of Directors also will be required to adopt Findings of Fact, and, for any impacts determined to be significant and unavoidable, adopt a Statement of Overriding Considerations.

1.4 ISSUES AND CONCERNS RAISED DURING SCOPING

Listed below is a summary of concerns raised during the scoping process, and in italics, a response describing how the comment was addressed. Comment letters received during the scoping period are included as **Appendix B**.

Project Description

The National Parks Service (NPS) requested that CCWD provide a map of easement areas on the project site and surrounding land ownership, as well as a complete project schedule for all proposed infrastructure development.

> *A detailed description of the Proposed Project, including figures and a proposed construction schedule, is included in **Section 3.0**, Project Description*.

Aesthetics and Visual Resources

The NPS requested that CCWD provide a visual impact analysis in relation to viewsheds as seen from adjacent lands to assess potential impacts to aesthetics as a result of the Proposed Project.

> *Impacts associated with aesthetics are addressed in **Section 4.1**, Aesthetics and Visual Resources.*

Biological Resources

The NPS requested that CCWD provide a complete description of potential direct and indirect impacts to instream habitat for anadromous fish as a result of the Proposed Project. The NPS also requested the exploration of several project alternatives, including an offstream reservoir in place of the current onstream Denniston Reservoir.

> *Impacts associated with biological resources, including anadromous fish, are addressed in **Section 4.3**, Biological Resources. The alternatives to the Proposed Project are presented in **Section 6.0**, Alternatives.*

The Sierra Club's Loma Prieta Chapter Coastal Issues Committee points out that there are issues requiring resolution in relation to California red-legged frog occurrences at Denniston Reservoir and San Vicente Creek.

> *Impacts associated with biological resources, including California red-legged frog, are addressed in **Section 4.3**, Biological Resources.*

Cultural Resources

Native American Heritage Commission (NAHC) recommends procedures to adequately comply with the provisions of CEQA in determining potential impacts to historical resources, including archeological resources.

*This comment is addressed in **Section 4.4,** Cultural Resources.*

Geology and Soils

The NPS claims that the IS for the Proposed Project dismisses analyzing the project for geological hazards and request that geologic hazards be evaluated for potential threats to structures, systems, and water supply.

*An analysis of potential geologic hazards is included in **Section 4.5**, Geology and Soils.*

Hazards and Hazardous Materials

Montara Water and Sanitary District (MWSD) and the NPS both requested that the soils proposed for storage at the sediment storage sites be tested for chemicals that pose a health hazard to humans or other hazard to the surrounding environment and watersheds.

*Impacts associated with hazardous materials are addressed in **Section 4.7**, Hazards and Hazardous Materials.*

Hydrology and Water Quality

Several commenters, including the MSWD, the Sierra Club's Loma Prieta Chapter, and the NPS question whether there is sufficient water supply in the watersheds to support the full diversion and use requested by the Petition for Extension of Time for Permit 15882.

*A full analysis of the hydrology and water availability in San Vicente and Denniston Creeks is provided in **Section 4.8**, Hydrology and Water Quality.*

MSWD expresses concerns about the potential depletion of groundwater levels in the Airport Aquifer down slope from the project site especially during droughts, changes to water quality, or other hydrological impacts to downstream users resulting from the project.

*A full analysis of the hydrology and water quality of the project region is provided in **Section 4.8**, Hydrology and Water Quality. The use of ground water as a part of the overall operations of the CCWD consistent with current court-ordered allocation of ground water between CCWD and MWSD is also discussed in this section.*

Noise

The NPS expressed concern regarding potentially high levels of noise associated with pump structures to be installed on San Vicente Creek, directly adjacent to future NPS lands, and the potential for this noise to disrupt the natural experience of visitors to the NPS lands.

> *A full analysis of potential noise sources associated with the Proposed Project components is presented in **Section 4.9**, Noise.*

1.5 SCOPE OF THE EIR

In accordance with CEQA *Guidelines* Section 15063, the Initial Study/NOP (**Appendix A**; AES, 2011), in conjunction with comments received during scoping (**Appendix B**), was used to focus the EIR on effects determined to be potentially significant.

Effects not Found to be Significant

CEQA *Guidelines* Section 15128 states that an "EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR." The following environmental issues were identified in the Initial Study as being less than significant and therefore are not evaluated further in this EIR: Agricultural Resources, Mineral Resources, Population and Housing, Public Services, Recreation, and Utilities and Service Systems (**Appendix A**; AES, 2011). The Proposed Project would result in either no impact or less-than-significant impacts to these resource areas for the following reasons:

- **Agricultural Resources**: The Proposed Project would not convert any agricultural land to non-agricultural use. The Proposed Project would not alter the diversion regime of other diverters who share water in the two creeks. No impact would occur.
- **Mineral Resources**: Mineral resources have not been identified within the project site, according to San Mateo County Resource Maps. No impact would occur.
- **Population and Housing**: As described in the IS, the Proposed Project does not involve the construction of new homes or businesses. Existing roads would be used during construction and for project operations. The Proposed Project would not induce substantial population growth either directly or indirectly or create a significant need for additional housing. The Proposed Project adheres to statutes such as the San Mateo County Local Coastal Program that limit growth in the project vicinity. This project would not impact existing levels of development. No residences or people would be displaced by the proposed project. Impacts to population and housing would be less than significant.

- **Public Services**: The Proposed Project would not result in substantial growth that would require additional public services. The proposed project would not adversely impact the County's ability to provide fire and police protection, or impact the maintenance of schools, parks, or other public facilities. No impact would occur.
- **Recreation**: The Proposed Project would not result in substantial population growth or the associated increased use of recreational facilities, and does not include the construction or expansion of recreational facilities. The proposed project would also not adversely impact recreational opportunities or prohibit the maintenance of existing recreational opportunities. No impact would occur.
- **Utilities and Service Systems**: The Proposed Project would not exceed water treatment requirements or result in the construction of new water or wastewater treatment facilities. The Proposed Project involves the replacement of an existing diversion structure and pipelines that would connect San Vicente water to the existing water treatment plant. Onsite workers would generate a minimum amount of construction waste and solid waste, and therefore a less than significant impact to the landfill capacity in the area would occur. The Proposed Project would not conflict with any statutes or regulations related to solid waste. Impacts to utilities and service systems would be less than significant.

Effects Found to be Potentially Significant

The following environmental resources were determined to have the potential to be significantly affected by the Proposed Project based on preliminary analysis provided in the IS, as well as comments received during the scoping process, and have therefore been addressed in detail in this Draft EIR:

- Aesthetics and Visual Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils and Mineral Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise

CEQA Required Sections

In addition to those resources described above, the Draft EIR will discuss the following mandatory CEQA considerations: cumulative impacts, secondary impacts including potential

impacts resulting from growth inducement, and significant irreversible changes to the environment.

1.6 TERMINOLOGY USED IN THE EIR

This EIR uses the following terminology to describe environmental effects of the Proposed Project and Alternatives:

- **Significance Criteria:** A set of criteria used by the Lead Agency to determine at what level or "threshold" an impact would be considered significant. Significance criteria used in this Draft EIR include factual or scientific information, regulatory standards of local, state, and federal agencies, and/or guiding and implementing goals and policies identified in local plans.
- **Less Than Significant Impact:** A less than significant impact would cause no substantial change in the environment (no mitigation required).
- **Less Than Significant Level:** The level below which an impact would cause no substantial change in the environment (no mitigation required).
- **Potentially Significant Impact:** A potentially significant impact may cause a substantial change in the environment; however, it is not certain that effects would exceed specified significance criteria. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact. Mitigation measures and/or project alternatives are identified to reduce project effects to the environment.
- **Significant Impact:** A significant impact would cause a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of effects using specified significance criteria. Mitigation measures and/or project alternatives are identified to reduce or avoid project effects to the environment.
- **Significant and Unavoidable Impact:** A significant and unavoidable impact would result in a substantial change in the environment that cannot be avoided or mitigated to a less-than-significant level if the project is implemented.
- **Cumulative Significant Impact:** A cumulative significant impact would result in a substantial change in the environment from effects of the project as well as surrounding projects and reasonably foreseeable development in the surrounding area. To be considered significant a project's impact must be a cumulatively considerable contribution to a substantial change in the environment.
- **Mitigation**: Mitigation includes measures recommended in the Draft EIR and imposed as condition of approval by the Lead Agency that:
    - avoid the impact altogether by not taking a certain action or parts of an action;
    - minimize impacts by limiting the degree or magnitude of the action and its implementation;

- rectify the impact by repairing, rehabilitating, or restoring the affected environment; and/or
- reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action; and compensate for the impact by replacing or providing substitute resources or environments.

1.7 ORGANIZATION OF THE REPORT

The contents of this Draft EIR are consistent with CEQA *Guidelines*, and include the following:

- **Section 1, Introduction** - Provides an introduction and overview of the Draft EIR, describes the intended use of the Draft EIR, and describes the review and certification process.
- **Section 2, Executive Summary -** Summarizes the elements of the project and the environmental impacts that could result from implementation of the Proposed Project, and provides a table which lists impacts, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation.
- **Section 3, Project Description** - Provides a detailed description of the Proposed Project, including its location, background information, major objectives, and components.
- **Section 4, Environmental Setting, Impacts, and Mitigation Measures** – Describes the baseline environmental setting and provides an assessment of impacts for each resource category presented in **Section 1.5**. Each section is divided into four sub-sections: Introduction, Existing Environmental Setting, Regulatory Background, and Impacts and Mitigation Measures.
- **Section 5, CEQA Considerations** - Provides discussions required by CEQA regarding impacts that would result from the Proposed Project, including a summary of cumulative impacts, secondary impacts, including potential impacts resulting from growth inducement, and significant irreversible changes to the environment.
- **Section 6, Project Alternatives** – Describes and compares alternatives to the Proposed Project and associated environmental consequences.
- **Section 7, EIR Authors and Persons Consulted** - Lists report authors and agencies consulted for technical assistance in the preparation and review of the Draft EIR.
- **Section 8, References** - Provides bibliographic information for all references and resources cited.
- **Section 9, Acronyms** – Provides a list of definitions for all acronyms used in the Draft EIR.
- **Appendices** – Includes various documents and data directly related to the analysis presented in the Draft EIR.

SECTION 2.0

EXECUTIVE SUMMARY

2.0 EXECUTIVE SUMMARY

2.1 INTRODUCTION

This section provides a summary of the Denniston/San Vicente Water Supply Project (Proposed Project), environmental impacts that would result from project implementation, a summary of project alternatives, and the potential areas of controversy. This section also includes a table summarizing the impacts of the Proposed Project and mitigation measures that have been identified to reduce potentially significant environmental impacts to less than significant levels.

This Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) statutes and *Guidelines*. The Coastside County Water District (CCWD) is the lead agency for this CEQA process. Inquiries about the Proposed Project and the CEQA process should be directed to:

Coastside County Water District
c/o David R. Dickson, General Manager
766 Main Street
Half Moon Bay, CA 94019
(650) 726-4405
ddickson@coastsidewater.org

2.2 PROJECT LOCATION

The Proposed Project area is located within the northern section of the CCWD's 14 square-mile service area in unincorporated San Mateo County. The Proposed Project is located approximately 1.75 miles northwest of the community of El Granada and 1.5 miles east of the community of Montara. The Proposed Project is surrounded on the west by agricultural land and an airport, on the north and south by residential development, and on the east by open space.

2.3 PROJECT UNDER REVIEW

The Proposed Project includes the following project components, which are described in more detail in **Section 3.2**:

1) Water Right Permit 15882 – petition for extension of time;
2) New Diversion Structure and Pump Station – San Vicente Creek;

3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
4) Denniston Water Treatment Plant (WTP) – expand capacity up to 1,500 gallons per minute (gpm);
5) New Booster Pump Station;
6) New Pipelines – along Bridgeport Drive (3,460 feet); and
7) Expanded sediment removal from the Denniston Reservoir.

The installation of the permanent diversion structure and pump station San Vicente Creek will replace the semi-permanent structure currently in use, and the new 6,100-foot-long underground pipeline will convey San Vicente Creek water from the permanent diversion to the Denniston Reservoir pump station. From there, existing pipelines will convey the water to the Denniston Creek WTP for treatment, which would be increased in capacity up to 1,500 gpm under the Proposed Project. The proposed booster pump station will be located adjacent to the existing Denniston Creek Pump Station to transfer treated water from the Denniston Tank into the distribution system throughout the CCWD service area, which will be supplemented by 3,460 feet of upgraded pipelines along Bridgeport Drive. The current dredging maintenance regime at Denniston Reservoir would also be expanded to enable higher quality of water diverted from Denniston Creek to the Denniston WTP.

The CCWD will serve as the Lead Agency under CEQA for the approval of construction and operation of these proposed facilities. Diversion of water from San Vicente and Denniston Creeks is currently authorized under Water Right Permit 15882. The Proposed Project also seeks an extension of time from the State Water Resources Control Board (SWRCB) to complete the construction of necessary infrastructure to put the diverted water to full beneficial and reasonable use under the existing permit. This extension of time and completion of infrastructure improvements would allow CCWD to better utilize, and maximize efficiency of local water sources. The SWRCB is a responsible agency under CEQA and has approval authority over the requested extension of time. The Proposed Project is described in more detail in **Section 3.0** of this Draft EIR.

2.4 SCOPING ISSUES

In accordance with CEQA Guidelines Section 15082, the Lead Agency circulated a Notice of Preparation (NOP) for this Draft EIR on October 19, 2011. Presented in **Appendix A** of this Draft EIR, the NOP established a 30+ day scoping period that was extended for the benefit of public review to November 23, 2011. The NOP was circulated to the public, local, state and federal agencies, and other known interested parties. The purpose of the NOP was to solicit input from agencies, organizations, and interested parties to assist the Lead Agency in determining the appropriate scope and content of the Draft EIR. To facilitate this process,

CCWD completed an Initial Study (IS) which provided additional information to the public for their review and comment (**Appendix A**).

Areas of Controversy

Environmental issues and concerns identified by individuals and agencies during the scoping process are summarized below:

- A full analysis of water availability in the San Vicente and Denniston Creeks must be performed to identify potential changes to water quality, hydrological impacts to downstream uses, and potential depletion of groundwater levels.
- Biological resources of San Vicente and Denniston Creeks should be thoroughly evaluated in the Draft EIR.
- The Draft EIR should assess possible impacts to aesthetics, air quality, greenhouse gas emissions, ground water, water quality, soil quality, geology, and biological resources.

Each of these issues is evaluated in **Section 4.0** of this Draft EIR.

2.5 ALTERNATIVES TO THE PROPOSED PROJECT

The CEQA *Guidelines* require EIRs to describe and evaluate a range of reasonable alternatives to a project, or to the location of a project, which would feasibly attain most of the basic project objectives and avoid or substantially lessen significant project impacts. **Section 5.0** evaluates the potential alternatives to the Proposed Project, and also includes a description of alternatives withdrawn from further consideration. Potential alternatives examined for the Proposed Project in this Draft EIR include the Lower (1,200 gallons per minute (gpm)) Denniston WTP Capacity Alternative, the Current (1,000 gpm) Denniston WTP Capacity Alternative, and the No Project/Baseline Alternative. With the No Project/Baseline Alternative, the project site would remain as it currently exists with the temporary diversion structure and no water diverted from San Vicente Creek, but diversions would continue from Denniston Creek at up to 1.89 cubic feet per second (cfs).

2.6 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table 2-1 presents a summary of project impacts and proposed mitigation measures that would further avoid or minimize potential impacts. In the table, the level of significance of each environmental impact is indicated both before and after the application of the recommended mitigation measure(s). For detailed discussions of all project impacts and mitigation measures, the reader is referred to environmental analysis sections in **Section 4.0**.

Acronyms used within **Table 2-1** to describe levels of significance are explained below:

- NA – Not applicable
- BI – Beneficial impact
- NI – No impact
- LTS – Less than significant
- PS – Potentially significant
- SU – Significant and unavoidable

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
4.1 AESTHETICS			
Impact 4.1-1. **Development of the Proposed Project could potentially degrade the existing visual character or quality of the site and its surroundings.**	**LTS**	None Required.	**LTS**
4.2 AIR QUALITY			
Impact 4.2-1. **Construction and/or operation of the proposed project could potentially degrade the existing air quality in the region of the project site.**	**SI**	**Mitigation Measure 4.2-1:** The following mitigation measures shall be implemented by the Applicant to reduce construction related criteria emissions: ▪ All exposed surfaces (e.g. parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. ▪ All haul trucks transporting soil, sand, or other loose material off-site shall be covered. ▪ All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power seeping is prohibited. ▪ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. ▪ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. ▪ Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 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 manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator. Post a publicly visible sign with the telephone number ad person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action	**LTS**

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.	
Impact 4.2-2. **Development of the Proposed Project in combination with other projects in the SFBAAB could potentially cumulatively degrade the existing air quality of the site and its surroundings.**	**LTS**	None Required.	**LTS**
Impact 4.2-3. **Development of the Proposed Project could potentially emit odor beyond the project boundary.**	**LTS**	None Required.	**LTS**
4.3 BIOLOGICAL RESOURCES			
Impact 4.3-1. **Development of the Proposed Project has the potential to impact special status species.**	**SI**	**Mitigation Measure 4.3-1a:** A qualified botanist shall conduct a focused botanical survey within the blooming period (February through April) for fragrant fritillary prior to commencement of construction activities within the coastal scrub, California annual grassland, and coastal prairie habitats. A letter report shall be prepared and submitted to the CCWD following the preconstruction survey to document the results. Should no fragrant fritillary be observed, then no additional mitigation will be required. **Mitigation Measure 4.3-1b:** Should fragrant fritillary be observed during the focused botanical survey, the botanist shall contact the CCWD and the CDFW within one day following the preconstruction survey to report the findings. If feasible, a ten-foot buffer shall be established around the species using construction flagging prior to commencement of construction activities. **Mitigation Measure 4.3-1c:** Should avoidance of fragrant fritillary, a CNPS-listed 1B species protected under the Native Plant Protection Act, be infeasible, the qualified botanist would salvage and relocate the individuals to an area comprised of suitable habitat in the vicinity of the project site that would not be impacted by the Proposed Project. **Mitigation Measure 4.3-1d:** All work within the bed or on the banks of either San Vicente	**LTS**

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		or Denniston Creeks shall be restricted to low-flow periods, generally between July 1 and October 15. If the channel is dry, construction may occur outside of this period. **Mitigation Measure 4.3-1e**: In the event the channels are not sufficiently dry to allow work within them, water shall be diverted around the stream reach where the diversion structure is to be installed using coffer dams or other CDFW-approved methods. **Mitigation Measure 4.3-1f**: Best management practices (BMPs), including but not limited to, silt screens and sediment curtains, shall be placed downstream of the construction site to prevent transport of sediments from the project area to downstream reaches of the stream. **Mitigation Measure 4.3-1g**: To the extent feasible, the stream banks shall be returned to original grade slope after construction, and riparian vegetation shall be enhanced or replaced consistent with CDFW-approved methods. Bank stabilization measures, such as planting of riparian trees, the use of biodegradable jute netting, and/or hydro seeding with a native seed mix, shall be implemented to reduce potential for erosion and sedimentation within the stream channel. Replacement of directly impacted riparian vegetation shall include planting of native species in similar species composition and densities as identified within the areas immediately upstream of the POD for each creek. Propagule material shall be obtained from an approved supplier of native vegetation. **Mitigation Measure 4.3-1h**: The new POD will be screened for CRLF (see **Mitigation Measure 4.3-1l**). **Mitigation Measure 4.3-1i:** Removal of the existing diversion structure and construction of the new diversion structure and pump station within San Vicente Creek and within the riparian vegetation surrounding San Vicente Creek, installation of the pipeline within the riparian vegetation surrounding San Vicente Creek, and maintenance activities associated with dredging activities to maintain Denniston Reservoir shall be limited to the period of September 1 through October 15, which is after CRLF larval development and before the breeding season. **Mitigation Measure 4.3-1j:** The proposed replacement of the existing pipeline and the installation of the new pipeline within the nonnative annual grassland and all other habitats within 1.6 kilometers of aquatic features shall be limited to the period of March 15 to October 15.	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		Mitigation Measure 4.3-1k: An approved biological monitor shall be present on site during all construction and dredging activities. This biological monitor shall have the authority to temporarily halt construction for the protection of listed wildlife species. **Mitigation Measure 4.3-1l:** New intake structures shall be equipped with a barrier to prevent CRLF juveniles or tadpoles or SFGS from being entrained. The barriers shall consist of box-like structures of a minimum size of one square foot and shall be screened with ~~no greater than~~ material of a mesh size not to exceed five millimeters ~~mesh diameter~~. **Mitigation Measure 4.3-1m:** To the degree cofferdams are needed and flows will be bypassed during construction, flow shall be restored to the affected stream immediately upon completion of work at that location. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches of Denniston Creek and San Vicente Creek. **Mitigation Measure 4.3-1n:** During dredging activities at Denniston Reservoir, any decrease in water surface elevation (WSE) shall be controlled such that WSE does not change at a rate that increases turbidity to Denniston Creek that could be deleterious to aquatic life and/or the likelihood of stranding aquatic life in the manmade reservoir. Dredging activities shall be limited to the period of September 1 through October 15, which is after CRLF larval development and before the breeding season. An approved biological monitor shall be present during all dredging activities. CCWD shall consult with CDFW and USFWS regarding the feasibility of de-watering areas of Denniston Reservoir to be dredged and installation of CDFW-approved exclusion fencing around these areas prior to dredging. To the extent feasible, dredging shall provide for a balance of shallow and deep water habitat to enhance habitat for CRLF and SFGS. **Mitigation Measure 4.3-1o:** At least 14 days prior to the onset of any construction or maintenance activities, including dredging of Denniston Reservoir, the applicant shall submit the name(s) and credentials of biologists who ~~would~~ shall conduct activities specified in the following measures. No project activities shall begin until the applicant has received written approval from the USFWS/CDFW that the biologist(s) is qualified to conduct the work. **Mitigation Measure 4.3-1p:** Upon completion of the Section 7 consultation process, the USFWS will consider if an appropriate relocation site exists in the event a need arises to relocate either of the species. The applicant would be required to obtain a biological opinion	

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		with an incidental take statement from the USFWS in the event that the USFWS determines that the Proposed Project would result in take of CRLF. If the USFWS approves moving CRLF, the approved biologist will be allowed sufficient time to move them from the work site before work activities begin. Close biological monitoring (see Mitigation Measure **4.3-1k** above) and encouraging the species to leave the work area of their own accord would be the preferred method. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. Any SFGS found to occur shall be allowed to leave the work area of their own accord, and shall be monitored as practical by the biologist to ensure they do not reenter the work area. Furthermore, if SFGS are observed, exclusion fencing shall be considered in consultation with CDFW and USFWS to prevent the return of the SFGS. **Mitigation Measure 4.3-1q**: Prior to commencement of any groundbreaking activities, all construction personnel will receive training on listed species and their habitats by an approved biologist. The importance of these species and their habitat will be described to all employees as well as the minimization and avoidance measures that are to be implemented as part of the Proposed Project. An educational brochure containing color photographs of all listed species in the work area(s) will be distributed to all employees working within the project site. The original list of employees who attend the training sessions will be maintained by the applicant and be made available for review by the USFWS and the CDFW upon request. **Mitigation Measure 4.3-1r**: All best management practices prescribed by the San Mateo County planning office for work within sensitive habitat areas will be implemented to the full extent such as eliminating the use of herbicide or pesticide in a riparian area, protecting native vegetation, minimizing soil compaction, seed or plant temporary vegetation for erosion control, protect down slope drainage courses, streams, and storm drains with hay bales, temporary drainage swales, silt fences, berms or storm drain inlet filters (County of San Mateo Public Works). **Mitigation Measure 4.3-1s**: Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and the additional and ongoing dredging of Denniston Reservoir shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to minimize disturbances to the maximum extent practicable. **Mitigation Measure 4.3-1t**: All vehicles associated with construction and excavation	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		activities will be clustered within designated staging areas at the end of each work day or when not in use to minimize habitat disturbance and water quality degradation. **Mitigation Measure 4.3-1u**: Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the onsite biological monitor will check under the vehicles and their tires to ensure no listed species are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment. Any vehicle parked within the project site for more than 15 minutes shall be inspected by the biological monitor before it is moved to ensure that CRLF or SFGS have not moved under the vehicle. **Mitigation Measure 4.3-1v**: Fifteen miles per hour speed limits shall be enforced while driving in the project site, including transporting excavated material to the disposal site for the dredging material associated with Denniston Reservoir to the previously identified and used disposal sites within the eucalyptus grove. **Mitigation Measure 4.3-1w**: Prior to deposition of fill at the disposal site associated with the eucalyptus grove, the biological monitor shall inspect the areas to verify that CRLF or SFGS are not present. If any CRLF or SFGS are present, the excavated material shall not be placed until the individuals leave the area or unless the qualified biologist is permitted by the USFWS to capture and relocate the CRLF. **Mitigation Measure 4.3-1x**: Because CRLF and SFGS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the biological monitor for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way. **Mitigation Measure 4.3-1y**: Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and to dewater and dredge the manmade reservoir along Denniston Creek shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to the maximum extent practicable. **Mitigation Measure 4.3-1z**: Prior to commencement of any groundbreaking activities, all	

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		construction personnel will receive training on WPT. The training will be incorporated as described for CRLF and SFGS. **Mitigation Measure 4.3-1aa**: Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the biological monitor will check under the vehicles and their tires to ensure no WPT are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment. **Mitigation Measure 4.3-1bb**: Prior to commencement of daily construction or excavation activities, the biological monitor will conduct a preconstruction survey for WPT. If WPT is present, the biologist will be allowed sufficient time to move them from the work site before work activities begin. **Mitigation Measure 4.3-1cc**: If any trees are proposed for removal, a qualified wildlife biologist shall conduct a focused survey for roosting bats no more than 14 days prior to the anticipated date of tree removal. Trees that contain cavities will be thoroughly investigated for evidence of bat activity. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of roosts, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey. **Mitigation Measure 4.3-1dd**: If special status bats are found roosting within any trees slated for removal, the areas shall be demarcated by exclusionary fencing and avoided until a qualified biologist can assure that the bats have vacated. **Mitigation Measure 4.3-1ee**: A qualified biologist shall conduct a preconstruction survey to determine if active woodrat nests occur within a ten-foot buffer of areas to be cleared of riparian vegetation within 14 days prior to commencement of construction activities. Similar surveys shall be conducted in and immediately adjacent to the use of the existing dredge disposal sites. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey. **Mitigation Measure 4.3-1ff**: If woodrat nests are present and determined to be occupied, each woodrat shall be relocated to suitable habitat in consultation with the CDFW. If young are found within the nest, the nest material shall remain in its existing condition and a ten-	

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		foot buffer around the nest shall be established. No work shall occur within the ten-foot buffer until a qualified biologist determines that the young have been weaned (up to six weeks from birth), at which point the biologist should dismantle and relocate the nest to an area with suitable habitat that would not be impacted by the Proposed Project. **Mitigation Measure 4.3-1gg**: Should any trees be anticipated for removal, they should be removed between September 16 and March 14, which is outside of the nesting bird season (the nesting bird season is between March 15 and September 15). **Mitigation Measure 4.3-1hh**: Should removal be required outside of the dates identified in 4.3-1ff then a qualified biologist shall conduct a preconstruction survey within 14 days prior to commencement of any construction activities associated with the Proposed Project should construction be anticipated to commence during the nesting season for birds of prey and migratory birds (between March 15 and September 15). A letter report shall be prepared and submitted by the applicant following the preconstruction survey to document the results. If surveys show that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey. **Mitigation Measure 4.3-1ii**: If any active nests are located within the vicinity of the project site, a buffer zone shall be established around the nests. A qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist should delimit the buffer zone with construction tape or pin flags within 100 feet of the active nest and maintain the buffer zone until the end of breeding season or the young have fledged. Guidance from the CDFW will be requested if establishing a 100-foot buffer zone is impractical. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results.	
Impact 4.3-2. **Development of the Proposed Project has the potential to impact sensitive habitat including the riparian vegetation of San Vicente Creek and Denniston Creek**	**SI**	**Mitigation Measure 4.3-2a**: The applicant shall comply with the policies identified within the sensitive habitat component of the LCP and the General Plan by obtaining a CDP from the County **Mitigation Measure 4.3-2b**: The applicant shall comply with a Riparian Restoration and Monitoring Plan (RRMP). The RRMP shall include performance criteria and development standards for development permitted within the riparian vegetation. **Mitigation Measure 4.3-2c**: Riparian habitat impacts shall be replaced or enhanced in the	**LTS**

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		area of impact or, if infeasible, within reasonable proximity to the project site as identified in the RRMP. Examples of restoration include but are not limited to re-contouring of the creek to offset the impacts from the current inefficient diversion and the related undercutting of the stream channel which has occurred, the replanting of native vegetation to offset any unavoidable removal of trees or understory and possible measures designed to avoid further erosion and the removal of debris from both creeks and their associated riparian habitat. If additional measures are required in the State or Federal Permitting process then they shall also be followed and included in the RRMP. **Mitigation Measure 4.3-2d:** To reduce the potential for off-site tracking of sediment and to eliminate the spread of invasive plant species, all construction equipment shall be inspected for seeds or plant parts before entering and leaving the site. If seeds or plant parts are found, the equipment shall be washed in the staging area.	
Impact 4.3-3. **Development of the Proposed Project has the potential to impact waters of the United States.**	**SI**	**Mitigation Measure 4.3-3a**: Unavoidable impacts to waters of the United States shall be mitigated consistent with the existing agreements between the USACE and the EPA with an emphasis on for onsite restoration to ensure a no net loss to waters of the United States and of the state. **Mitigation Measure 4.3-3b**: Avoid the 0.01 acre seasonal wetland during construction of the pipeline.	**LTS**
Impact 4.3-4. **Removal and disposal of the dredge material has the potential to impact biological resources.**	**SI**	**Mitigation Measure 4.3-4a**: Prior to dredging, soils to be removed will be sampled and tested for contaminants. The samples shall at a minimum be tested for the following constituents: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc. If sampling of the dredged materials indicates that soils may constitute hazardous materials then they shall be disposed of in accordance with corresponding California statutory regulations at an approved dredge disposal site Recycleworks.org is a program of San Mateo County and is a guide for building contractors on how to properly dispose of hazardous materials. **Mitigation Measure 4.3-4b**: Dredging shall generally be from the dam side and along the road in order to minimize impacts to the surrounding environment. **Mitigation Measure 4.3-4c**: To the degree feasible the dredging shall be done in a manner that restores an upstream channel of Denniston creek coming into the reservoir. **Mitigation Measure 4.3-4d**: All dredged material will be disposed of at one of the two on-	**LTS**

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		site disposal areas if sampling indicates that soils do not constitute hazardous materials.	
Impact 4.3-5. **Development of the Proposed Project has the potential to impact trees**	**SI**	**Mitigation Measure 4.3-5**: If trees covered by the County Tree Ordinance are required to be removed, the applicant shall comply with the policies identified within the San Mateo County Significant Tree Ordinance, including an arborist report and specific mitigation including replacement planting. No trees over 38 inches are currently anticipated to be removed under this project.	**LTS**
4.4 CULTURAL RESOURCES			
Impact 4.4-1. **Development of the Demonstration Project may impact previously unidentified cultural resources or may disturb human remains.**	**SI**	**Mitigation Measure 4.4-1a:** Should any buried archaeological material, such as flaked stone, historic debris, or human remains be inadvertently discovered during ground-disturbing activities, work should stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop treatment measures in consultation with appropriate agencies. **Mitigation Measure 4.4-1b:** If human remains are discovered during project construction, work will stop at the discovery location and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5). The San Mateo County coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of prehistoric Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Resources Code, Section 5097). The coroner will contact the NAHC. The most likely descendants (MLD) of the deceased will be contacted, and work will not resume until the appointed MLD has made a recommendation to the landowner or the person responsible for the excavation work for means of treating and disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98. Work may resume if NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 48 hours.	**LTS**
4.5 GEOLOGY AND SOILS			
Impact 4.5-1. **The Proposed Project would result in the construction of structures within a seismically active area.**	**LTS**	None required.	**LTS**

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
4.6 GREENHOUSE GAS EMISSIONS			
Impact 4.6-1. **Construction and operation of the Proposed Project has the potential to result in cumulatively considerable GHG emissions.**	**SI**	**Mitigation Measure 4.6-1:** Implement **Mitigation Measure 4.2-1**, which would reduce project-related GHG emissions by three percent.	**LTS**
4.7 HAZARDS AND HAZARDOUS MATERIALS			
Impact 4.7-1. **Equipment used during grading and construction activities may create sparks, which could ignite dry grass on the project site.**	**SI**	**Mitigation Measure 4.7-1a:** During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. **Mitigation Measure 4.7-1b:** Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.	**LTS**
Impact 4.7-2. **The Proposed Project is located within the planning area for the San Mateo County Comprehensive Airport Land Use Compatibility Plan, and therefore could result in potential safety hazards for people residing or working in the project area.**	**LTS**	None Required.	**LTS**
Impact 4.7-3. **Construction of the Proposed Project would include the routine storage and handling of hazardous materials, which could result in a public health or safety hazard from the accidental release of hazardous materials into**	**SI**	**Mitigation Measure 4.7-2:** Personnel shall follow written Standard Operating Procedures (SOPs) for filling and servicing construction equipment and vehicles. The SOPs, which are designed to reduce the potential for incidents involving the hazardous materials, shall include the following: ▪ Refueling shall be conducted only with approved pumps, hoses, and nozzles; ▪ Catch pans shall be placed under equipment to catch potential spills during servicing;	**LTS**

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
the environment.		▪ All disconnected hoses shall be placed in containers to collect residual fuel from the hose; ▪ Vehicle engines shall be shut down during refueling; ▪ No smoking, open flames, or welding shall be allowed in refueling or service areas; ▪ Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill; ▪ Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents; ▪ Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, State, and Federal regulations; ▪ All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas shall be inspected monthly. Results of inspections shall be recorded in a logbook that would be maintained on site; and ▪ The amount of hazardous materials used in project construction and operation shall be consistently kept at the lowest volumes needed.	
Impact 4.7-4. **Sediment removal activities associated with the Proposed Project could create a significant hazard through upset and accident conditions involving the release hazardous materials into the environment.**	**SI**	This impact is discussed in **Section 4.3**, Biological Resources, and is reduced to a less-than-significant level through implementation of **Mitigation Measures 4.3-4a** through **4.3-4d**.	**LTS**
4.8 HYDROLOGY AND WATER QUALITY			
Impact 4.8-1. **Construction activities may substantially degrade surface water and/or groundwater quality.**	**SI**	**Mitigation Measure 4.8-1.** CCWD shall comply with the SWRCB NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). The SWRCB requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. To comply with the NPDES permit, the applicant shall file a Notice of Intent with the SWRCB and prepare a Storm Water Pollution Prevent Plan (SWPPP) prior to construction, which includes a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills) to include a description of the type and location of erosion and sediment	**LTS**

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		control best management practices (BMPs) to be implemented at the project site, and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the Proposed Project site. A copy of the SWPPP must be current and remain on the project site. Control measures are required prior to, and throughout, the rainy season. Water quality BMPs identified in the SWPPP shall include, but are not limited to, the following: ▪ Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months. ▪ Sediment shall be retained onsite by the detention basin, onsite sediment traps, or other appropriate measures. ▪ A spill prevention and countermeasure plan shall be developed which would identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan would also require the proper storage, handling, use, and disposal of petroleum products. ▪ Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction. ▪ Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion. ▪ Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater. ▪ Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events. Re-use of topsoil for restoration of native vegetation shall be limited to topsoil salvaged from areas with only native plant species.	

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ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
		▪ Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff. ▪ Disturbed areas shall be revegetated after completion of construction activities. ▪ Provide sanitary facilities for construction workers	
Impact 4.8-2. **The Proposed Project would change the water volume and/or pattern of seasonal flows in a manner that could result in a significant reduction in water supply downstream of the diversion for senior water right holders and a significant reduction in the available aquatic habitat or riparian habitat for native species of plants or animals.[1]** [1] This impact is taken from the SWRCB's custom CEQA Checklist for analyzing water right applications, found online at http://www.waterboards.ca.gov/waterrights/. In this EIR, impacts to aquatic habitat and riparian vegetation are discussed and analyzed in **Section 4.2 Biological Resources**.	**SI**	**Mitigation Measure 4.8-2:** ~~The District shall control the diversion on San Vicente Creek such that the flow bypassed during diversions from June 1 through October 1 meets the current permit term requirement of a wetted channel at the southwesterly border of Torello Ranch.~~ No water shall be diverted from San Vicente Creek under Permit 15882 unless there are surface water flows at both the Etheldore Bridge and California Street points of compliance/monitoring locations (depicted on **Figure 4.8-1**). This measure applies year-round to CCWD's diversions from San Vicente Creek. At the Etheldore Bridge monitoring location, the existence of surface water flows may be established by either a flow gage or by monitoring groundwater levels in a piezometer (well) to be constructed a short distance from the San Vicente Creek channel. If the water level in the piezometer is at or above the channel thalweg elevation, or if there is surface water at this location, then the condition requiring surface-water flow at Etheldore Bridge will be considered as being met. If the water level in this piezometer is below the thalweg elevation and there is no surface water at this location, then this condition will be considered as not being met, and CCWD shall not divert any water from San Vicente Creek. If a piezometer is used and water levels in the stream and piezometer differ, the water levels in the stream shall govern. At the California Avenue monitoring location, surface water shall be visually observed at or near the existing stream gage. If surface water is observed at this gage, then the condition requiring surface water flow at California Avenue will be considered as being met. If there is no surface water at this gage, then this condition will be considered as not being met, and CCWD shall not divert any water from San Vicente Creek.	**LTS**
Impact 4.8-3. **The Proposed Project would not 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 level (e.g., the**	**LTS**	None required	**LTS**

TABLE 2-1
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ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
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).			
Impact 4.8-4. **The Proposed Project could 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; or substantially increase the rate or amount of runoff in a manner which would result in flooding on or off-site.**	**LTS**	None required	**LTS**
Impact 4.8-5. **Development of the Proposed Project could 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 that would impede or redirect flood flows; or 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.**	**LTS**	None required	**LTS**
Impact 4.8-6. **The Proposed Project in combination with future growth and development**	**LTS**	None required	**LTS**

Less than Significant = LTS | Significant Impact = SI | Significant and Unavoidable = SU | BI = Beneficial | NI = No Impact

TABLE 2-1
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ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
within the County and project vicinity would not result in cumulative impacts to hydrology and water quality.			
4.9 NOISE			
Impact 4.9-1. **Construction activities associated with Proposed Project have the potential to intermittently and temporarily generate noise levels significantly greater than existing ambient levels in the Proposed Project vicinity.**	**SI**	**Mitigation Measure 4.9-1.** Construction activities shall be limited to the hours of 7:00 am to 6:00 pm Monday through Friday and 9:00 am to 5:00 pm Saturday. Construction activities shall not be conducted on Sundays or holidays. In addition, the contractor shall implement the following BMPs to further reduce noise impact due to construction: ▪ Stationary equipment and staging areas shall be located as far as practical from noise-sensitive receptors. ▪ All construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations. ▪ To the extent feasible, existing barrier features (structures) shall be used to block sound transmission between noise sources and noise sensitive land uses. ▪ The general contractors for all construction and demolition activities shall provide a contact number for citizen complaints and a methodology for dealing with such complaints such as designating a noise disturbance coordinator. This noise disturbance coordinator shall receive all public complaints about construction-related noise and vibration, shall be responsible for determining the cause of the complaint, and shall implement any feasible measures to be taken to alleviate the problem. All complaints and resolution of complaints shall be reported to the County weekly.	**LTS**
Impact 4.9-2. **Construction activities associated with the Proposed Project have the potential to intermittently and temporarily generate vibrations.**	**LTS**	None required	**NI**
Impact 4.9-3. **Operation of the Proposed Project has**	**SI**	**Mitigation Measure 4.9-2.** Noise generated by the electric pump located at the new San Vicente POD shall be equipped with a noise-reducing shielding, so that noise generated by	**LTS**

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACT	SIGNIFICANCE BEFORE MITIGATION	MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION
the potential to generate noise levels above existing ambient levels in the Proposed Project vicinity.		the pump does not to exceed the County's noise threshold of 55 CNEL, dbA at a distance of 50 feet.	

SECTION 3.0

PROJECT DESCRIPTION

3.0 PROJECT DESCRIPTION

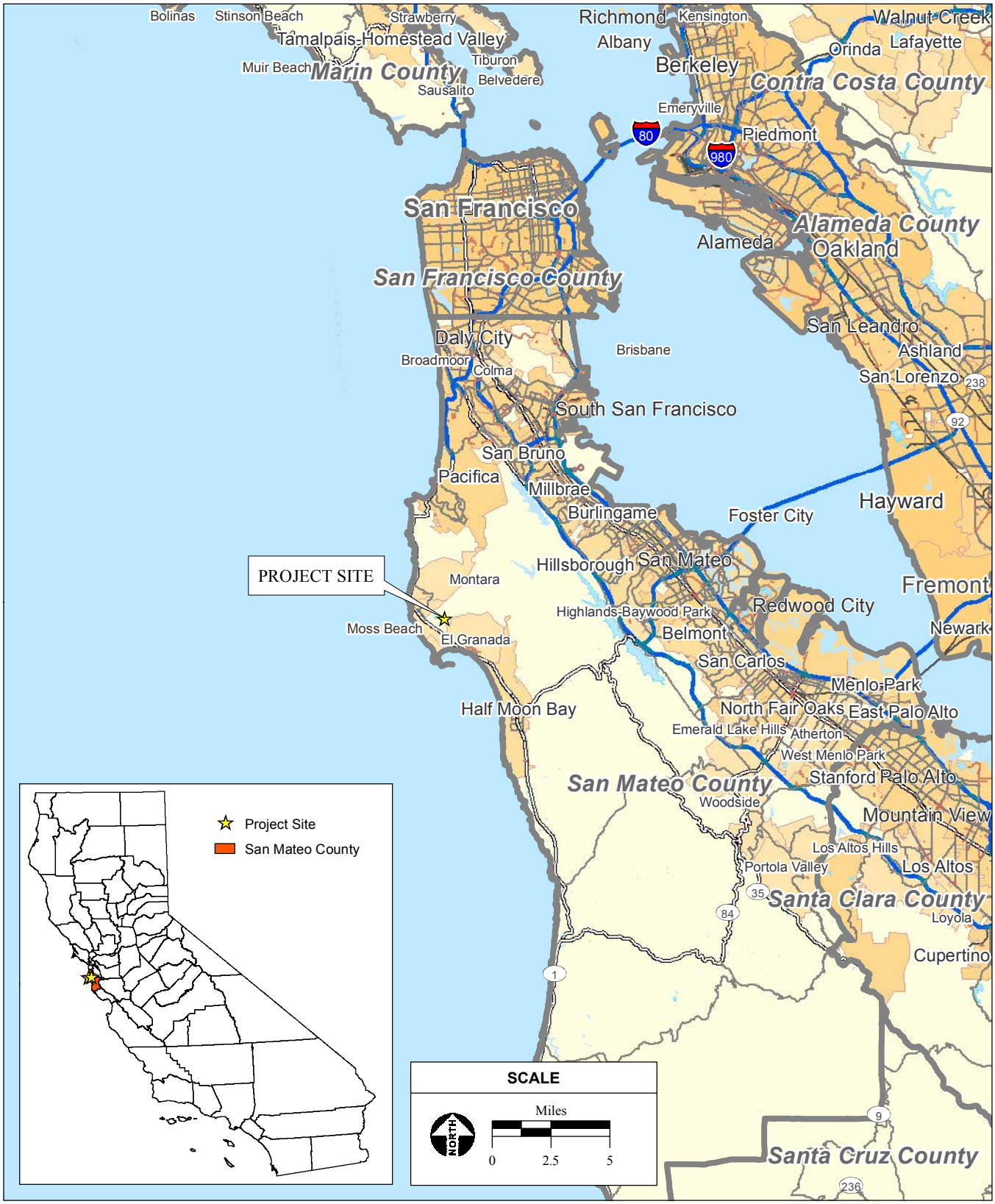
3.1 INTRODUCTION

Coastside County Water District (CCWD) provides water to customers within an approximately 14 square mile area along the California coast in San Mateo County. The CCWD service area contains the City of Half Moon Bay as well as unincorporated areas of San Mateo County including Miramar, Princeton by the Sea, and El Granada. CCWD currently serves a population of approximately 20,000 customers with water from four sources: 1) Denniston Creek; 2) wells in the vicinity of Pilarcitos Creek; 3) wells near Denniston Creek; and 4) imported water from the San Francisco Public Utilities Commission (SFPUC) (West Yost Associates, 2010).

CCWD is seeking approval from the State Water Resources Control Board (SWCRB) of a petition for extension of time for water right Permit 15882 (Application 22860). The approval of this extension of time would allow CCWD to complete the construction of a pipeline and infrastructure improvements to facilitate full beneficial use of authorized diversions under Permit 15882. This would increase the availability of and reliance on local water sources, thereby lessening dependence on imported water from the SFPUC. Permit 15882 allows for the direct diversion of up to 4.0 cubic feet per second (cfs) from both creeks during the period of January 1 to December 31 of each year. The permit provides that the quantity diverted from each creek shall not exceed 2.0 cfs. If the SWRCB grants this petition, CCWD would have until December 31, 2016 to complete construction of the proposed water collection system improvements and to beneficially use the water to the maximum extent authorized by Permit 15882.

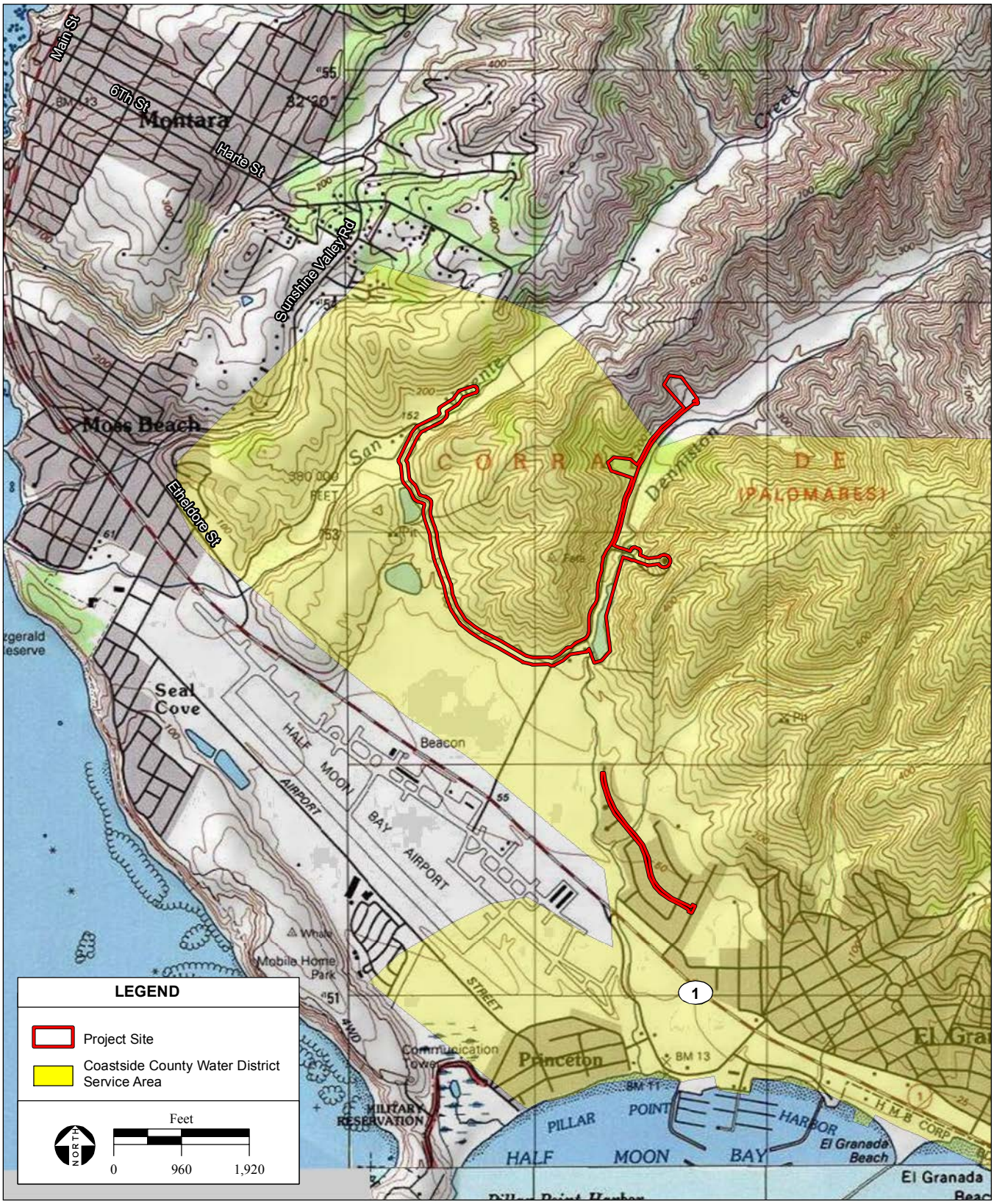
Sediment removal occurs as part of the current operations of the Denniston Creek diversion; part of the Proposed Project would include expansion of the existing program to include sediment removal from Denniston Reservoir. The CEQA document prepared for this project will serve as the environmental document for the SWRCB decision on CCWD's petition for an extension of time for CCWD's construction of the infrastructure described herein, and for CCWD's expanded sediment removal program.

The project site is shown in **Figures 3-1** and **3-2**. The Proposed Project is located in the northern portion of the CCWD service area. The majority of the CCWD's service area is located along the coastal terrace between the Santa Cruz Mountains to the east, the Pacific Ocean to the west, the community of Princeton by the Sea to the north, and the City of Half Moon Bay to the south. Denniston Creek and the existing Denniston Reservoir are located northeast of the Half Moon Bay Airport on the inland side of U.S. Highway 1. The Denniston Creek watershed covers approximately 8,000 acres and discharges into Half Moon Bay, located approximately 1.2 miles south of the existing Denniston Reservoir (California Coastal



SOURCE: StreetMap North America, 2009; AES, 2013

Figure 3-1
Regional Location



SOURCE: "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

Figure 3-2
Site and Vicinity

Commission, 2008). Denniston Reservoir serves as the existing Point of Diversion (POD) on Denniston Creek for the CCWD. This will not change under the Proposed Project.

The authorized POD on San Vicente Creek is located approximately 4,300 feet due north of Denniston Reservoir. The San Vicente Creek watershed covers approximately 1,170 acres and discharges into the Pacific Ocean within the boundaries of the Fitzgerald Marine Reserve.

Currently, the Denniston Creek Pump Station pumps untreated water from the Denniston POD to the Denniston Water Treatment Plant (WTP), which has a capacity to treat 1,000 gallons per minute (gpm) of water. From there, treated water is put into storage at the Denniston Tank and is gravity fed to the CCWD distribution system. Due to the hydraulic limitations addressed by the Proposed Project, the flow of treated water leaving the Denniston Tank is often limited to approximately 300 gpm.

The topography of the surrounding area consists of rolling hills transitioning into coastal plain. The current land uses within the two watersheds are primarily dominated by open space, recreation (hiking and equestrian), and agriculture.

3.2 PROJECT COMPONENTS

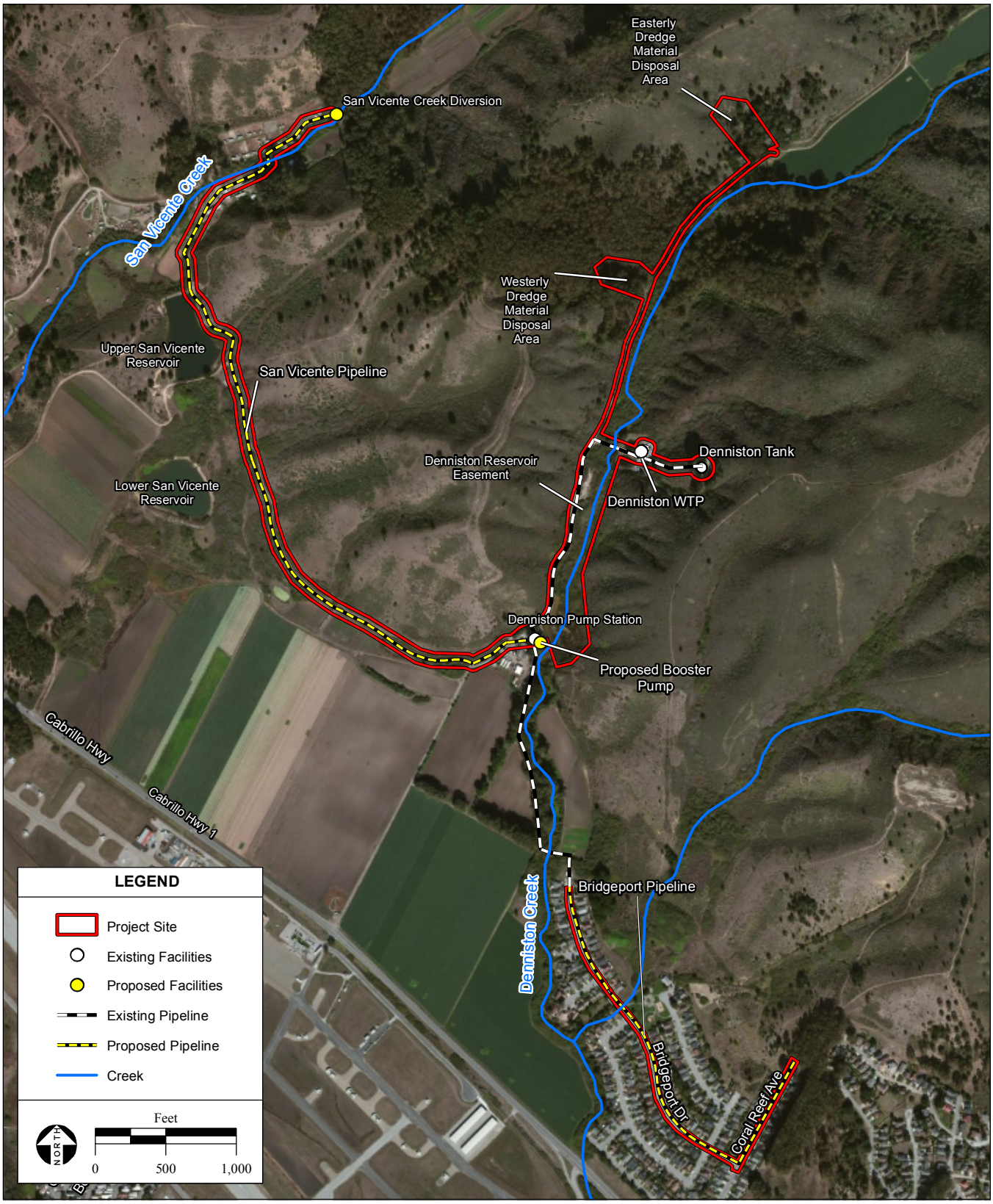
Project components analyzed in this Draft EIR include:

1) Water Right Permit 15882 – petition for extension of time;
2) New Diversion Structure and Pump Station – San Vicente Creek;
3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
4) Denniston WTP – expand capacity up to 1,500 gpm;
5) New Booster Pump Station;
6) New Pipeline – along Bridgeport Drive (3,460 feet); and
7) Expanded sediment removal from the Denniston Reservoir.

Proposed Project components, including construction areas and the existing easements which would be used for the expanded sediment removal and disposal, are shown on **Figure 3-3.**

3.2.1 PETITION FOR EXTENSION OF TIME FOR WATER RIGHT PERMIT 15882

In the past, CCWD has been limited by water availability and treatment plant capacity, and has often been unable to utilize the full amount of water authorized for diversion under Permit 15882 when it is available (up to 2 cfs each from San Vicente and Denniston Creeks). The proposed infrastructure improvements described above will allow CCWD to increase diversions and use of water under this permit.



SOURCE: Kennedy Jenks, 2010; USGS Aerial Photograph, 6/30/2008; AES, 2013

Figure 3-3
Project Components

3.2.2 PROPOSED FACILITY IMPROVEMENTS

Diversion Structure and Pump Station on San Vicente Creek

The Proposed Project includes the construction of a permanent diversion structure at the location of the San Vicente Creek POD, which is currently an authorized POD in Permit 15882. The construction of the new diversion structure would occur adjacent to, and within, San Vicente Creek and would require the removal and trimming of minimal amounts of vegetation. The existing temporary diversion (shown in **Figure 4.3-2c: Photograph 11**) would be removed prior to construction of the permanent diversion infrastructure, and would be replaced by the new structure. It is anticipated that the design of the new POD, which is shown in **Figure 3-4**, would be similar to the existing structure but would be constructed of concrete and more permanent materials, to avoid erosion and downcutting of the channel.

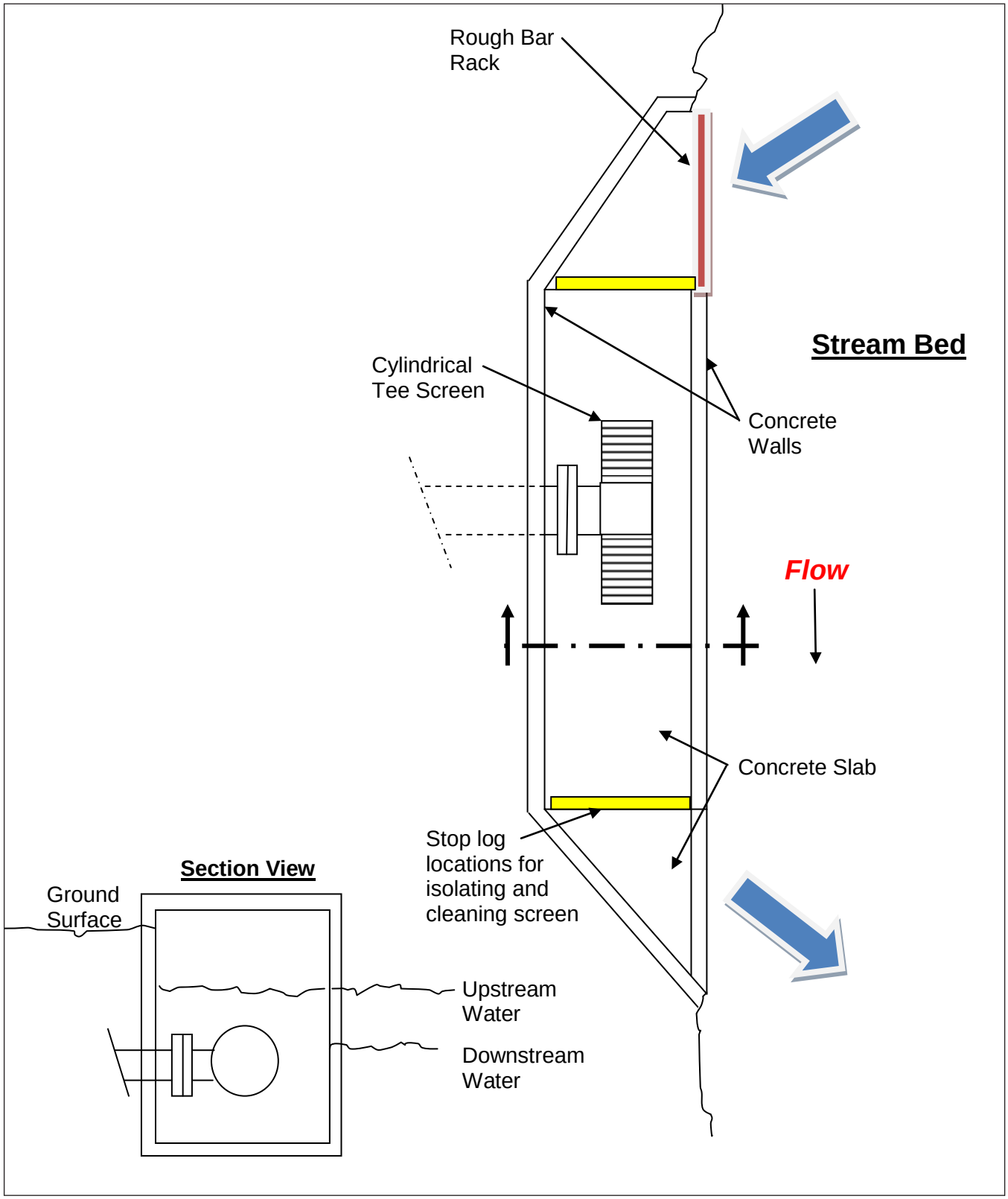
Water would be pumped from the diversion via the upgraded pipeline to the existing Denniston Pump Station and then to the Denniston WTP. The pump would only operate during the diversion season. Existing riparian vegetation would serve as a visual buffer by screening the pump from view and would also act as a noise buffer for adjacent properties.

New and Upgraded Pipeline to Denniston Creek Pump Station

Water diverted from San Vicente Creek would be conveyed via 6,100 feet of upgraded and new piping to the existing Denniston Creek Pump Station, which is located adjacent to the Denniston Reservoir. The proposed pipeline would be installed within existing CCWD easements. The proposed pipeline route is oriented along the toe of the slope that separates the San Vicente Creek and Denniston Creek watersheds at the coastal plain transition, primarily along or within existing farm roads. This proposed alignment is similar to the alignment of the pipeline that CCWD has used in the past to convey water from San Vicente Creek to the Denniston pump station and WTP. The existing portion of the pipeline from the POD on San Vicente Creek to the upper San Vicente Reservoir would be replaced and a new underground pipeline would be installed from that point to the existing pump station at Denniston Reservoir.

The pipeline would be installed using open cut trenching, which requires removal of vegetation, excavation of the trench, installation of the pipeline, backfill and compaction, and re-grading where necessary. Where feasible, native material generated during trenching would be retained for backfill. Excavated materials that cannot be utilized for backfill would be hauled offsite to appropriate disposal facilities, and any additional backfill material needed would be imported.

Depending on site conditions, trenches would be secured at the end of each workday by covering with steel plates, filling with backfill material, or installing barricades to restrict access.



SOURCE: Kennedy/Jenks Consultants, 8/5/2013; AES, 2013

Figure 3-4
Screened Intake Structure with Cylindrical Screen

To minimize runoff and erosion during construction, work would be performed during the dry season (generally March 15 through October 15) and standard erosion control features and best management practices (BMPs) would be utilized during construction. See **Section 4.8**, Hydrology and Water Quality, for further discussion of BMPs and erosion control features.

Denniston WTP Capacity Increase

The California Department of Public Health (CDPH) has a system of rating water treatment plants to ensure the level of service is safe and reliable; CDPH has rated the Denniston WTP at a capacity of 1,040 gpm. In order to facilitate the treatment of water from San Vicente and Denniston Creeks, the CCWD will either request a re-rating of the plant or upgrade the existing infrastructure to expand the capacity of the plant. It is anticipated that re-rating the plant based on a maximum filtration rate of 3.0 gpm per square foot would allow the Denniston WTP to operate at a peak capacity of 1,440 gpm (3.21 cfs) during peak water availability. Alternatively, moderate upgrades to the plant would increase the maximum rated capacity to 1,500 gpm (3.34 cfs). Either of these alternatives would allow the CCWD to divert water from San Vicente and Denniston Creeks under Permit 15882 at rates up to the maximum authorized rates of 2 cfs.

New Booster Pump Station

Water treated at the Denniston WTP is stored in an existing 1.5 million gallon (MG) tank (Denniston Tank) located on a hillside approximately 170 feet above the Denniston WTP. There is a relatively flat hydraulic grade line between the Denniston Tank and the Carter Hill Tank; as a result of this grade line, gravity flow from the Denniston Tank to the Carter Hill Tank currently is limited to approximately 300 gpm (0.67 cfs) (CCWD, 2010). In order to increase the flow from Denniston WTP into the CCWD distribution system, pumping will be required.

As part of the Proposed Project, CCWD proposes to install a Booster Pump Station adjacent to the existing Denniston Pump Station on CCWD property (CCWD, 2010). The Booster Pump Station will increase maximum flow rates from the Denniston Tank to the Carter Hill Tank, and, as a result, will allow the Denniston WTP to operate at full capacity. The Booster Pump Station will be designed for up to three vertical, electric turbine pumps, with two pumps installed initially and room for a third as needed. The duty condition of each pump will be 600 gpm.

New Pipelines along Bridgeport Drive

Following the completion of the El Granada Pipeline Replacement Project in 2008, CCWD's main north-south transmission pipeline has sufficient capacity to convey the maximum output of the Denniston WTP south into the rest of CCWD's distribution system. However, the larger diameter El Granada Pipeline does not extend all the way to the Denniston WTP. The residential distribution network of 8-inch and 6-inch pipelines along Bridgeport Drive in El

Granada, which currently conveys Denniston WTP treated water to the northern end of the El Granada Pipeline, creates a flow-limiting bottleneck that must be eliminated to allow the Denniston WTP to operate at full capacity. The Proposed Project includes installation of 3,460 feet of new transmission pipeline along Bridgeport Drive and Coral Reef Avenue, connecting to the 12-inch main at the intersection of Coral Reef and Doelger Drive (see **Figure 3-3**). All new pipelines will be installed within existing paved roadways.

To complete pipeline construction within public rights-of-way, CCWD must obtain an Encroachment Permit from the San Mateo County Department of Public Works. CCWD must comply with all conditions of the permit, including the provisions for the protection of traffic circulation in the area. These include, but are not limited to: barricades, warning lights, and flaggers. All work shall be planned and carried out so that there will be the least possible inconvenience to the traveling public. CCWD will also devise a traffic management plan and file it with the appropriate San Mateo County authority and will notify any affected homeowners in advance of any road work or service disruptions.

3.2.3 Operation and Maintenance Activities

CCWD currently operates an annual maintenance sediment removal program at Denniston Reservoir under a Streambed Alteration Agreement (SAA) with the California Department of Fish and Wildlife (CDFW). This ongoing SAA authorized a onetime removal of approximately 800 cubic yards (cy) of sediment during the first year, with disposal in the existing approved disposal area in a eucalyptus grove east of the reservoir. The SAA also authorizes the removal of 400 cy of material annually as part of the CCWD's ongoing POD maintenance at the Denniston Reservoir; in 2013, CCWD was in the fifth year of this program. Under the Proposed Project, CCWD would expand the area and scope of the ongoing sediment removal program. CCWD's easement for the reservoir encompasses over three surface acres, which is approximately the size of the original reservoir built in the 1930's. The current SAA covers the annual sediment removal on about 0.5 acres immediately adjacent to the dam. While this meets the immediate needs of the diversion, it is not an optimal program for the ongoing maintenance of the reservoir over time.

CCWD proposes a larger sediment removal maintenance plan, which would involve clearing a significant portion of the sediment-filled, overgrown area of the original reservoir. This expanded reservoir management plan would include the restoration of a creek channel within the existing riparian area and would benefit the local red-legged frog population while providing assurance for the CCWD and the farmer that uses the reservoir that their POD will have a more sustainable and higher quality water source. The restored capacity of the reservoir would be approximately 30 acre feet (AF), which is less than the maximum 30 day combined diversions by CCWD and the farmer that uses this reservoir. This annual maintenance program would

also help to ensure the continued capture of sediment at the reservoir and prevent it from being conveyed downstream to Half Moon Bay Harbor.

CCWD currently has easements for the two existing dredge material disposal areas. The expanded sediment removal program would require either an amendment to the existing SAA or a new SAA between CCWD and CDFW and is part of the Proposed Project.

Ongoing operational activities associated with the proposed new facilities may include routine maintenance of the San Vicente pipeline, maintenance and/or possible future dredging of the San Vicente diversion structure, although the latter is not currently anticipated, maintenance of the pump station at San Vicente Creek, maintenance at the proposed Booster Pump Station, and routine maintenance of pipelines along Bridgeport Drive.

3.2.4 PROJECT OBJECTIVES

The Proposed Project would meet the following objectives:

- Improve the overall reliability of the CCWD water supply system;
- Increase usage of local water supplies to improve the balance between imported and local sources and reduce dependence on imported water;
- Complete the construction of infrastructure originally anticipated in existing water right Permit 15882; and
- Maintain Denniston Reservoir closer to its original size and capacity on an ongoing basis.

3.3 PROJECT BACKGROUND AND NEED

3.3.1 CURRENT CCWD WATER SUPPLY

The existing CCWD system consists of two water treatment plants, 17 miles of transmission pipeline, 83 miles of distribution pipeline, several water storage tanks and supporting equipment and facilities. CCWD has implemented, and is continuing to implement, capital projects to improve efficiency and reliability and to ensure that there will be sufficient treatment capacity to allow full use of local groundwater, local surface water, and purchased water. CCWD approved and completed the upgrade of the El Granada Transmission Pipeline, eliminating a significant hydraulic bottleneck between the CCWD's El Granda Tank No. 1 and the Nunes WTP. This project was a necessary step to facilitate the exchange of local water and purchased water for utilization throughout CCWD's service area.

CCWD currently receives its water supply from four sources:

1) the diversion at Denniston Creek;
2) wells adjacent to Pilarcitos Creek;
3) wells near Denniston Creek; and
4) SFPUC water from Pilarcitos Lake and Crystal Springs Reservoir.

A table depicting historical supply reliability of the existing CCWD sources is shown in **Table 3-1**.

TABLE 3-1
HISTORICAL SUPPLY RELIABILITY, AFY

Supply	Average/ Normal Year	Single Dry Water Year	Multiple Dry Water Years		
			Year 1	Year 2	Year 3
	2002	1977	1988	1989	1990
SFPUC Supplies	2,455	2,032	2,032	1,765	1,765
Pilarcitos Creek Wells	150	75	75	0	0
Denniston Surface Water	610	305	305	122	0
San Vicente Surface Water	0	0	0	0	0
Denniston Wells in Airport Terrace Aquifer	120	60	60	24	0
Total	3,335	2,472	2,472	1,911	1,765
Percent of Average/Normal Year, %	100	74	74	57	53

Source: Adapted from West Yost Associates, 2010

SFPUC Supplies

In dry water years, the amount of SFPUC water available to the District may decrease, as explained further below. For a single dry water year or multiple dry water years, it is important that the CCWD has appropriate infrastructure to adequately utilize local water sources under its existing water right (Permit 15882).

The CCWD purchases water from SFPUC under terms of the 2009 Water Supply Agreement between SFPUC and its wholesale customers, and is currently entitled to 800 MG annually (2,455 AF), except in drought years when mandatory water rationing is in effect. SFPUC's water supply is predominately water runoff and snowmelt from the Sierra Nevada delivered from the Hetch Hetchy aqueducts. The SFPUC also treats water at its local facilities in Alameda and San Mateo Counties. The CCWD purchases water from two sources owned and operated by the SFPUC: Pilarcitos Lake and the Upper Crystal Springs Reservoir. Pilarcitos Lake consists of water collected from local runoff from the surrounding Peninsula watershed. Upper Crystal Springs Reservoir is supplied by local runoff from the surrounding Peninsula watershed and from imported water supplies from Hetch Hetchy.

CCWD Local Sources

The local water sources utilized by CCWD include surface water and groundwater, which CCWD operates in a conjunctive-use manner. In 2010, approximately 88 percent of the annual CCWD-wide demand was met by water purchased from SFPUC, with the remaining 12 percent produced locally from ground and surface water (CCWD, 2012). The amount of water available from SFPUC has recently been capped until 2018 and is not expected to increase in the future, thereby increasing the need for CCWD to fully utilize and integrate all local water sources. The projected future supplies of the District that will supplement the Proposed Project diversions are depicted in **Table 3-2**.

TABLE 3-2
OTHER FUTURE WATER SUPPLIES, AFY

Supply Source	Planned Future Water Supplies (2035)
SFPUC Supplies	2,269
Pilarcitos Creek Wells	150
Denniston Wells in Airport Terrace Aquifer	120
Total	**3,633**

Source: Adapted from West Yost Associates, 2010

San Mateo County and the City of Half Moon Bay have both adopted growth control measures, which have reduced the overall rate of new development within CCWD's service area. These growth restrictions, in conjunction with Local Coastal Program (LCP) policies, require phasing of utility infrastructure, including water production, treatment, and transmission facilities, to correspond to planned development rate in the LCPs. The slow but steady growth planned for in the LCP, in combination with the escalating costs of importing water from SFPUC, require CCWD to fully utilize local supplies to ensure that CCWD can meet its current, as well as its anticipated long-term, water demands for the authorized growth. The use of local supplies would reduce the dependence on imported water but would not change the overall demand for water by CCWD.

Denniston Creek Supplies

In 1973, CCWD completed construction of the Denniston Project, which included the Denniston Pump Station, the Denniston WTP, the Denniston water storage tank, and a pipeline connecting the storage tank to the main distribution system.

CCWD completed modifications to the Denniston storage tank in 2009 to remove the chlorine contact time limitations that had restricted WTP capacity, and in 2013 CCWD completed improvements to the Denniston WTP. The upgrades at the Denniston WTP allow the use of generally lower quality raw water from the existing diversions as well as the groundwater from the

Denniston well field. These improvements, when combined with other recent improvements such as the El Granada Pipeline, will improve the reliability and security of CCWD's water supply.

Pilarcitos Wells

Wells near Pilarcitos Creek are located between Pilarcitos Lake and Highway 92, and are owned and operated by CCWD. Operation of these wells is limited by CCWD's water rights license to the period of November 1 through March 31 of each year. The maximum pumping rate allowed under this license is 673 gpm and the maximum allowed annual production is 117 MG per year (359 acre-feet per year [AFY]). Average year supplies from these wells are anticipated to be approximately 48 to 50 MG per year (about 150 AFY) (West Yost Associates, 2010). Because the production of these wells is dependent upon the surface flow in from Pilarcitos Creek, their yield is extremely low during drought years (West Yost Associates, 2010).

Denniston Wells

CCWD also has a wellfield in the Airport Terrace, a subbasin of the larger Airport Subbasin Aquifer. CCWD pumps approximately 120 AFY (23.4 percent) of the water that is withdrawn from the aquifer annually (West Yost Associates, 2010). This aquifer is recharged predominantly by Denniston Creek and precipitation, and the unique hydrogeology of the aquifer allows it to be recharged quickly following dry years (West Yost Associates, 2010 and Balance Hydrologics, 2014). Currently, CCWD operates wells in this wellfield to augment the Denniston Creek diversions, and the Denniston wells are not pumped when surface water from Denniston Creek is unavailable (West Yost Associates, 2010).

3.3.2 EXISTING WATER RIGHTS

CCWD filed water-right Application 22680 with the State Water Rights Board (SWRB) in 1966. In 1969, the SWRCB, the successor to the SWRB, issued Water Right Permit 15882. The permit authorizes CCWD to divert up to 2.0 cfs each from Denniston and San Vicente Creeks. The proposed facilities listed in the original application include:

- A permanent diversion facility on San Vicente Creek consisting of a pump station and a subsurface pipeline from the San Vicente diversion to Denniston Pump Station (components of the Proposed Project);
- A pump station at the western end of Denniston Reservoir (in place);
- A WTP located south of this reservoir (pretreatment improvements completed in 2013 will address the water quality issues that have limited the ability to fully utilize the approved surface water right in the past), and
- A treated water pipeline extending from the Denniston WTP to the water distribution system further south (in place).

Permit 15882 originally specified a 1971 deadline for completing proposed improvements, and a 1972 deadline for putting water to beneficial use. Since these dates, CCWD has filed several petitions for extension of time. Delays to complete construction of this infrastructure were unavoidable, as the recent modifications to the Denniston WTP demonstrate. The upgrades to the Denniston WTP were required to address Department of Health Services' restrictions based on raw water turbidity. Likewise, construction of the El Granada Pipeline was delayed due to appeals to the California Coastal Commission. The most recent petition for an extension of time was filed in June 2004. The SWRCB issued a public notice for this extension on November 19, 2009. In response to this notice, the National Park Service (NPS) filed a letter dated December 22, 2009 and the CDFW filed a memorandum dated January 14, 2010. The SWRCB has determined that neither of the documents met the requirements for a valid protest.

In 1973, CCWD completed construction of the initial Denniston Project, which included the Denniston pump station, the Denniston WTP, the Denniston water storage tank, and a pipeline connecting the storage tank to the main distribution system. The Denniston Creek diversion has been utilized virtually continuously by CCWD with up to 1.9 cfs being diverted at various times of the year. Historic usage of the diversion on San Vicente Creek by the CCWD has been limited to some domestic use in the 1980's, when a temporary mostly above-ground pipeline from Upper San Vicente Reservoir to the Denniston Creek pumping station was installed and used. This practice has been limited due to water quality concerns and the treatment limitations at the Denniston WTP. The CCWD has implemented upgrades to the Denniston WTP which will facilitate the use of surface water from either creek, as described below. In addition, after implementation of the Proposed Project, the capacity of Denniston WTP will be increased to a maximum of 1,500 gpm (3.34 cfs).

In a letter dated October 13, 2010, the SWRCB informed CCWD that a CEQA document would have to be prepared to evaluate the impacts of the potential increased amounts of water that may be diverted if the petition for the extension of time is approved. CCWD has decided to prepare this Draft EIR, which addresses the elements of the required project infrastructure as well as the petition for the extension of time.

3.3.3 CURRENT DIVERSIONS FROM DENNISTON AND SAN VICENTE CREEKS

Denniston Reservoir, which was built by local farmers in the early 1900s, functions today as the diversion on Denniston Creek from which water is pumped to the Denniston WTP. This reservoir also serves the irrigation needs of a local farmer. The Denniston Creek diversion has been historically utilized since the original water rights permit was issued, with up to 1.9 cfs being diverted at various times of the year with varying annual totals. This 1.9 cfs diversion by the District is part of the environmental baseline as analyzed herein.

Though the current permit also authorizes diversion of up to 2.0 cfs per year from San Vicente Creek, historic usage of the diversion on San Vicente Creek by the CCWD was limited to some domestic use in the 1980's, when a temporary, mostly above-ground pipeline extending from Upper San Vicente Reservoir to the Denniston Creek pumping station was installed and used. This practice was limited due to water quality concerns and the then-existing treatment limitations at the Denniston WTP. The existing diversion on San Vicente Creek is used by local farmers who store water in both Upper and Lower San Vicente Reservoirs for irrigation. No diversions by CCWD on San Vicente Creek are part of the environmental baseline. The new diversion structure would maintain water supplies for both CCWD and the farmers.

3.3.4 DREDGING AT DENNISTON RESERVOIR

Historically, Denniston Reservoir had more storage capacity and a larger area of open water than it does today (TRC Essex, 2006). Decades of sedimentation from Denniston Creek, the subsequent establishment of tule (*Scirpus californicus*) dominant vegetation cover, and the lack of a consistent maintenance plan to dredge the reservoir have greatly reduced the storage capacity of the reservoir, converting approximately 1,100 linear feet of open water habitat to a choked monoculture of dense tule. Absent this reservoir on Denniston Creek, this sediment that is currently trapped would be transported to Half Moon Bay Harbor and would increase the dredging needs there.

In 1982, the CCWD undertook an approximate 20,000 cy dredging and vegetation removal project; however, the CCWD has not completed another dredging project of the same magnitude since (TRC Essex, 2006). Denniston Reservoir is currently maintained by CCWD through annual dredging activities under a SAA with CDFW for sediment removal in the immediate vicinity of the existing Dam (SAA #1600-2007-0480-3). The ongoing SAA authorized a onetime removal of about 800 cy of sediment during the first year, with disposal in one of the existing approved disposal areas in the eucalyptus grove north of the reservoir. The SAA also authorizes the removal of up to 400 cy of material annually as part of the CCWD's ongoing diversion point maintenance at Denniston Reservoir. All dredged material is transported to existing disposal sites approximately one half mile up-canyon from Denniston Reservoir (shown in **Figure 4.3-2b: Photograph 11).** The District has removed the maximum amount of sediment allowed under this agreement each year. The agreement expires in 2014.

3.3.5 PURPOSE AND NEED

The District currently imports the majority of its water from SFPUC; this transport of water is energy-intensive and could be unreliable in the event of an earthquake or drought. In addition, SFPUC water is expensive and creates a financial burden on the District's rate payers. Finally,

the amount of water available from SFPUC has been capped until 2018 and is not expected to increase in the future, thereby increasing the need for CCWD to fully utilize and integrate all local water sources. The Proposed Project will allow the District to rely more fully on a key source of local water, with the goals of reducing the cost of the water it produces and increasing the reliability of its water sources. In the event of drought or earthquake, the District may be forced to reduce or eliminate its withdrawal from SFPUC until normal conditions resume. By having key infrastructure in place to utilize local sources under existing water right Permit 15882, the District and its customers will be protected in the event of disruptions in the supply of imported water.

3.3.6 EASEMENTS

The District either owns in fee or holds easements for the project component locations as shown on **Figure 3-5**. The District was granted easements for the ongoing water diversion and treatment facilities that are located on National Park Service (NPS) lands. CCWD owns property in fee at the San Vicente POD. The existing pipeline runs approximately 2,000 feet from District-owned land, through an easement granted to the District on NPS land, and then to private agricultural land (Upper San Vicente Reservoir). The boundary of NPS land bisects the upstream half of the Denniston Reservoir, and the District holds easements for this portion of the reservoir and for the two dredge disposal areas. The easements granted to the District pre-dated the purchase of the land by NPS. **Figure 3-5** also shows the ownership of other lands in the immediate vicinity, including NPS-owned land (Golden Gate National Recreation Area) and land owned by Cabrillo Farms.

3.4 REGULATORY REQUIREMENTS, PERMITS AND APPROVALS

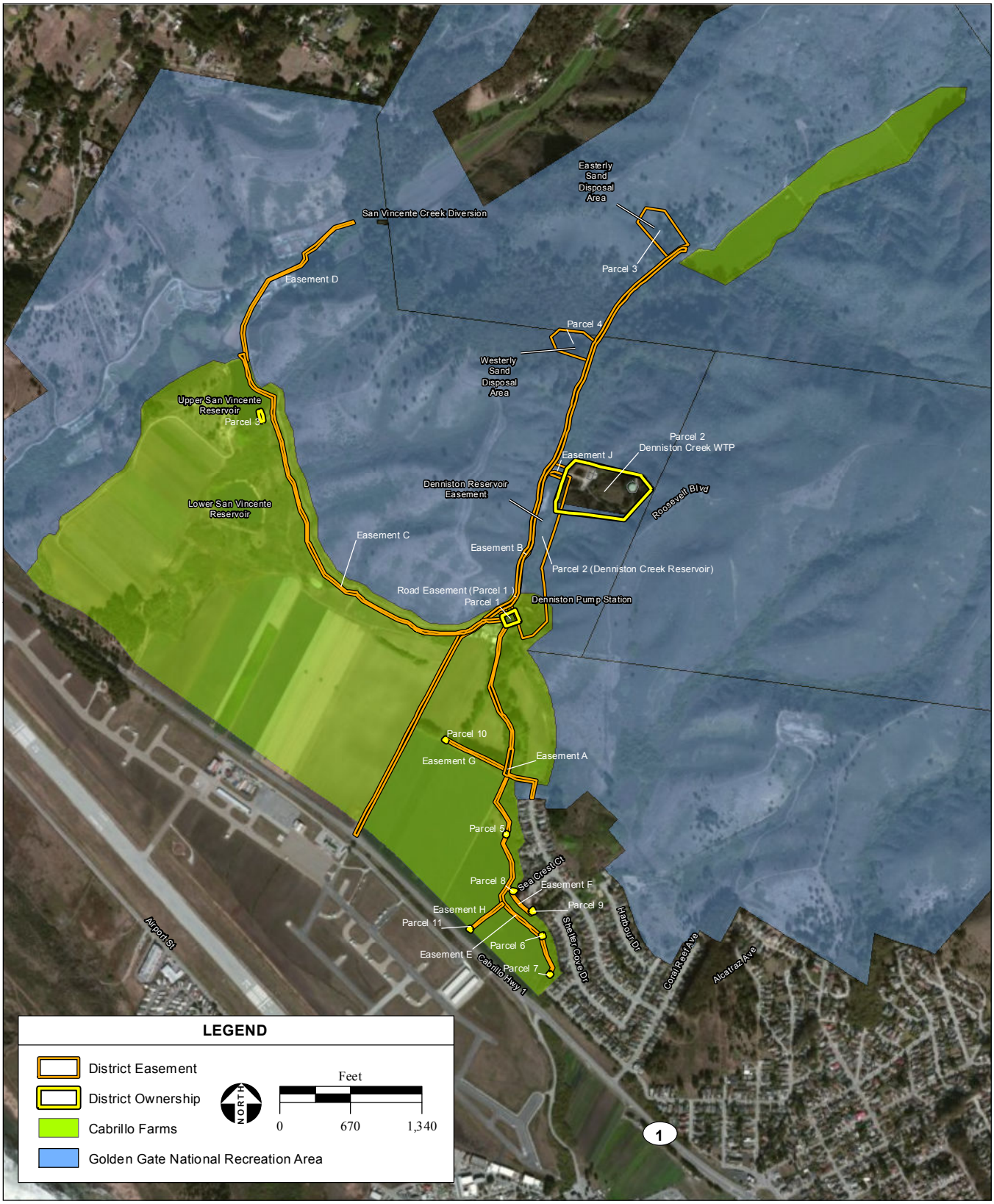
As part of the implementation of the Proposed Project, the following permits and approvals may be necessary:

Local Agencies

- CCWD approval of the Project
- CCWD adoption of this Draft EIR under CEQA.
- CCWD adoption of a Mitigation Monitoring and Reporting Plan (MMRP) that incorporates the mitigation measures identified in this document.
- County of San Mateo Coastal Development Permit.

State Agencies

- CDFW SAA for construction of the diversion at San Vicente Creek.



SOURCE: Kennedy Jenks, 2010; Sandis, 2014; USGS Aerial Photograph, 6/30/2008; AES, 2015

Figure 3-5
District Property and Easements

- Possible CDFW long-term maintenance agreement for the ongoing operations of the diversion at San Vicente Creek.
- Revised long-term maintenance agreement with CDFW for the operations at Denniston reservoir.
- SWRCB approval of the petition for an extension of time for water right Permit 15882.
- RWQCB Clean Water Act (CWA) Section 401 Water Quality Certification.
- RWQCB CWA Section 402 Construction NPDES Storm Water Pollution Prevention Plan (SWPPP).

Federal Agencies

- US Army Corps of Engineers (USACE) CWA Section 404 Permit for construction of the diversion at San Vicente Creek.

3.5 IMPLEMENTATION SCHEDULE

Implementation of the Proposed Project would occur during the dry season (generally March 15 through October 15). Construction for the San Vicente POD would begin with the installation of the new permanent diversion structure and conclude with the completion of the pipeline. The proposed Booster Pump Station, Denniston WTP capacity increases, and Bridgeport Pipelines can occur simultaneously or in phases, as long as construction occurs within the dry season (March 15 through October 15).

Annual dredging would be performed in September and/or October of each year or as otherwise stipulated in the SAA. The integrated use of these additional local surface waters into the overall water used by CCWD would be on an ongoing basis.

SECTION 4.0

ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

4.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

Section 4.0 of this Draft EIR contains individual sections that describe the environmental impacts that have the potential to occur as a result of the implementation of the Proposed Project. Each section describes the existing setting and background information necessary to help the reader understand the conditions that would cause an impact to occur. In addition, each section includes a description of how an impact is determined to be significant or not significant. Finally, the individual sections recommend mitigation measures to reduce significant impacts.

The impact analysis has been limited to those environmental resources determined in the Initial Study for the Proposed Project to contain potentially significant impacts. The following issue areas are addressed in **Section 4.0**:

Section 4.1, Aesthetics and Visual Resources
Section 4.2, Air Quality
Section 4.3, Biological Resources
Section 4.4, Cultural and Paleontological Resources
Section 4.5, Geology and Soils
Section 4.6, Greenhouse Gas Emissions
Section 4.7, Hazards and Hazardous Materials
Section 4.8, Hydrology and Water Quality
Section 4.9, Noise

4.1 AESTHETICS AND VISUAL RESOURCES

4.1.1 INTRODUCTION

This section addresses the visual characteristics of the existing site, and potential impacts to visual resources resulting from development of the Proposed Project. Following an overview of the existing setting in **Section 4.1.2** and the relevant federal, State, and local regulations in **Section 4.1.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.1.4**.

4.1.2 ENVIRONMENTAL SETTING

Regional Characteristics

San Mateo County lies east of the Santa Cruz Mountain Range, and west of the generally level San Francisco Bay plain. Encompassing 455 square-miles of land with varied geographic settings ranging from redwood forests to hills, mountain ranges, agricultural land, scenic wetlands, tidal marshes, creeks, and beaches, San Mateo County provides plentiful scenic vistas with high visual quality. Urban areas within San Mateo County benefit from scenic views of the San Francisco Bay as well as surrounding hilly landscapes and wooded areas. This project site is located on a coastal plain near the Half Moon Bay Airport with views of Pillar Point, the Pacific Ocean, and Half Moon Bay Harbor.

Local Characteristics

The project site is within unincorporated, rural land in San Mateo County. The project area is currently composed of two separate land use types: the first is undeveloped, open space used for recreational and agricultural purposes near the San Vicente and Denniston points of diversion (PODs); the second is the existing road network within a residential neighborhood of the census-designated place El Granada, California. Scenic, coastal Highway 1 (Cabrillo Highway) wraps around the southern and western borders of the site, providing access to nearby towns including El Granada, approximately two miles southeast, Moss Beach, approximately one mile west, and Montara, approximately 1.5 miles northwest of the project site (Caltrans, 2007). In addition to being located less than two miles inland from the coastline, the project site is also surrounded by water sources Denniston Creek to the east, the on-stream Denniston Reservoir, and San Vicente Creek to the west. According to the San Mateo County General Plan, the site lies within a county-designated scenic corridor (San Mateo County, 1986).

Developments on or adjacent to the project site include the existing POD on San Vicente Creek located approximately 4,300 feet north of the Denniston Reservoir, active agricultural production fields to the south, east, and west, an equestrian facility to the immediate northwest of the POD

on San Vicente Creek, residential homes along the proposed Bridgeport Drive pipeline upgrade, and the Half Moon Bay Airport located 0.5 miles southwest on the coast side of Highway 1. Onsite and surrounding land uses are consistent with the generally rural setting of the area. The National Park Service (NPS) has purchased lands directly adjacent to the project site to the north. These lands have become part of the Golden Gate National Recreation Area (GGNRA), providing the public with opportunities for hiking, biking, and other recreational activities.

Neither of the PODs on Denniston Creek or San Vicente Creek is visible from Highway 1 or existing developed County roads. Likewise, the dredge material disposal areas are not visible from Highway 1 or existing developed County roads, as they are further up the Denniston Creek canyon and shielded from view by surrounding eucalyptus groves.

Site Characteristics

The site east of Highway 1 provides views of mountainous landscapes, coastal vistas, creeks, and surrounding riparian areas. The project site contains riparian corridors, coastal scrub, eucalyptus groves, open grassland areas, reservoirs, agricultural field and human development associated with agricultural use, the adjacent equestrian facility, and residential development in the El Granada area at the lower end of the Bridgeport Pipeline improvements. When viewed from Cabrillo Highway, only vegetation surrounding the project site is visible. As viewed from upslope on the hills adjacent to and east of the project site, Denniston Reservoir and the existing unpaved farm road where the pipeline is proposed to be constructed are visible. When viewed from the neighborhood, the existing and proposed pipelines are underground below Bridgeport Drive.

4.1.3 REGULATORY SETTING

Local

San Mateo County General Plan

The project site is located in an unincorporated area of San Mateo County and is therefore generally subject to the regulations of the County. The following goals and policies for aesthetics and visual resources are contained within the San Mateo County General Plan (1986).

Visual Quality

4.1 Protection of Visual Quality

- Encourage positive visual quality for all development and minimize adverse visual impacts.

4.2 Protection of Shorelines

- Protect and enhance the visual quality of and from shorelines of bodies of water including lakes, reservoirs, streams, bays, ocean, and sloughs.
- Maximize the preservation of significant public ocean views.

4.3 Protection of Vegetation

- Minimize the removal of visually significant trees and vegetation to accommodate structural development.

4.4 Appearance of Rural and Urban Development

- Promote aesthetically pleasing development in rural and urban areas.

4.21 Scenic Corridors

- Protect and enhance the visual quality of scenic corridors by managing the location and appearance of structural development.

4.26 Water Bodies

- Allow for development of approved dams and impoundments and stream clearance operations.
- Discourage structures which would adversely impact the appearance of a stream and associated riparian habitat.
- Discourage the alteration of streams and other natural drainage systems which would affect their appearance, reduce underground water recharge, or cause drainage, erosion or flooding problems.

4.30 Public Utilities

- Encourage the placement of new and existing public utility lines underground.

San Mateo County Local Coastal Program

The following goals and policies for aesthetics and visual resources are contained within the San Mateo County Local Coastal Program (LCP).

Natural Features – Landforms

8.6 Streams, Wetlands, and Estuaries

- Set back development from the edge of streams and other natural waterways a sufficient distance to preserve visual character of the waterway.
- Prohibit structural development which will adversely affect the visual quality of perennial streams and associated riparian habitat, except for those permitted by Sensitive Habitats Component Policies.
- Retain the open natural visual appearance of estuaries and their surrounding beaches.

- Retain wetlands intact except for public access ways designed to respect the visual and ecological fragility of the area and adjacent land.

4.1.4 IMPACT ANALYSIS

Methodology

Visual impacts are also analyzed through an examination of views and/or viewsheds. Viewsheds refer to the visual qualities of a geographical area that are defined by the horizon, topography, and other natural features that give an area its visual boundary and context. Public views are those which can be seen from vantage points that are publicly accessible, such as streets, freeways, parks, and vista points. These views are generally available to a greater number of persons than are private views. Private views are those which can be seen from vantage points located on private property. Private views are not considered to be impacted when interrupted by land uses on adjacent lands, particularly if the land use complies with the zoning and design guidelines applicable to the site. Viewshed impacts are typically characterized by the loss and/or obstruction of existing scenic vistas or other major views in the vicinity of the project site which are accessible to the general public.

Light and glare impacts are analyzed by considering the qualitative aesthetic characteristics of the existing nighttime lighting and daytime glare environments on the site and the modifications the Proposed Project would make to those environments.

Visual site characteristics and viewsheds were assessed during visits to the project site on March 11, May 9, 18, and 19, and July 19 of 2011, as well as November 13, 2013.

Thresholds of Significance

According to *CEQA Guidelines*, the Proposed Project could potentially have a significant impact on visual resources if it were to result in one or more of the following:

- 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.

Impacts and Mitigation Measures

IMPACT 4.1-1. Development of the Proposed Project could potentially degrade the

existing visual character or quality of the site and its surroundings.

The Proposed Project would involve the construction of a permanent diversion structure at the location of the San Vicente Creek POD, a new pipeline connecting the Upper San Vicente Reservoir and the existing Denniston pump station located adjacent to the Denniston Reservoir, expanding the capacity of the existing Denniston Water Treatment Plant (WTP), a new Booster Pump Station, new pipeline along Bridgeport Drive, and periodic maintenance dredging at the existing Denniston Reservoir.

The development of the new POD on San Vicente Creek would be generally within the footprint of the existing temporary structure, and any necessary associated utilities would be located underground or generally out of normal view of even the immediately surrounding equestrian facilities. The proposed San Vicente POD is located in a riparian corridor and is surrounded by dense vegetation. Temporary impacts to riparian vegetation may result from construction of the new POD structure (refer to **Section 4.3**, Biological Resources for more information regarding impacts to riparian areas). However, the density of riparian vegetation surrounding the new POD would shield view of the completed POD, and the structures would be compatible with the surrounding older structures associated with the adjacent equestrian facility. Temporary construction activities may have some limited temporary visual impacts from equipment near the POD. These temporary impacts would cease once the construction at the POD is completed. If any trees are impacted, they will be replaced with native trees consistent with the existing riparian habitat (see further discussion in **Section 4.3**, Biological Resources), thereby preventing any long-term impacts to the viewshed as seen from surrounding properties.

Visual impacts associated with the installation of the pipeline between the San Vicente POD and the existing Denniston Creek pump station would also be temporary in nature. The proposed pipeline would be installed below ground surface, and therefore would not be visible from any vantage point surrounding, or within, the project site once installation is complete. The installation of the proposed pipeline would generally follow the path of the existing unpaved farm road to minimize the need for vegetation removal. The temporary visibility of construction equipment associated with laying the pipeline would be short-term and not overly visible, except from immediately surrounding properties.

Expansion of the Denniston WTP to a larger capacity of up to 1,500 gallons per minute (gpm) would not result in visual impacts. Minor facility upgrades that would expand the plant capacity to 1,500 GPM would occur within the existing facility and would be in character with the existing visual setting.

The new Booster Pump Station would be constructed adjacent to the existing Denniston pump station on CCWD property. This Booster Pump Station would be in character with the existing

visual setting and a less-than-significant impact would result. The dredging at Denniston Reservoir would have visual impacts during the presence of construction equipment and from the modification of habitat on the upper end of the existing reservoir, which would be converted to open water, but would not change the overall visual characteristics of the area. Disposal of dredged materials within the westerly and easterly dredge disposal areas may result in visual impacts, as the dredged material would be piled in-place in the disposal area. However, this is an extension of an ongoing dredging program, and these areas are already used for disposal in their existing state. The Proposed Project would not substantially increase the impacts to visual resources in the dredge disposal areas; furthermore, these areas are surrounded by thick groves of eucalyptus and are shielded from public view.

A new pipeline will be installed along Bridgeport Drive to improve flow capacity between the Denniston Tank and Carter Hill Tanks. Instead of replacing the smaller-capacity pipes that run along Bridgeport Drive, the new pipeline will be installed parallel to the existing pipes to minimize disruption to water users. The new pipeline will be installed below ground within the footprint of Bridgeport Drive. The temporary visibility of construction equipment associated with laying the pipeline would be short-term. Overall, this portion of the Proposed Project would have a less-than-significant impact on visual resources.

Impacts to visual resources associated with the Proposed Project would be short-term and only during the relatively short construction period. To the degree feasible, any removal of vegetation would be mitigated by replanting with native plants that maintain consistency with existing vegetation and habitat types (see **Section 4.3**, Biological Resources for further discussion of vegetation replacement). Therefore, overall visual impacts resulting from the Proposed Project would be **Less than Significant**.

4.2 AIR QUALITY

4.2.1 INTRODUCTION

This section addresses regional air quality and potential impacts to regional air quality resulting from development of the Proposed Project. Following an overview of the environmental setting in **Section 4.2.2** and the relevant federal, state, and local regulations in **Section 4.2.3**, project-related impacts and recommended mitigation measures are discussed in **Section 4.2.4**.

4.2.2 ENVIRONMENTAL SETTING

The project site is located within unincorporated San Mateo County (County). The County is located on the San Francisco Peninsula and is part of the nine-county San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The air quality within the SFBAAB is influenced by a wide range of emissions sources such as dense population centers, heavy vehicular traffic, and industry.

The climate of the region is Mediterranean in character, with mild, rainy winter weather from November through April, and warm to hot, sub-humid weather from May through October. The SFBAAB is generally affected by regionally high pollution emissions.

Air quality in the area is a function of the criteria air pollutants (CAPs) emitted locally, the existing regional ambient air quality, and the meteorological and topographic factors that influence the intrusion of pollutants into the area from sources outside the immediate vicinity. The project site is located on the coastal plain and not within the bayside area of the County, which is more subject to the inversion layers which tend to hold in air pollutants. The project site's air quality is based on the CAPs meeting the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS).

NAAQS protect public health and welfare. NAAQS have been established for the six CAPs, ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead. California has adopted the NAAQS CAPs with more stringent standards than the NAAQS and has included four additional CAPs, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles, which are designated as CAAQS. If a CAP exceeds the NAAQS or CAAQS, then the air basin or region is designated by the Environmental Protection Agency (EPA) or the California Air Resources Board (CARB) as nonattainment. The BAAQMD provides California Environmental Quality Act (CEQA) thresholds for CAPs designated nonattainment in an air basin or region. These thresholds are based on the ability of the air basin or region to meet the NAAQS or CAAQS.

4.2.3 REGULATORY SETTING

Federal Regulations

1977 Federal Clean Air Act (CAA)

The 1977 Federal Clean Air Act (CAA) required the EPA to identify NAAQS to protect public health and welfare. The EPA publishes criteria documents to justify the choice of standards. Pursuant to the 1990 CAA Amendments, the EPA has classified air basins (or portions thereof) as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The SFBAAB is designated as either non attainment, attainment or unclassified for each of the six CAPs. **Table 4.2-1** shows the NAAQS attainment status for the SFBAAB.

TABLE 4.2-1
ATTAINMENT STATUS FOR THE SFBAAB

Pollutant	Average Time	NAAQS
Ozone	8-hour	Nonattainment
	1 hour	N/A
$PM_{2.5}$	24 hour	Nonattainment
	Annual	Attainment
PM_{10}	24 hour	Unclassified
	Annual	Attainment
Carbon Monoxide	8-hour	Attainment
	1-hour	Attainment
Lead	Quarterly	Attainment
Nitrogen Dioxide	1-hour	Unclassified
	Annual	Attainment
Sulfur Dioxide	24-hour	Attainment
	Annual	Attainment

Source: BAAQMD, 2012

State Regulations

California Clean Air Act (CCAA)

The CARB regulates mobile emissions sources and oversees the activities of Air Quality Management District's (AQMDs) and develops state implementation plans (SIPs) for CAPs that exceed the NAAQS. CARB regulates local air quality indirectly by CAAQS and vehicle emission standards by conducting research activities, and through its planning and coordinating activities. California has adopted standards that are more stringent than the federal standards for criteria air pollutants and have included four additional criteria pollutants, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Under the California Clean Air Act (CCAA), patterned after the federal CAA, areas have been designated as attainment or non-attainment

with respect to CAAQS.

Table 4.2-2 shows state standards for ozone, particulate matter less than 2.5 microns in size ($PM_{2.5}$), and particulate matter less than 10 microns in size (PM_{10}). The SFBAAB is designated under the NAAQS as nonattainment for 8-hour ozone and 24-hour $PM_{2.5}$. The SFBAAB is designated under the CAAQS as nonattainment for 1- and 8-hour ozone, annual and 24-hour PM_{10}, and annual $PM_{2.5}$. The SFBAAB is in attainment or is unclassified for all other CAPs under the NAAQS and the CAAQS.

TABLE 4.2-2
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	CAAQS	NAAQS
Ozone	8-hour	0.070 ppm	0.075 ppm
	1 hour	0.09 ppm	-
$PM_{2.5}$	24 hour	-	35 $\mu g/m^3$
	Annual	12 $\mu g/m^3$	15 $\mu g/m^3$
PM_{10}	24 hour	50 $\mu g/m^3$	150 $\mu g/m^3$
	Annual	20 $\mu g/m^3$	50 $\mu g/m^3$

ppm = parts per million by volume
$\mu g/m^3$ = micrograms per cubic meter of air
Source: BAAQMD, 2012

Pollutants of Concern

The pollutants of concern in the project area are ozone, particulate matter, and toxic air contaminants (TACs). A pollutant of concern is one that is designated nonattainment under the NAAQS or the CAAQS. TACs are discussed below, although no adopted air quality standards exist.

Ozone

Ozone is a criteria air pollutant that is created in the presence of sunlight through a photochemical reaction involving reactive organic gases (ROG) and nitrogen oxides (NO_X). ROG and NO_X are emitted as result of incomplete combustion of fossil fuels. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Ozone is considered a regional pollutant, as the reactions forming it take place over time and are often most noticeable downwind from the sources of the emissions.

Particulate Matter

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including

acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Particles smaller than 10 micrometers (µm) in diameter (PM_{10}) but greater than 2.5 µm pose the greatest problems, because they can be inhaled deep into the lungs. Exposure to such particles can affect respiratory system function.

Toxic Air Contaminants

TACs are not considered criteria pollutants under the federal or state statutes. However, enforcement of the standards for the control of criteria pollutants, such as ozone and particulate matter, can result in reducing airborne emissions of TACs. TACs are substances that have either been identified by CARB and are known or suspected to be emitted in California and have potential adverse health effects. Currently, there are 244 TACs listed by CARB. According to CARB, the estimated health risk from TACs can be primarily attributed to relatively few compounds, such as diesel particulate matter (DPM). DPM differs from many other TACs in that it is not a single substance, but rather a complex mixture of air pollutants, composed of gaseous and solid material.

Regional

Bay Area Air Quality Management District

The project site is located in the SFBAAB, which is under the jurisdiction of the BAAQMD. The BAAQMD develops SIPs for CAPs designated by the EPA as nonattainment, stationary source permits, CEQA guidelines and thresholds, and the following applicable Rules:

Regulation 2 – Permits, the Regulation specifies the requirements for authorities to construct and permits

Regulation 6, Rule, 1 – General Requirements, Limits the quantity of particulate matter in the atmosphere by controlling emission rates, concentration, visible emissions and opacity.

Regulation 7 – Odorous Substances, Establishes general limitations on odorous substances and specific emission limitations on certain odorous compounds

Local

San Mateo County General Plan

The project site is located in an unincorporated area of San Mateo County and is therefore subject to the County General Plan. The following goals and policies for improving regional air quality are contained within the San Mateo County General Plan (Air Resources Chapter adopted in 1994):

17.15 Reduce Air Pollutants, Odors and Dust from Stationary Sources by Regulating Land Use Development

- Reduce air pollutants, offensive odors and dust from stationary sources to the maximum practicable extent by:
    a. Requiring that all demolition, grading (excluding agriculture) and construction projects conform with applicable BAAQMD recommended dust control measures, including but not limited to, surface wetting and seeding.

4.2.4 IMPACT ANALYSIS

Methodology

Criteria pollutant and TAC emissions from construction activities, odors, and cumulative effects were evaluated using the methodology outlined in the 2010 BAAQMD CEQA Guidelines. Project screening levels set forth by the BAAQMD CEQA Guidelines were compared to the Proposed Project. Criteria pollutants and TAC emissions from operation were qualitatively analyzed due to the diminutive nature of operational emissions. Construction and operation of the Proposed Project would not overlap and therefore, are analyzed separately.

Thresholds of Significance

Criteria for determining the significance of impacts to air quality and climate change have been developed based on Appendix G of the CEQA *Guidelines* and relevant agency thresholds (BAAQMD). Impacts to air quality and climate change would be considered significant if the Proposed 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 designated nonattainment under an applicable federal or State ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Based on the above CEQA standards of significance, it has been determined that the following CEQA significance thresholds for CAPs shall be utilized to evaluate project related impacts (BAAQMD, 2010). The relevant BAAQMD thresholds provide a basis for measuring regionally significant impact. If the BAAQMD thresholds are met then the CEQA Guidelines are met.

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- Under the BAAQMD's CEQA screening guidelines, construction of a proposed project would not have a significant impact if: the type of project is not listed on Screening Table 3-1 of the BAAQMD's CEQA Guidelines, the project includes basic construction mitigation, and the project would not include demolition, construction of two or more phase or land uses at the same time, extensive site preparation, or material transport (less than 800 cubic yards of transported soil).
- Under the BAAQMD's CEQA screening guidelines, if construction or operational emissions cause a significant impact, than the project would also be considered cumulatively significant; however, if construction and operational emissions result in a less-than-significant impact to regional air quality, than the project is considered not to be cumulatively considerable.
- BAAQMD Regulation 7, any project that generates odorous emission in quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public is considered significant.

Impacts and Mitigation Measures

IMPACT 4.2-1. Construction and operation of the Proposed Project has the potential to conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentration.

Construction

Construction of the Proposed Project would consist of the installation of an electricity powered Booster Pump Station and 8,760 feet of pipeline; approximately 6,100 feet of upgraded and new 8-inch diameter pipe will be installed within the right of way of an existing unpaved farm road (from the San Vicente Creek point of diversion (POD) to the Denniston Creek Pump Station), and 3,460 feet of new pipeline will be installed within the paved Bridgeport Drive. Construction activities would include trenching, backfilling, and a small amount of on-site soil hauling. Soil not used for backfill would be hauled approximately 0.5 miles. Construction would also include the building of a permanent diversion structure; construction activities would be minimal with some short term use of heavy equipment. Construction would last approximately six months and would occur five days a week, eight hours a day.

In accordance with the 2010 BAAQMD CEQA Guidelines, the Proposed Project would be considered below screening levels set forth by the BAAQMD based on the following:

- The Proposed Project is not listed on Table 3-1 of the 2010 BAAQMD CEQA Guidelines; therefore, it is considered below the applicable screening level size, and
- The project design would include all basic BAAQMD CEQA Guideline Construction

Mitigation Measures (**Mitigation Measure 4.2-1**) provided in the 2010 BAAQMD CEQA Guidelines and be implemented during construction, and

- Construction of the Proposed Project would not include demolition, construction of two or more phase or land uses at the same time, extensive site preparation or material transport (less than 800 cubic yards of transported soil).

Operation

The expanded dredging maintenance of Denniston Reservoir is similar in nature to what is currently being provided. While the expanded dredging may run a few more days (not likely more than a week) than is currently the case, the activity would require the use of only one piece of equipment; a long arm dredge hoe on a tractor. Maintenance and operation of the new diversion structure on San Vicente Creek, the electric Booster Pump Station, and the pipeline would require minor and intermittent inspections and limited onsite maintenance and dredging of the reservoir as necessary to ensure proper function. Maintenance trips would constitute approximately one round-trip vehicle trip from the WTP area to the site of the diversion, and would occur on a monthly basis, at most and dredging would occur not more often than annually. Currently, the facilities on Denniston Creek are inspected on a regular basis by CCWD staff and the reservoir is dredged; therefore, additional operational activities would not occur. No additional significant operational air pollutant emissions would occur with the implementation of the Proposed Project.

With the implementation of **Mitigation Measure 4.2-1** below, construction and operation emissions of the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standard or contribute substantially to and existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentration. Therefore, impacts to air quality associated with construction and operation of the Proposed Project are **Less than Significant with Mitigation**; thus, CEQA significance threshold numbers 1, 2, and 4 are met.

Mitigation Measure 4.2-1: The following mitigation measures shall be implemented by CCWD to reduce construction and operational related criteria emissions:

- All exposed surfaces (e.g. parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power seeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 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 manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

IMPACT 4.2-2. Development of the Proposed Project has the potential to result in a cumulatively considerable net increase of CAPs for which the project region is designated nonattainment under an applicable federal or State ambient air quality standard.

Past, present and future development projects contribute to a region's air quality conditions on a cumulative basis; therefore by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of the NAAQS or CAAQS. If a project's individual emissions contribute toward exceedance of the standards, then the project's cumulative impact on air quality would be significant. In developing attainment designations for criteria pollutants, the EPA considers the regions past, present and future emission levels (BAAQMD, 2010). As stated above, the Proposed Project would not cause an exceedance of the BAAQMD CEQA standards and therefore, air quality in the region is not cumulatively impacted. The Proposed Project would not result in a cumulative considerable net increase in NOx, ROG, PM_{10}, or $PM_{2.5}$ for which the SFBAAB is in nonattainment. Therefore, this impact is **Less than Significant**.

IMPACT 4.2-3. Development of the Proposed Project could potentially create objectionable odors affecting a substantial number of people.

Construction of the Proposed Project would be temporary as would the intermittent emission of odors from heavy construction equipment. The nearest odor sensitive receptors to the northern portion of the project site (the San Vicente POD and Booster Pump Station construction area) are residences located more than 1,500 feet southeast of the project site. The nearest sensitive receptors to the Bridgeport Pipeline site are residences located along Bridgeport Drive

approximately 40 feet from the roadway where construction would occur.

Construction odors dissipate quickly and are generally not noticeable beyond project boundaries. Given the distance to the nearest sensitive receptor and the temporary and intermittent nature of project construction, no odor impact would occur during construction of the Proposed Project.

No odors are anticipated to be emitted during operation of the Proposed Project. The Proposed Project would not create objectionable odors affecting a substantial number of people. **No Impact** would occur.

4.3 BIOLOGICAL RESOURCES

4.3.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact biological resources. The relevant federal, State, and local regulations are identified in **Section 4.3.2**, the methodology used to evaluate biological resources is described in **Section 4.3.3**, the existing baseline conditions of the biological resources are described in **Section 4.3.4**, and direct, indirect, and cumulative impacts and mitigation measures to reduce those impacts to less-than-significant levels are presented in **Section 4.3.5**.

4.3.2 REGULATORY SETTING

Federal

Federal Endangered Species Act

The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the Federal Endangered Species Act (FESA) of 1973 (16 USC Section 1531 et seq.). Under the FESA, threatened and endangered species on the federal lists and their occupied habitats (50 CFR Subsection 17.11, 17.12) are protected from "take" (i.e., activities that harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) as well as any attempt to engage in any such conduct, unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are issued to the lead federal agency. Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present within the project site and vicinity and determine whether the proposed project would have any potentially significant impacts upon such species. Under the FESA, loss of occupied habitat may be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat designated for such species (16 USC Section 1536[3], [4]). Therefore, Project-related impacts to these species or their habitats would be considered significant.

Under the FESA, critical habitat may be designated by the Secretary of the Interior or Secretary of Commerce for any FESA listed species. The term "critical habitat" for a threatened or endangered species refers to the following: specific areas within the geographical range of the species at the time it is listed that contain suitable habitat for the species, which may require special management considerations or protection; and specific areas outside the geographical range of the species at the time it is listed that contain suitable habitat for the species and is determined to be essential for the conservation of the species. Under Section 7 of the FESA, all federal agencies (including the USFWS and NMFS) are required to ensure that any action they

authorize, fund, or carry out will not likely jeopardize the continued existence of a listed species or destroy or adversely modify their critical habitats.

Migratory Bird Treaty Act

Most bird species, especially those that are breeding, migrating, or of limited distribution, are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC Subsection 703-712), migratory bird species, their nests, and their eggs are protected from injury or death, and any project-related disturbances during the nesting cycle. As such, project-related disturbances must be reduced or eliminated during the nesting cycle.

Wetlands and Waters of the United States

The United States Environmental Protection Agency (EPA) has primary federal responsibility for administering regulations that concern waters of the United States under the Clean Water Act (CWA); the US Army Corps of Engineers (USACE) has primary regulatory authority over Section 404 of the CWA, regulating fill of wetlands or waters of the United States. Section 404 of the Clean Water Act regulates discharges of dredged or fill material into waters of the United States. The USACE requires that a permit be obtained if a project proposes the placement of structures within, over, or under navigable waters and/or discharging dredged or fill material into waters below the ordinary high water mark. The USACE has established a series of nationwide permits that authorize certain activities in waters of the United States. The term “discharge of dredged material” means any addition of dredged material into, including redeposit of dredged material other than incidental fallback, waters of the United States. The term includes any addition, including redeposit other than incidental fallback, of dredged material, including excavated material, into waters of the United States which is incidental to any activity, including mechanized land-clearing, ditching, channelization, or other excavation (33 CFR 232.2(3)(i-iii)).

In addition, a Section 401 Water Quality Certification is required to comply with Clean Water Act Sections 301, 302, 303, 306, and 307. In California, this has largely been delegated to, and regulated by the State Water Resources Control Board (SWRCB) and is usually implemented by the Regional Water Quality Control Board (RWQCB) or directly by the SWRCB in instances where there is a water right involved. Anyone that proposes to develop or operate a project that may result in a discharge to surface waters of the United States and/or “waters of the state” including wetlands (all types), year round and seasonal streams, lakes, and all other surface waters must obtain a federal permit and a water quality certification. At a minimum, any beneficial uses lost must be replaced by a mitigation project of at least equal function, value, and area in ordinance with the guidance for the agreement between the EPA and the USACE as they relate to waters of the United States, including regulated wetlands.

State

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of state listed threatened and endangered species. Under the CESA, the California Department of Fish and Wildlife (CDFW) is responsible for maintaining a list of rare, threatened, and endangered species designated under state law (California Fish and Game Code 2070-2079). The CDFW also maintains lists of candidate species, species of special concern, and fully protected species. Candidate species are those taxa which have been formally recognized by the CDFW and are under review for addition to the state threatened and endangered list. Species of special concern are those taxa which are considered sensitive; this list serves as a "watch list." Pursuant to the requirements of the CESA, agencies reviewing proposed projects within their jurisdictions must determine whether any state listed species have the potential to occur within a proposed project site and if the proposed project would have any significant impacts upon such species. Project-related impacts to species on the CESA's rare, threatened, and endangered list would be considered significant. CDFW can authorize take of CESA-listed species if an incidental take permit is issued by the Secretary of the Interior or Commerce in compliance with the FESA and CDFW issues a consistency determination, or if the director of CDFW issues a permit under Section 2080.

California Fish and Game Code

Under Fish and Game Code Sections 1600-1616, the CDFW regulates activities that may alter the flow, bed, channel, or bank of streams and lakes. CDFW is authorized under the California Fish and Game Code Sections 1600-1616 to develop mitigation measures and to enter into Lake and Streambed Alteration Agreements with applicants whose proposed projects would obstruct the flow of, or alter the bed, channel, or bank of, a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams and wetlands.

California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are fully protected, defined as those that may not be taken or possessed except under a specific permit. California Fish and Game Code Section 5050 prohibits any take of fully protected wildlife species, except for scientific or recovery purposes. California Fish and Game Code Section 86 defines "take" to include catch, pursue, or capture or attempt to catch, pursue, or capture.

Other Special Status Species Designations

The CEQA *Guidelines* (Section 15380) also provide that a plant or animal may be treated as rare or endangered even if it has not been placed on an official list, provided that it meets the criteria for listing. Plant or wildlife species on the California list of species of concern (CSC) as

defined by CDFW, plant species on lists 1A, 1B, and 2 of the California Native Plant Society (CNPS), and active raptor nests are included in this classification.

Sensitive Vegetation Communities

Sensitive vegetation communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. These communities may or may not necessarily contain special status species. These sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. Impacts to sensitive natural communities and habitats must be considered and evaluated under CEQA.

The California Coastal Act

The California Coastal Commission (Commission), in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone under the California Coastal Act (CCA). On land, the coastal zone varies in width from several hundred feet in highly urbanized areas up to five miles in certain rural areas, and offshore the coastal zone includes a three-mile-wide band of ocean. Development activities, which are broadly defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal development permit from either the Commission or the local government land use agency if it has an approved Local Coastal Program (LCP). The CCA includes goals and policies that constitute the statutory standards applied to planning and regulatory decisions made by the Commission and by local governments. Refer to the County of San Mateo LCP discussion below for more detail. Wetland and riparian habitat are examples of habitats that are specifically protected under the CCA and implementing regulations. The Director of CDFW designates sensitive habitats and wetlands under the CCA but such designations may be supplemented by local coastal or general plans.

Local

San Mateo County General Plan

San Mateo County's (County) General Plan (1986) contains the following policies related to biological resources that are applicable to the Proposed Project:

Vegetative, Water, Fish and Wildlife Resource Policies

1.2 Protect Sensitive Habitats

- Protect sensitive habitats from reduction in size or degradation of the conditions necessary for their maintenance.

1.3 Protection and Productive Use of Economically Valuable Vegetative, Water, Fish, and Wildlife Resources

- Protect the availability and encourage the productive use of the County's economically valuable vegetative, water, fish, and wildlife resources in a manner which minimizes adverse environmental impacts.

1.4 Access to Vegetative, Water, Fish, and Wildlife Resources

- Protect and promote existing rights of public access to vegetative, water, fish, and wildlife resources for purposes of study and recreation consistent with the need to protect public rights, rights of private property owners, and protection and preservation of such resources.

General Policies

1.20 Importance of Sensitive Habitats

- Consider areas designated as sensitive habitats as priority resources requiring protection.

1.21 Importance of Economically Valuable Vegetative, Water, Fish, and Wildlife Resources

- Consider vegetative, water, fish, and wildlife resources which are economically valuable as priority resources to be enhanced, utilized, managed, and maintained for the needs of present and future generations.

Regulation of Development

1.22 Regulate Development to Protect Vegetative, Water, Fish, and Wildlife Resources

- Regulate land uses and development activities to prevent, and if infeasible, mitigate to the extent possible, significant adverse impacts on vegetative, water, fish, and wildlife resources.
- Place a priority on the managed use and protection of vegetative, water, fish, and wildlife resources in rural areas of the County.

1.23 Regulate Location, Density, and Design of Development to Protect Vegetative, Water, Fish, and Wildlife Resources

- Regulate the location, density, and design of development to minimize significant adverse impacts and encourage enhancement of vegetative, water, fish, and wildlife resources.

Resource Protection

1.24 Protect Vegetative Resources

- Ensure that development will: (1) minimize the removal of vegetative resources and/or; (2) protect vegetation which enhances microclimate, stabilizes slopes, or reduces

surface water runoff, erosion, or sedimentation; and/or (3) protect historic and scenic trees.

1.25 Protect Water Resources

- Ensure that development will: (1) minimize the alteration of natural water bodies; (2) maintain adequate stream flows and water quality for vegetative, fish, and wildlife habitats; (3) maintain and improve, if possible, the quality of groundwater basins and recharge areas; and (4) prevent to the greatest extent possible the depletion of groundwater resources.

1.26 Protect Fish and Wildlife Resources

- Ensure the development will minimize the disruption of fish and wildlife and their habitats.

Sensitive Habitats

1.27 Regulate Development to Protect Sensitive Habitats

- Regulate land uses and development activities within and adjacent to sensitive habitats in order to protect critical vegetative, water, fish, and wildlife resources; protect rare, endangered, and unique plants and animals from reduction in their range or degradation of their environment; and protect and maintain the biological productivity of important plant and animal habitats.

1.28 Establish Buffer Zones

- Establish necessary buffer zones adjacent to sensitive habitats, which include areas that directly affect the natural conditions in the habitats.

1.29 Uses Permitted in Sensitive Habitats

- Within sensitive habitats, permit only those land uses and development activities that are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trails and scenic overlooks, and, at a minimum level, necessary public service and private infrastructure.

1.30 Uses Permitted in Buffer Zones

- Within buffer zones adjacent to sensitive habitats, permit the following land uses and development activities: (1) land uses and activities which are compatible with the protection of sensitive habitats, such as fish and wildlife management activities, nature education and research, trail and scenic overlooks, and, at a minimum level, necessary public and private infrastructure; (2) land uses which are compatible with the surrounding land uses and will mitigate their impact by enhancing or replacing sensitive habitats; and (3) if no feasible alternative exists, land uses which are compatible with the surrounding land uses.

1.31 Regulate the Location, Site, and Design of Development in Sensitive Habitats

- Regulate the location, site, and design of development in sensitive habitats and buffer zones to minimize, to the greatest extent possible, adverse impacts and enhance positive impacts.

1.32 Performance Criteria and Development Standards

- Establish performance criteria and development standards for development permitted within sensitive habitats and buffer zones, to prevent and, if feasible, mitigate to the extent possible, significant negative impacts, and to enhance positive impacts.

Productive Uses

1.33 Regulate Productive Uses of Vegetative, Water, Fish, and Wildlife Resources

- Regulate resource productive uses which are subject to local control in order to prevent and, if infeasible, mitigate to the extent possible significant adverse impacts on vegetative, water, fish, and wildlife resources and to maintain and enhance (1) productivity of forests and other vegetative resources; (2) productive capacity and quality of groundwater basins and recharge areas, streams, reservoirs, and other water bodies; (3) productivity of fisheries and other fish and wildlife resources; and (4) the recreational value and aesthetic value of these areas.

1.34 Protect Productive Uses of Vegetative, Water, Fish, and Wildlife Resources

- Regulate development in order to protect and promote the managed use of vegetative, water, fish, and wildlife resources.

1.36 Protection and Productive Use of Water Resources

- Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these resources.

Control of Incompatible Vegetative, Fish and Wildlife

1.38 Control Incompatible Vegetative, Fish, and Wildlife

- Encourage and support the control of vegetation, fish, and wildlife resources which are harmful to the surrounding environment or pose a threat to public health, safety, and welfare.

1.39 Minimize Adverse Impacts of Programs Controlling Incompatible Vegetation, and Fish, and Wildlife

- Minimize the negative impacts and risks of programs controlling incompatible vegetation, fish, and wildlife.

San Mateo County Ordinances

The County has adopted the following ordinances to provide protection to natural resources within the County's limits.

Significant Tree Ordinance

The Significant Tree Ordinance of San Mateo County (San Mateo County, 2010) requires a permit for the removal of any indigenous or exotic tree with a circumference of at least 38 inches when measured at four feet vertically above the ground or immediately below the lowest branch, whichever is lower. A permit is also required for the removal of a portion of a community of trees, which refers to a group of trees of any size which are ecologically or aesthetically related to each other such that loss of several of them would cause a significant ecological, aesthetic, or environmental impact in the immediate area.

Heritage Tree Ordinance

The Regulation of the Removal and Trimming of Heritage Trees on Public and Private Property (San Mateo County, 1977) prohibits the removal of any heritage tree without first obtaining a permit from the San Mateo County Planning Department. A heritage tree is a tree specially listed as endangered by either the CNPS or the Federal Register or any tree species designated protected by the County Board of Supervisors.

Excavating, Grading, Filling, and Clearing Ordinance

This ordinance requires a land clearing permit for vegetation removal when: (a) the land area to be cleared is 5,000 square feet or greater, within any two-year period except in County Scenic Corridors where vegetation removal is greater than 1,000 square feet; (b) the existing slopes are greater than 20 percent; and (c) the land area to be cleared is in any sensitive habitat or buffer zone, as identified in the County General Plan.

Applications for this permit must include plans for erosion control, the removal and disposal of vegetation, and a statement of purpose for removal of vegetation. Performance standards require erosion control and grading standards in conformance with the Grading Permit Performance Standards Handbook. Approval of the permit is subject to the finding that the granting of the permit will not have a significant adverse effect on the environment.

County of San Mateo Local Coastal Program

Under the LCP, the County assumes responsibility for implementing the CCA in the unincorporated area of the County, including issuance of Coastal Development Permits (CDPs) (San Mateo County, 2010). All development in the coastal zone requires either a CDP or an exemption from CDP requirements. For issuance of a permit, development must comply with the goals and policies of the LCP and those ordinances adopted to implement the LCP. The Sensitive Habitat Component of the County's current LCP contains the following policies to facilitate the management of the sensitive coastal resources.

General Policies

7.1 Definition of Sensitive Habitats

- Define sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and any area which meets one of the following criteria: (1) habitats containing or supporting "rare and endangered" species as defined by the State Fish and Game Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.
- Sensitive habitat areas include, but are not limited to, riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, and habitats supporting rare, endangered, and unique species.

7.2 Designation of Sensitive Habitats

- Designate sensitive habitats as including, but not limited to, those shown on the Sensitive Habitat Map for the Coastal Zone.

7.3 Protection of Sensitive Habitats

- Prohibit any land use or development which would have significant adverse impacts on sensitive habitat areas.
- Development in areas adjacent to sensitive habitats shall be sited and designed to prevent impacts that could significantly degrade the sensitive habitats. All uses shall be compatible with the maintenance of biologic productivity of the habitats.

7.4 Permitted Uses in Sensitive Habitats

- Permit only resource dependent uses in sensitive habitats. Resource dependent uses for riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs and habitats supporting rare, endangered, and unique species shall be the uses permitted.
- In sensitive habitats, require that all permitted uses comply with USFWS and CDFW regulations.

Riparian Corridors

7.9 Permitted Uses in Riparian Corridors

- Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the California Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects.

- When no feasible or practicable alternative exists, permit the following uses: (1) stream dependent aquaculture, provided that non-stream dependent facilities are located outside of corridor, (2) flood control projects, including selective removal of riparian vegetation, where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, (3) bridges when supports are not in significant conflict with corridor resources, (4) pipelines, (5) repair or maintenance of roadways or road crossings, (6) logging operations which are limited to temporary skid trails, stream crossings, roads, and landings, in accordance with State and County timber harvesting regulations, and (7) agricultural uses, provided no existing riparian vegetation is removed and no soil is allowed to enter the stream channels.

7.11 Establishment of Buffer Zones

- On both sides of riparian corridors, from the "limit of riparian vegetation," extend buffer zones 50 feet outward for perennial streams and 30 feet outward for intermittent streams.
- Where no riparian vegetation exists along both sides of riparian corridors, extend buffer zones 50 feet from the predictable high water point for perennial streams and 30 feet from the midpoint of intermittent streams.
- Along lakes, ponds, and other wet areas, extend buffer zones 100 feet from the high water point except for manmade ponds and reservoirs used for agricultural purposes for which no buffer zone is designated.

7.17 Performance Standards in Wetlands

- Require that development permitted in wetlands minimize adverse impacts during and after construction. Specifically, require that: (1) all paths be elevated (catwalks) so as not to impede movement of water, (2) all construction takes place during daylight hours, (3) all outdoor lighting be kept at a distance away from the wetland sufficient not to affect the wildlife, (4) motorized machinery be kept to less than 45 a-weighted decibels (dBA) at the wetland boundary, except for farm machinery, (5) all construction which alters wetland vegetation be required to replace the vegetation to the satisfaction of the Planning Director including "no action" in order to allow for natural reestablishment, (6) no herbicides be used in wetlands unless specifically approved by the County Agricultural Commissioner and the CDFW, and (7) all projects be reviewed by the CDFW and the SWRCB to determine appropriate mitigation measures.

7.18 Establishment of Buffer Zones

- Buffer zones shall extend a minimum of 100 feet landward from the outermost line of wetland vegetation. This setback may be reduced to no less than 50 feet only where (1) no alternative development site or design is possible; and (2) adequacy of the alternative setback to protect wetland resources is conclusively demonstrated by a professional

biologist to the satisfaction of the County and the CDFW. A larger setback shall be required as necessary to maintain the functional capacity of the wetland ecosystem.

Wetlands

7.14 Definition of Wetlands

- Define wetland as an area where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally are found to grow in water or wet ground. Such wetlands can include mudflats (barren of vegetation), marshes, and swamps. Such wetlands can be either fresh or saltwater, along streams (riparian), in tidally influenced areas (near the ocean and usually below extreme high water of spring tides), and marginal to lakes, ponds, and manmade impoundments. Wetlands do not include areas which in normal rainfall years are permanently submerged (streams, lakes, ponds, and impoundments), nor marine or estuarine areas below extreme low water of spring tides, nor vernally wet areas where the soils are not hydric. In San Mateo County, wetlands typically contain the following plants: cordgrass, pickleweed, jaumea, frankenia, marsh mint, tule, bullrush, narrow-leaf cattail, broadleaf cattail, pacific silverweed, salt rush, and bog rush. To qualify, a wetland must contain at least a 50 percent cover of some combination of these plants, unless it is a mudflat.

Rare and Endangered Species

7.32 Designation of Habitats of Rare and Endangered Species

- Designate habitats of rare and endangered species to include, but not be limited to, those areas defined on the Sensitive Habitats Map for the Coastal Zone.

7.33 Permitted Uses

- a. Permit only the following uses: (1) education and research, (2) hunting, fishing, pedestrian, and equestrian trails that have no adverse impact on the species or its habitat, and (3) fish and wildlife management to restore damaged habitats and to protect and encourage the survival of rare and endangered species.
- b. If the critical habitat has been identified by the Federal Office of Endangered Species, permit only those uses deemed compatible by the USFWS, in accordance with the provisions of the FESA of 1973, as amended.

7.34 Permit Conditions

- Require, prior to permit issuance, that a qualified biologist prepare a report which defines the requirements of rare and endangered organisms. At minimum, require the report to discuss: (1) animal food, water, nesting, or denning sites and reproduction, predation, and migration requirements, (2) plants life histories and soils, climate, and geographic

requirements, (3) a map depicting the locations of plants or animals and/or their habitats, (4) any development must not impact the functional capacity of the habitat, and (5) recommend mitigation if development is permitted within or adjacent to identified habitats.

7.35 Preservation of Critical Habitats

- Require preservation of all habitats of rare and endangered species using criteria including, but not limited to, Section 6325.2 (Primary Fish and Wildlife Habitat Area Criteria) and Section 6325.7 (Primary Natural Vegetative Areas Criteria) of the Resource Management Zoning District.

7.36 San Francisco Garter Snake (SFGS)

- Prevent any development where there is known to be a riparian or wetland location for the SFGS (*Thamnophis sirtalis tetrataenia*) with the following exceptions: (1) existing manmade impoundments smaller than one-half acre in surface area, and (2) existing manmade impoundments greater than one-half acre in surface area providing mitigation measures are taken to prevent disruption of no more than one-half of the snake's known habitat in that location, in accordance with recommendations from the CDFW.
- Require developers to make sufficiently detailed analyses of any construction which could impair the potential or existing migration routes of the SFGS. Such analyses will determine appropriate mitigation measures to be taken to provide appropriate migration corridors.

4.3.3 METHODOLOGY

The information identified in this section was obtained from the *Biological Resources Assessment* (BRA; AES, 2013) which was prepared to document biological resources within the project site. The report is provided in **Appendix C**. The methodology identified in the BRA was based on the following information:

- USFWS list of federally listed special status species with the potential to occur on or be affected by projects in the "Half Moon Bay" and "Montara Mountain" ~~quad~~USGS 7.5-minute topographic quadrangles (quads), and for San Mateo County (USFWS, 2011);
- CNPS list of special status species known to occur within the "Half Moon Bay" and "Montara Mountain" ~~quad and the surrounding five~~ quads ~~(San Francisco South, Hunters Point, San Mateo, Woodside, and Half Moon Bay)~~ (CNPS, 2013);
- California Natural Diversity Database (CNDDB) list of special status species known to occur within the "Half Moon Bay" and "Montara Mountain" ~~quad and the surrounding five~~ quads (CDFW, 2013); and
- CNDDB map of special status species documented within a five-mile radius of the project site.

Biological surveys were conducted on February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011, and November 13, 2013, as identified within the BRA. The biological surveys consisted of conducting a stream assessment, conducting botanical inventories, evaluating habitat types, mapping preliminary wetlands and waterways, collecting gage data from Denniston Creek and San Vicente Creek, and documenting potential habitat for special status species with the potential to occur within the project site. The botanical inventories were conducted in accordance with CDFW's (2009) plant survey protocols. The habitat types were classified using the *Manual of California Vegetation (MCV) Second Edition* (Sawyer et al, 2009) and were modified based on existing habitat conditions within the project site. Wetlands and other aquatic habitats were informally identified using criteria defined in the *1987 Wetland Delineation Manual* by the USACE. Habitat types present on the project site were mapped during the biological surveys using a Trimble Geo-XT handheld global positioning system (GPS) and aerial photographs and were subsequently digitized or downloaded onto appropriate base maps in ArcGIS 9. Plants and wildlife observed during the biological surveys are identified in **Appendix C**.

Attachment 3 within the BRA (**Appendix C**) provides a summary of special status species in the vicinity of the project site based on the USFWS file data, the CNPS inventory, and the CNDDB query, and provides a rationale as to whether the species has the potential to occur within the project site based on presence of the species or their habitat types documented during the February 2, 3, 16 and 17, 2010, May 16 and 17, 2011, June 2, 2011, July 17, 2011 and November 13, 2013 biological surveys and botanical inventories and documented geographic and elevation ranges required by the species. Several special status species were eliminated because the project site lacks suitable habitat or occurs outside of the known elevation or geographic ranges for the species. In addition, potentially occurring plants were eliminated because they were not observed during the May 16 and 17, 2011 and July 17, 2011 botanical inventories conducted within the evident and identifiable blooming period. Species without the potential to occur in the vicinity of the project site are not discussed further in this Draft EIR.

4.3.4 ENVIRONMENTAL SETTING

Land uses in the vicinity of the project site include agricultural, rural residences, and open space. Topography within the project site is characterized by relatively flat areas in the southwest, rising to sloped hills in the northeast. Elevation within the project site ranges from 27 to 67 meters above mean sea level.

Habitat Types

Seven terrestrial and four aquatic habitat types occur within the project site. Terrestrial habitat types include: California annual grassland, coastal prairie, coastal scrub, riparian vegetation, eucalyptus grove, agricultural, and ruderal/disturbed areas. Aquatic habitat types include: perennial creek, intermittent drainage, manmade reservoir, and seasonal wetland. **Table 4.3-1**

provides a summary of the terrestrial and aquatic habitat types by acreages. A habitat map of the project site is provided in **Figure 4.3-1**. Zoomed-in views of the habitat map are provided in **Figures 4.3-1a**, **4.3-1b**, **4.3-1c**, and **4.3-1d**. Representative photographs of the habitat types are shown in **Figures 4.3-2a** and **4.3-2b**.

TABLE 4.3-1
HABITAT TYPES BY ACREAGES WITHIN THE PROJECT SITE

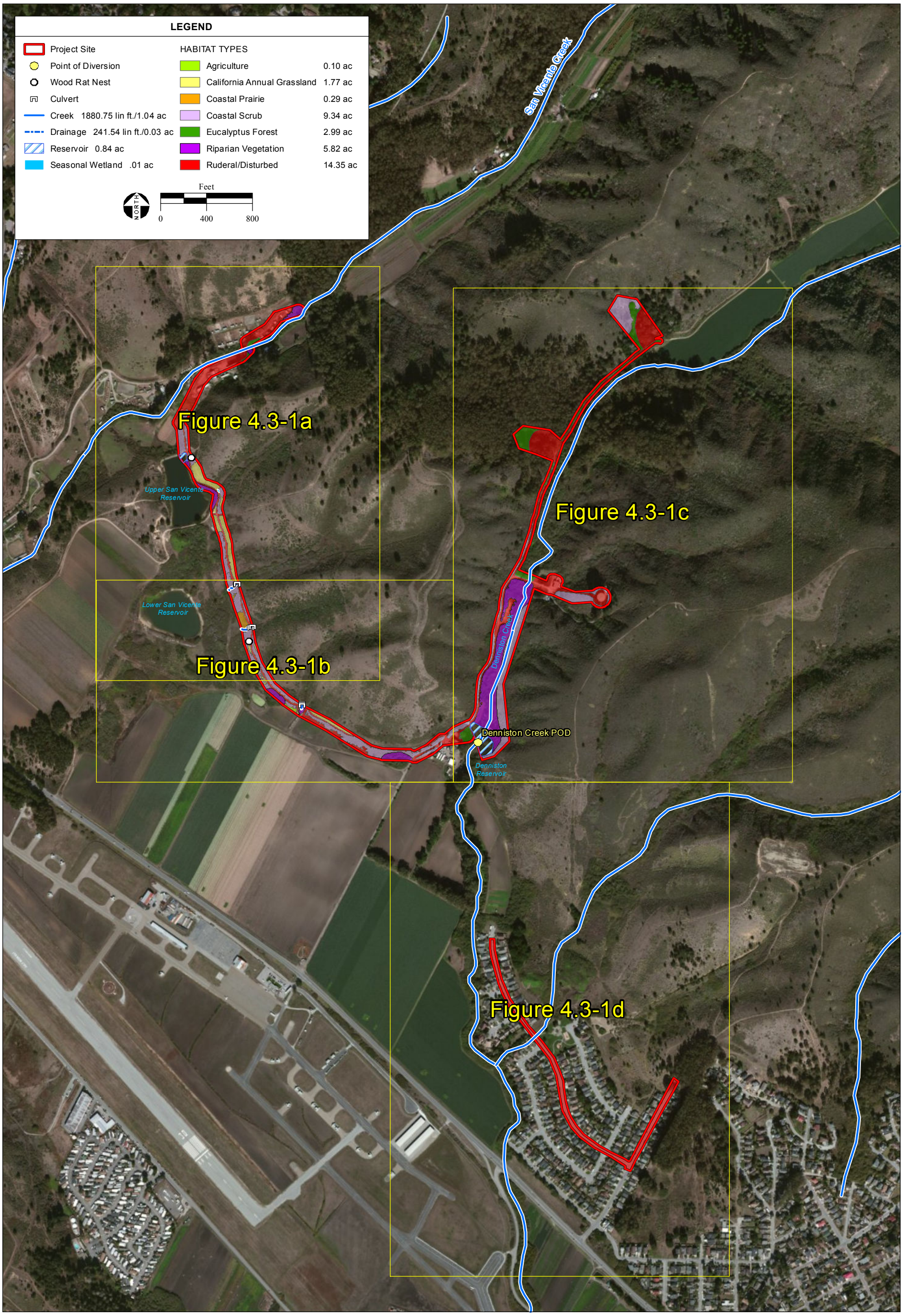
Habitat Types	Acreages
Terrestrial	
California Annual Grassland	1.77
Coastal Prairie	0.29
Coastal Scrub	9.34
Riparian Vegetation	5.82
Eucalyptus Grove	2.99
Agriculture	0.10
Ruderal/Disturbed Areas	14.35
Subtotal	**34.66**
Aquatic	
Perennial Creek	1.04
Intermittent Drainage	0.03
Reservoir	0.84
Seasonal Wetland	0.01
Subtotal	**1.92**
Total	**36.58**

California Annual Grassland

California annual grassland occurs in several areas adjacent to the scrub and along the graded roadways within the project site (**Figure 4.3-2a**: **Photograph 1**). Dominant vegetation includes: soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), velvet grass (*Holcus lanatus*), zorro fescue (*Vulpia myuros*), wild oat (*Avena fatua*), and Italian ryegrass (*Lolium multiflorum*). Native grasses including purple needlegrass (*Nassella pulchra*) and California oatgrass (*Danthonia californica*) occur occasionally within this habitat type. Forbs include: rose clover (*Trifolium hirtum*), storksbill (*Erodium* sp.), periwinkle (*Vinca major*), geranium (*Geranium dissectum*), vetch (*Vicia* sp.), and milk thistle (*Silybum marianum*). This habitat type corresponds most closely to Wild Oats Grassland (*Avena* [*barbata, fatua*] Semi-Natural Herbaceous Stands) in the MCV.

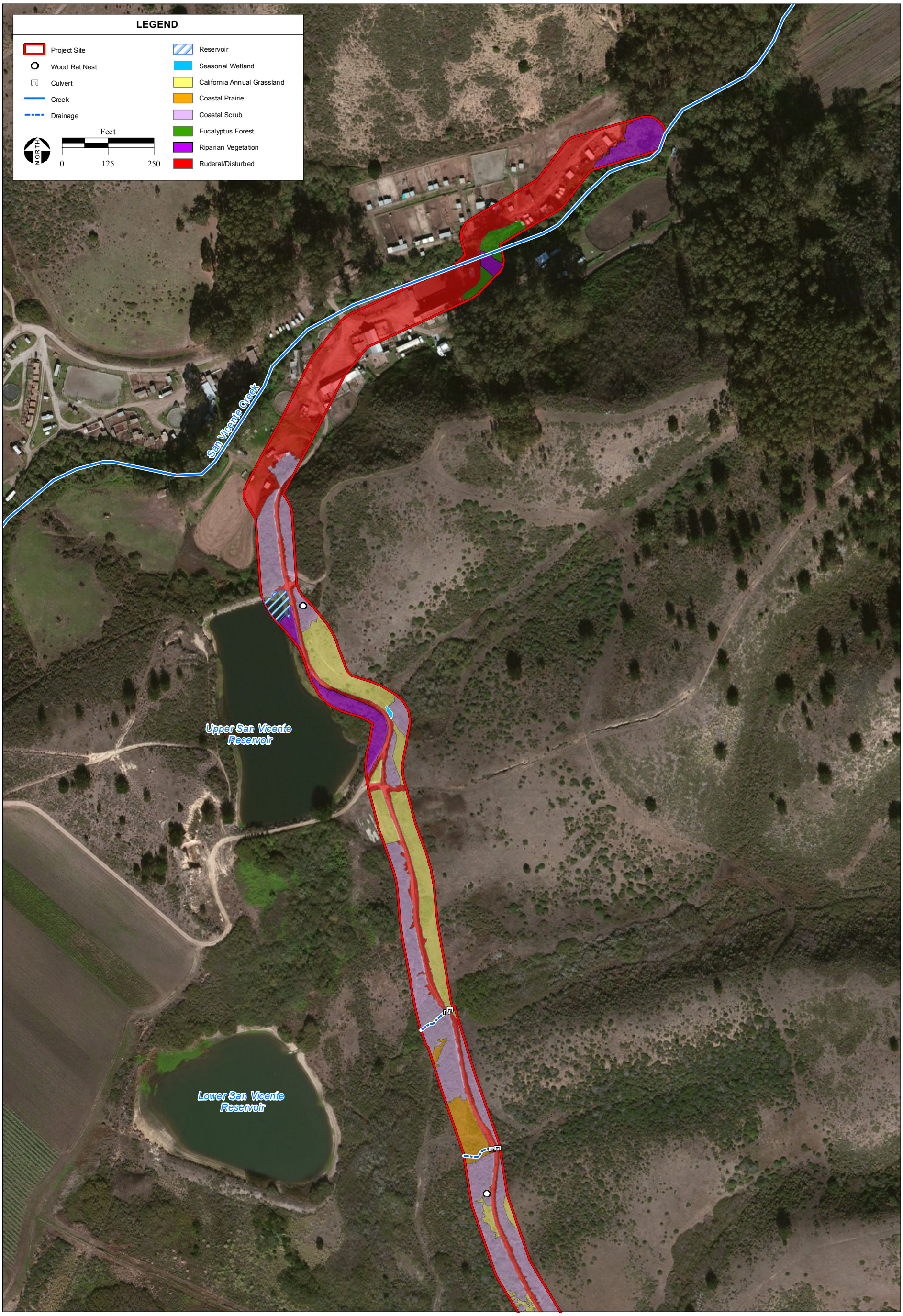
Coastal Prairie

Coastal prairie occurs within the project site (**Figure 4.3-2a**: **Photograph 2**). Native grasses and forbs dominate over non-natives in these areas. Dominant native vegetation includes: California oatgrass ~~and~~, purple needlegrass~~. Non-native grasses and native forbs include:~~, sky lupine (*Lupinus nanus*), and blue-eyed grass (*Sisyrinchium bellum*~~), and~~). Non-native forbs observed in the coastal prairie habitat included: corn snapdragon (*Antirrhinum orontium*).



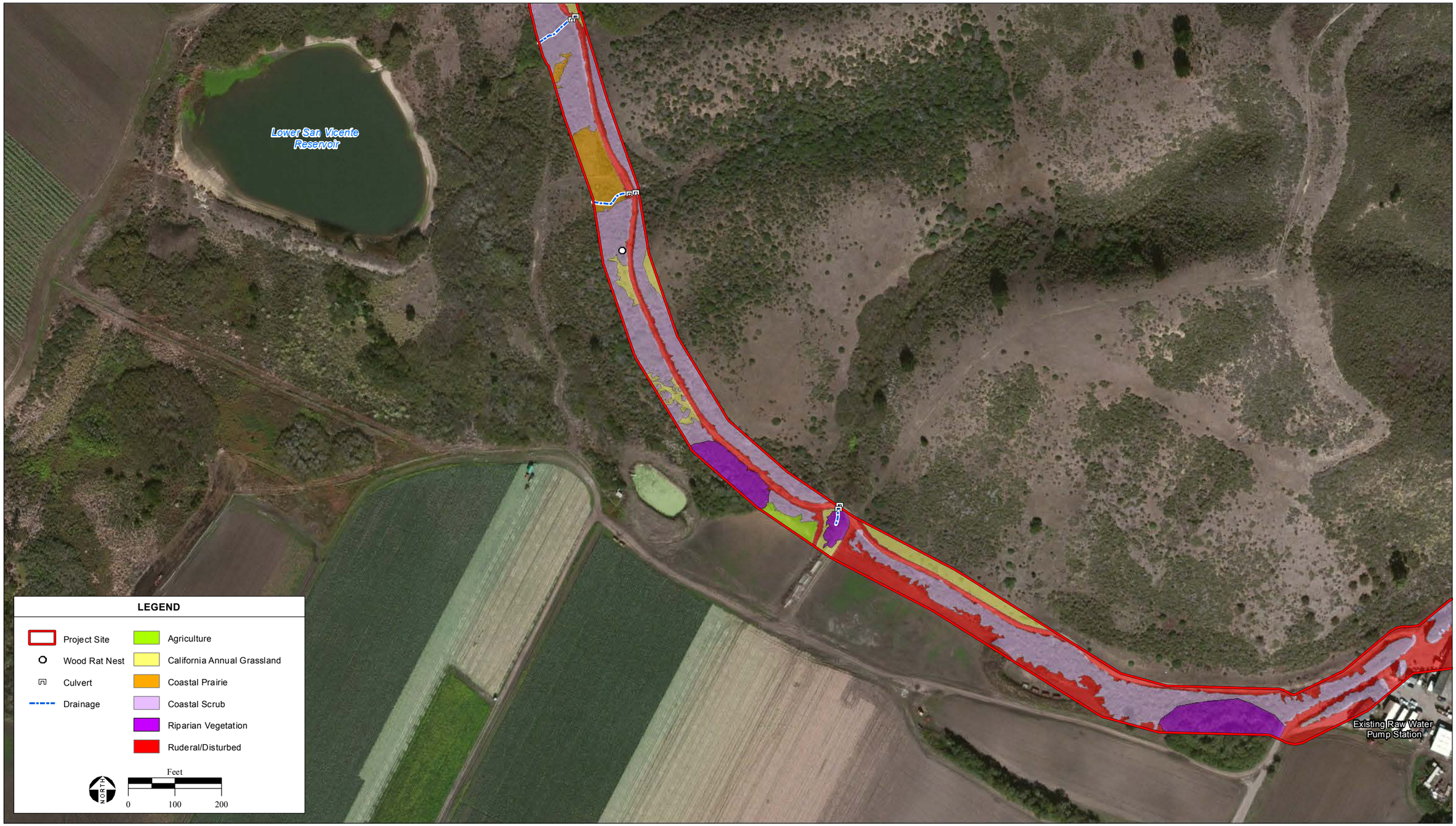
SOURCE: USGS Aerial Photograph, 6/30/2008; AES, 2012

Figure 4.3-1
Habitat Types and Biological Resources



SOURCE: USGS Aerial Photograph, 6/30/2008; AES, 2013

Figure 4.3-1a
Habitat Types and Biological Resources



SOURCE: USGS Aerial Photograph, 6/30/2008; AES, 2013

Figure 4.3-1b
Habitat Types and Biological Resources

SOURCE: USGS Aerial Photograph, 6/30/2008; AES, 2013

Figure 4.3-1c
Habitat Types and Biological Resources

SOURCE: Microsoft UC-G Aerial Photograph, 10/2010; AES, 2013

Figure 4.3-1d
Habitat Types and Biological Resources

PHOTO 1: California Annual Grassland.

PHOTO 2: Coastal Prairie.

PHOTO 3: Coastal Scrub.

PHOTO 4: Riparian Vegetation.

PHOTO 5: Eucalyptus Grove.

PHOTO 6: Agriculture.

SOURCE: AES, 2013

Figure 4.3-2a
Site Photographs

PHOTO 7: Ruderal/Developed.

PHOTO 8: Intermittent Drainage.

PHOTO 9: Reservoir.

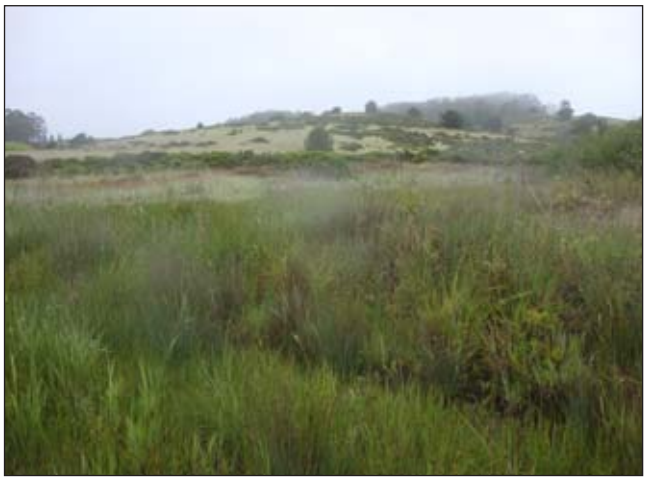


PHOTO 10: Wetland.

SOURCE: AES, 2013

Figure 4.3-2b
Site Photographs

Riparian

Riparian habitat occurs within two portions of the project site (**Figure 4.3-2a**: **Photograph 4**). The riparian vegetation along San Vicente creek is dominated by arroyo willow (*Salix lasiolepis*), Sitka willow (*Salix stichensis*), creek dogwood (*Cornus sericea*), blue gum (*Eucalyptus globulus*), and red elderberry (*Sambucus racemosa*). Shrubs and vines include: thimbleberry (*Rubus parviflorus*), western sword fern (*Polystichum minutum*), and cape ivy (*Delairea odorata*). Understory vegetation includes: stinging nettle (*Urtica dioica*), fennel (*Foeniculum vulgare*), and hedge nettle (*Stachys bullata*). The riparian canopy resembles Arroyo Willow Thickets (Shrubland Alliance); however, the area has been influenced by the activities of local farmers and the vegetation reflects human disturbance.

Riparian vegetation also occurs along Denniston Creek. The canopy is dominated by arroyo willow, Sitka willow, and red willow (*Salix laevigata*) interspersed with creek dogwood and California bay (*Umbellularia californica*). Understory vegetation includes: California tule (*Scirpus acutus*), tule (*Scirpus microcarpus*), cattail (*Typha latifolia*), California blackberry (*Rubus ursinus*), hedge nettle, thimbleberry, and horsetail (*Equisetum telmateia*). The riparian canopy resembles Arroyo Willow Thickets (Shrubland Alliance).

AES observations during the habitat and stream assessment surveys indicate that the current flows and use patterns (including the current spillage below Denniston Reservoir) appear to be sufficient to sustain the biological functions as they are now for this habitat type.

Eucalyptus Grove

Eucalyptus grove occurs in two previously, and currently, used dredged disposal areas (**Figure 4.3-2a**: **Photograph 5**). Eucalyptus grove resembles Eucalyptus Groves (*Eucalyptus* [*globulus, camaldulensis*] Semi-Natural Woodland Stands). Another eucalyptus grove occurs adjacent to Denniston Reservoir and another occurs adjacent to San Vicente Creek downstream from the point of diversion (POD).

The canopy of one eucalyptus grove located in the southern portion of the project site is dominated by non-native blue gum (*Eucalyptus globulus*). Single red elderberry bushes are dispersed through this area. Understory ruderal and non-native vegetation includes: cape ivy, white ramping fumitory (*Fumaria capreolata*), nasturtium (*Nasturtium officianale*), and bull thistle (*Circium vulgare*). The canopy of the other eucalyptus grove located in the northern portion of the project site is more open and less disturbed than the southern one, with several mature Monterey cypress (*Cupressus macrocarpa*) and Monterey pine (*Pinus radiata*) interspersed throughout the blue gum. English ivy (*Hedera helix*) is the dominant understory vegetation.

Agriculture

Agriculture occurs within the northern portion of the project site (**Figure 4.3-2a**: **Photograph 6**). The agricultural habitat type is tilled annually, irrigated, and treated with herbicides and pesticides as part of the crop production practices. Crops are comprised primarily of the monoculture production of brussels sprouts (*Brassica oleracea*). This habitat type does not correspond to any vegetation community described in the MCV.

Ruderal/Disturbed

Ruderal/disturbed areas include ornamental landscaping around residential dwellings and outbuildings, horse and livestock facilities, dredge disposal sites, and along roadways (**Figure 4.3-2b**: **Photograph 7**). Dominant shrubs and understory vegetation include: Italian ryegrass, barley (*Hordeum marinum* sp. *gussonianum*), dogtail grass (*Cynosurus echinatus*), ripgut brome, soft-chess, pampas grass (*Cortaderia jubata*), wild oat, French broom (*Genista monspessulana*), Italian thistle (*Carduus pycnocephalus*), fennel, white ramping fumitory, Hooker's evening primrose (*Oenothera elata* ssp. *hookeri*), and narrow-leaf plantain (*Plantago lanceolata*). This habitat type does not correspond to any vegetation community described in the MCV.

Perennial Creek

Two perennial creeks occur within the project site: San Vicente and Denniston Creeks. Dominant vegetation along the banks of the perennial creeks is similar to those discussed within the riparian habitat type. The habitat of the perennial creeks is typical of creeks within this region, although the geologic strata through which these streams flow are of limited distribution outside of the immediate environs of the project area along this portion of the San Mateo Coast (please see **Section 4.6**, Geology and Soils and **Section 4.9**, Hydrology for details).

San Vicente Creek

Representative photographs of San Vicente Creek are provided in **Figure 4.3-2c** and are ordered from the proposed POD downstream to the mouth of the creek. Instream resources within San Vicente Creek include benthic macroinvertebrates and small native fishes, and the stream may support the listed California red-legged frog (CRLF; *Rana aurora draytonii*).

Denniston Creek

Pphotographs of Denniston Creek are provided in **Figure 4.3-2d**. The photographs and are ordered from the POD downstream to the mouth of each the creek. Instream resources within the perennial creeks include stream invertebrates and native fishes. In addition, CRLF is known to occur at Pillar Point Marsh downstream of Denniston Creek (CDFW, 2013). San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) may occur in downstream reaches of Denniston Creek, as CRLF is the snakes' preferred prey species.

PHOTO 11: Point of Diversion on San Vicente Creek.

PHOTO 12: San Vicente Creek.

PHOTO 13: San Vicente Creek near Fitzgerald Reserve.

PHOTO 14: San Vicente Creek just upstream from mouth.

PHOTO 15: San Vicente Creek at mouth (Halfmoon Bay).

SOURCE: AES, 2013

Figure 4.3-2c
Site Photographs

PHOTO 16: Denniston Dam spillway.

PHOTO 17: Downstream of Denniston Dam spillway.

PHOTO 18: Gauge looking downstream Denniston Creek..

PHOTO 19: Possible barrier on Denniston Creek.

PHOTO 20: Dennison Creek near Possible Barrier.

PHOTO 21: Denniston Creek looking towards mouth at Halfmoon Bay.

SOURCE: AES, 2013

Figure 4.3-2d
Site Photographs

Intermittent Drainage

Three intermittent drainages occur within the project site (**Figure 4.3-2b**: **Photograph 8**). Dominant vegetation includes: fennel, California blackberry, stinging nettle, California figwort, and California tule.

Manmade Reservoir

Three manmade reservoirs occur within the project site (**Figures 4.3-2b**: **Photograph 9**). One is located on stream of Denniston Creek (Denniston Reservoir). The other two, Upper and Lower San Vicente Reservoirs, are located to the east of San Vicente Creek and are fed by agricultural diversions from that creek. Dominant vegetation along the banks of the manmade reservoirs includes: common knotweed (*Polygonum arenastrum*), monkeyflower (*Mimulus guttatus*), stinging nettle, Hooker's evening primrose, red elderberry, California blackberry, stinging nettle, California figwort, and California tule.

Seasonal Wetland

One seasonal wetland occurs within the project site (**Figure 4.3-2b**: **Photograph 10**). Dominant vegetation includes: dense sedge (*Carex densa*), spikerush (*Eleocharis macrostachya*), nutsedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), sheep sorrel (*Rumex acetosella*), and toad rush (*Juncus bufonius*). The seasonal wetland would not be affected by construction of the pipeline by project design.

Downstream Wetlands

Two freshwater shrub/forested wetlands totaling 13.74 acres of have been mapped downstream of the project site within the San Vicente Creek watershed (USFWS, 2015). These wetlands are located adjacent to and are hydrologically influenced by San Vicente Creek. Freshwater shrub/forested wetlands are palustrine wetlands dominated by woody vegetation less than six meters (20 feet) tall. Dominant species within the downstream wetlands include willow and alder.

Downstream habitats associated with Denniston Creek include the riparian corridor which consists primarily of willows, one emergent wetland (0.85 acre), and one pond (0.73 acre). The Proposed Project will not impact the existing downstream leakage flows from Denniston dam, which are the sustained water source for the riparian corridor. Therefore, there would be no significant impacts to downstream aquatic resources, riparian habitat, and wetlands.

Waters of the United States

The term "waters of the United States" is defined as:

- All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; or
- All interstate waters including interstate wetlands; or all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use or degradation of which could affect interstate or foreign commerce (38 CFR Part 328).

"Wetlands" are defined as:

- 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 (38 CFR Part 328).

The following potential waters of the United States occur within the project site: two perennial creeks, three intermittent drainages, two manmade reservoirs, and one seasonal wetland (**Figure 4.3-1**). Construction of facilities that affect waters of the United States may be subject to regulation by the USACE under Section 404 and by EPA (as delegated to the SWRCB or RWQCB) under 401 of the Clean Water Act and/or by the CDFW under Sections 1600 – 1616 of the California Fish and Game Code. The shapes, sizes, and jurisdictional status of all water features identified herein are approximate and have not been confirmed by jurisdictional agencies.

Sensitive Habitats

Four sensitive habitats occur within the project site: riparian vegetation, perennial creek, intermittent drainage, and seasonal wetland. The San Mateo County LCP, CNPS, and CDFW require evaluation of sensitive habitats. These four habitat types are discussed in detail under the **Habitat Types** and **Waters of the United States** heading above.

Wildlife Corridors

The riparian habitat along the perennial creeks provides wildlife movement corridors between the hills to the northeast and the coast to the west.

Trees

Several of the non-native blue gum, Monterey cypress, and Monterey pine trees within the previously dredged disposal areas of the eucalyptus grove are comprised of circumferences that exceed 38 inches when measured at four feet vertically above the ground. Removal of these

trees may be subject to the County's Significant Tree Ordinance. Avoidance of tree removal is the priority in the project design.

Special Status Species

For the purposes of this Draft EIR, special status species are defined to include those that are:

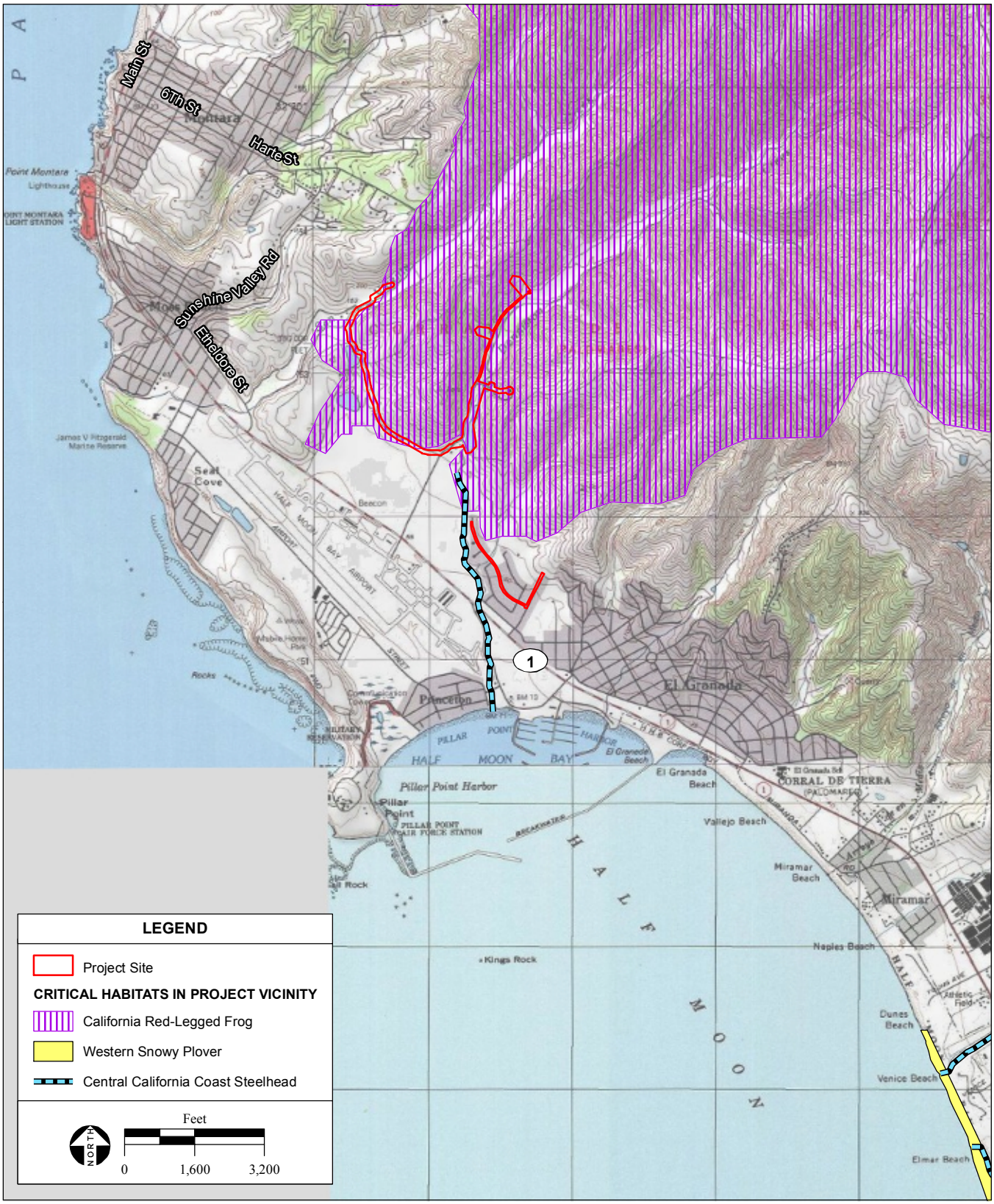
- Listed as endangered or threatened species under the FESA (or formally proposed, or candidates, for listing);
- Listed as endangered or threatened species under the CESA (or proposed for listing);
- Designated as endangered or rare species, pursuant to California Fish and Game Code (§1901);
- Designated as fully protected species, pursuant to California Fish and Game Code (§3511, §4700, or §5050);
- Designated as species of special concern by the CDFW;
- Plants or animals that meet the definitions of rare or endangered species under CEQA; or
- Plants considered by the CNPS to be "rare, threatened, or endangered in California" (Lists 1A, 1B, and 2).

Special status species with the potential to occur within the project site are summarized in **Table 4.3-2** and are discussed in detail below. Critical habitat in the vicinity of the project site is shown in **Figure 4.3-3**.

Special Status Plants

Fragrant Fritillary (*Fritillaria liliacea*)
Federal Status – None
State Status – None
Other – CNPS List 1B

Fragrant fritillary is a perennial herb found in broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland at elevations from 60 to 1,300 meters. The blooming period for this species is from February through April. This species is known to occur in Alameda, Contra Costa, Monterey, Marin, San Benito, Santa Clara, San Francisco, San Mateo, Solano, and Sonoma counties (CNPS, 2013).



SOURCE: USFWS Critical Habitat Surveys of San Mateo County, 2005, 2010; "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

Figure 4.3-3
Critical Habitat Map

TABLE 4.3-2
SPECIAL STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status	Habitat Description	Period of Identification	Area of Potential Occurrence in Study Area
Plants				
Fritillaria liliacea Fragrant fritillary	--/--/1B	Annual herb found often on serpentinite substrate in cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grasslands at elevations from 3 to 410 meters (CNPS, 2013).	February-April	The coastal prairie, coastal scrub, and California annual grassland provide habitat for this species.
Fish				
Oncorhynchus mykiss irideus steelhead Central California Coast ~~ESU~~DPS	FT/--/--	Found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. Spawning: streams with pool and riffle complexes. For successful breeding, require cold water and gravelly streambed (Moyle, 2002).	Consult Agency	Denniston Creek downstream of the project site provides marginal and currently unoccupied habitat for this species.
Amphibians				
Rana aurora draytonii California red-legged frog	FT/CSC/--	Found in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation from 0 to 1,500 meters (NatureServe, 2011).	November – March (breeding) June - August (non-breeding)	San Vicente Creek, Denniston Creek, and the manmade reservoirs provide breeding habitat for this species. The riparian vegetation, California annual grassland, and coastal prairie provide upland habitat for this species.
Reptiles				
Actinemys marmorata Western pond turtle	--/CSC/--	Found in permanent ponds, lakes, streams, irrigation ditches, permanent pools, and intermittent streams. Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. Found from 0 to 1,430 meters (Jennings, 1994).	All year	San Vicente Creek, Denniston Creek, the intermittent drainages, and the manmade reservoirs provide breeding habitat for this species. The riparian vegetation, California annual grassland, coastal prairie provide upland habitat for this species.
Thamnophis sirtalis tetrataenia San Francisco garter snake	FE, FP/CE/--	Prefers grasslands or wetlands near ponds, marshes and sloughs. May overwinter in upland areas away from water (Californiaherps, 2011).	March-July	The seasonal wetlands, manmade reservoirs, and California annual grassland provide habitat for this species.

Species	Status	Habitat Description	Period of Identification	Area of Potential Occurrence in Study Area
Mammals				
Antrozous pallidus Pallid bat	--/CSC/--	Found in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests from 0 to 2,000 meters. The species is most common in open, dry habitats with rocky areas for roosting. Roosts also include cliffs, abandoned buildings, bird boxes, and under bridges (Harris, 2000).	All Year	The ornamental landscape trees and residential dwellings within the ruderal/disturbed areas and the trees within the riparian canopy provide roosting habitat for this species.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/CSC/--	Found in riparian areas along streams and rivers. Requires areas with a mix of brush and trees (NatureServe, 2011).	Year Round	The riparian vegetation and the creeks provide habitat for this species.

FEDERAL: United States Fish and Wildlife Service (USFWS, 2011)
FE Federally Endangered
FT Federally Threatened
CH Federally Designated Critical Habitat

STATE: California Department of Fish and Wildlife (CDFW, 2013)
CE California Listed Endangered
CR California Listed Rare
CT California Listed Threatened
CSC California Species of Special Concern

CNPS: California Native Plant Society (CNPS, 2013)
List 1B Plants Rare, Threatened, or Endangered in California and Elsewhere
List 2 Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

There is one CNDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 1931 and is located approximately 2.7 miles northeast of the project site (CNDDB occurrence number 37). The record states that the exact location is unknown and that a site visit is needed. The coastal scrub, California annual grassland, and coastal prairie within the project site provide habitat for this species. This species was not observed during the May 16 and 17, 2011 and July 17, 2011 biological surveys of the project site. The biological surveys were conducted outside of the evident and identifiable blooming period for this species. This species has the potential to occur within the project site.

Special Status Wildlife

Fish

Steelhead – Central California Coast ~~ESU~~ DPS (*Oncorhynchus mykiss irideus*)

Federal Status – Threatened, Critical Habitat

State Status – None

Central California Coast Steelhead~~-Central California Coast Evolutionary Significant Unit (ESU)~~ Distinct Population Segment (DPS) is found in cool, clear, fast-flowing permanent streams and rivers with riffles and ample cover from riparian vegetation or overhanging banks. This species spawns in streams with pool and riffle complexes. Cold water and a gravelly streambed are required for successful breeding (NMFS, 2013).

Critical habitat for the Central California Coast steelhead ~~ESUs~~DPS was originally designated on February 16, 2000. Designated critical habitat includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River to Aptos Creek, California (inclusive), and in the drainages of San Francisco and San Pablo Bays (Federal Register 2000). Also included are adjacent riparian zones, all waters of San Pablo Bay westward of the Carquinez Bridge, and all waters of San Francisco Bay from San Pablo Bay to the Golden Gate Bridge.

Designated critical habitat includes the stream channels within the designated stream reaches, and includes the lateral extent, as defined by the ordinary high-water line (33 CFR 329.11). In areas where the ordinary high-water line has not been defined, the lateral extent is defined by the bankfull elevation (70 FR 52488).

Designated critical habitat for the Central California Coast steelhead DPS~~ESU~~ was vacated pursuant to an April 30, 2002, court order. The court order remanded the critical habitat designations for 19 steelhead and salmon ESUs to NMFS for new rulemaking to re-designate critical habitat because of inadequate economic analysis. This assessment was completed and critical habitat for steelhead was re-designated by National Oceanic and Atmospheric

Administration (NOAA) NMFS on August 12, 2005.

The primary constituent elements essential for the conservation of the Central California Coastal steelhead DPS~~ESU~~ are those sites and habitat components that support one or more life stages, including: (1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development; (2) Freshwater rearing sites with: (i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (ii) Water quality and forage supporting juvenile development; and (iii) Natural cover such as shade, submerged and overhanging large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; (3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival; and (4) Estuarine areas free of obstruction and excessive predation with: (i) Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between freshwater and saltwater; (ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and (iii) Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation (70 FR 52488).

Designated critical habitat in Denniston Creek occurs from the outlet at 37.5033N, -122.4869W to the upstream endpoint at 37.5184N, -122.4896W (**Figure 4.3-3**). The portion of Denniston Creek that occurs within the project site is 0.11 mile north of the upstream extent of designated critical habitat. The project site does not occur within the designated critical habitat for this species.

In order to spawn, adult fish must enter Denniston Creek through Half Moon Bay Harbor. The harbor is located at the gateway to the watershed for anadromous fish and the building of the breakwater was completed in 1967. Although correlation is not the same as causation, the breakwater construction coincides closely with the loss of documented significant anadromous runs in Denniston and makes this a prime suspect for the cause of this loss. Fresh water signal loss is consistent with fish not detecting a home channel entrance. The breakwater was designed to be permeable to flush pollutants, but this design mixing also contributes to diluting the freshwater signal from Denniston Creek, because Denniston Creek water now flows through both the structure and the harbor entrance, which reduces the attraction of fish to the harbor entrance between the breakwaters. This mixing also diffuses the chemical signals that salmonids use to home on a specific creek once inside the breakwater. This is probably the most significant factor that has caused the loss of the historical steelhead run in Denniston Creek.

The Denniston Creek dam is a complete barrier to upstream anadromous fish passage. Any fish observed above the dam are fish stocked by CDFW in the pond or remnant resident populations (or a combination of both), rather than juveniles directly from ocean run stocks. The portion of Denniston Creek from the dam downstream to the Pacific Ocean contains several culverts that are obstacles and/ or barriers to upstream anadromous fish migration (**Figure 4.3-2d**, **Photo 19**). Fish observed downstream of the dam have a greater likelihood of getting there by spilling over the dam than running upstream from the ocean because of these barriers and the lack of any observations of ocean-run salmonids since the mid 1960's.

The Denniston Creek channel is composed of low gradient flows with runs and shallow pools less than 12 inches deep and loose sand and shallow gravel substrate that provides only limited spawning potential within Denniston Creek between the dam and the Pacific Ocean (AES, 2013).

Therefore, the primary causes for lack of spawning in Denniston Creek are Half Moon Bay Harbor and breakwaters, existing barriers and obstacles in the creek bed, and lack of suitable habitat, and not water flows. Due to channel conformation and the small width of Denniston Creek, increased flows would not add any biologically significant usable fishery habitat for steelhead migration or spawning.

There are no historical or present anadromous fish resources documented in San Vicente Creek. A complete barrier to fish passage existed at the confluence of the Pacific Ocean and San Vicente Creek until it was removed in 2006. The existing diversion structure along San Vicente Creek is a barrier to fish passage upstream and downstream of the project site. The portion of San Vicente Creek from the diversion structure downstream to the Pacific Ocean contains several culverts that are obstacles to fish migration (**Appendix C**; AES, 2013). The channel is composed of shallow pools and loose sand that lacks gravel substrate required for spawning habitat (AES, 2013). San Vicente Creek is not listed as critical habitat for steelhead or any other special-status species.

There are three CNDDB records documented for this species within five miles of the project site (CDFW, 2013). The nearest record is from 1999 and is located approximately 3.1 miles southeast of the project site within Frenchmans Creek (CNDDB occurrence number 3). None of the occurrences are documented within Denniston Creek or San Vicente Creek. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species does not occur within the portion of Denniston Creek located within the project site. This species does not occur within the portion of San Vicente Creek located within the project site and is not known to occur within San Vicente Creek.

Amphibians

California Red-Legged Frog (CRLF; *Rana aurora draytonii*)

Federal Status – Threatened, Critical Habitat
State Status – Species of Concern

CRLF require aquatic breeding areas embedded within a matrix of riparian and upland dispersal habitats. Breeding aquatic habitats include pools and backwaters within streams, creeks, ponds, marshes, springs, sag ponds, dune ponds, lagoons, and artificial impoundments including stock ponds. The breeding period is from November to March. Beginning with the first rains of fall, CRLF may make overland excursions through upland habitats. Most of these overland movements occur at night. CRLF may move distances up to 1.6 kilometers throughout one wet season. CRLF rest and forage in riparian vegetation. CRLF disperse from their breeding habitat to forage and seek summer habitat if water is not available. Summer habitats include spaces under boulders or rocks and organic debris, such as downed trees or logs; industrial debris; and agricultural features, such as drains, watering troughs, abandoned sheds, or hay-ricks (USFWS, 2002). CRLF requires 11 to 30 weeks of permanent water for larval development (CDFW, 2013).

The USFWS designated approximately 1,636,609 acres of revised critical habitat in 50 units within 27 California counties for CRLF, effective August 16, 2010 (75 FR 12815-12959). The primary constituent elements essential to the conservation of the species include: (1) Space for individual and population growth and for normal behavior; (2) Food, water, air, light, minerals, or other nutritional or physiological requirements; (3) Cover or shelter; (4) Sites for breeding, reproduction, or rearing (or development) of offspring; and (5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

The project site occurs within critical habitat for CRLF (**Figure 4.3-3**). The project site occurs within the 34,952-acre SNM-1, Cahill Ridge unit. SNM-1 contains the features that are essential for the conservation of the species including the following primary constituent elements: aquatic habitat for breeding and non-breeding activities, and upland habitat for foraging and dispersal activities. SNM-1 was known to be occupied at the time of listing and is currently occupied. The unit contains high-quality permanent and ephemeral aquatic habitats consisting of ponds and streams surrounded by riparian and emergent vegetation that provides for breeding and upland areas for dispersal, shelter, and food (75 FR 12815-12959).

There are 18 CNDDB records documented for this species within five miles of the project site (CDFW, 2013). Two of the 18 occurrence are mapped within the vicinity of the project site. One occurrence is from 2006 and abuts the southern portion of the project site (CNDDB occurrence number 976). The record states that six adult CRLF were captured in a pond with

wetland vegetation surrounded by agriculture between Denniston Creek and San Vicente Creek. The other occurrence is from 2006 and abuts the southeastern portion of the project site (CNDDB occurrence number 38). The record states that approximately five CRLF were heard calling and two were captured within manmade ponds along Denniston Creek. CRLF were identified in the reservoir during the most recent dredging activities in 2009-2010.

Denniston Creek, San Vicente Creek, the manmade reservoirs, and the riparian vegetation within the project site provide breeding and foraging habitat for this species. The project site provides overland movement for this species in habitats occurring within 1.6 kilometers of the aquatic and foraging habitat. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. However, CRLF was observed in Denniston Reservoir during dredging activities done by the District under a CDFW Streambed Alteration Agreement (SAA) in 2009 and 2010. Maintaining Denniston Reservoir at a larger size would provide more ~~edge effect~~ diverse habitat for CRLF and therefore be beneficial to CRLF ~~habitat~~life stages.

Reptiles

Western Pond Turtle (WPT; *Actinemys marmorata*)

Federal Status – None

State Status – Species of Concern

WPT are found along ponds, marshes, rivers, streams, and irrigation ditches with abundant aquatic vegetation. WPT require aquatic habitats with suitable basking sites. Nest sites are often characterized as having gentle slopes less than 15 percent with little vegetation or sandy banks. WPT are found at elevations from sea level to 1,430 meters (Jennings, 1994). The WPT prefer pools with rocky or muddy bottoms in woodland, forest, or grassland areas. During summer droughts, WPT aestivate in burrows in soft bottom mud (CaliforniaHerps, 2011). Period of identification for the WPT is March through October. WPT are known throughout California west of the Sierra-Cascade crest, absent from desert regions except along the Mojave River and its tributaries (Jennings, 1994).

There is one CNDDB record documented for this species within five miles of the project site (CDFW, 2013). The record is from 2005 and is located approximately 4.6 miles northeast of the project site (CNDDB occurrence number 1223). The record states that one WPT was captured in a pond along San Mateo Creek comprised of oak, bay, pine woodland, and riparian areas. Denniston Creek, San Vicente Creek, the manmade reservoirs, and the riparian vegetation within the project site have potential habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)
Federal Status – Endangered
State Status – Endangered, Fully Protected

The San Francisco garter snake (SFGS) is typically found in the vicinity of freshwater marshes, ponds, and slow moving streams. This species prefers dense cover and water depths of at least one foot (CDFW, 2013) and nearby grassland to overwinter in upland areas away from water (CaliforniaHerps, 2011). This species is found in San Mateo County and the extreme northern portion of Santa Cruz County (CDFW, 2013). SFGS were observed in the vicinity of the project site during surveys conducted in the 1970s and 1990s, but no recent surveys have found SFGS within the project site or vicinity. However, SFGS have not been observed in the project area and sightings in the vicinity are of mixed reliability (WRA, 2005). SFGS eats a wide variety of prey, including amphibians and their larvae; CRLF is a main food source, along with fish, birds, and their eggs, small mammals, reptiles, and earthworms (CaliforniaHerps, 2011).

There are 13 CNDDB records documented for SFGS within five miles of the project site (CDFW, 2013). The data states that the occurrence information is considered sensitive and the location data is suppressed. Denniston Creek, San Vicente Creek, and the manmade reservoirs provide aquatic habitat for this species. The California annual grassland in the vicinity of the creeks provide upland overwintering habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

Mammals
Pallid Bat (*Antrozous pallidus*)
Federal Status – None
State Status – Species of Concern

Pallid bats are found in grassland, shrubland, and woodland habitats from sea level up to mixed conifer forests through 2,000 meters. This species commonly occurs in open, dry habitats with rocky areas for roosting. Other roosts include cliffs, abandoned buildings, bird boxes, and under bridges. This species forages over open ground during the dawn and dusk hours. Pallid bats establish daytime roosts in caves, crevices, mines, large hollow trees, and unoccupied buildings. Pallid bats mate from October through February and most young are born from April through July (Harris, 2000). This species occurs in arid and semi-arid regions across much of the American west, along the Pacific Coast from Canada and Mexico (Arizona-Sonora Desert Museum, 2006-2009).

There are no CNDDB records documented for this species within five miles of the project site (CDFW, 2013). The trees within the riparian vegetation, the eucalyptus grove, and the

ruderal/disturbed areas of the project site provide roosting habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)
Federal Status – None
State Status –Species of Concern

The San Francisco dusky-footed woodrat is found in riparian areas along streams and rivers. This species requires areas with a mix of brush and trees. This species is known to occur in Alameda, Contra Costa, San Mateo, Santa Clara, Santa Cruz counties (NatureServe 2011).

There are no CNDDB records documented for this species within five miles of the project site (CDFW, 2013). The riparian vegetation along Denniston Creek and San Vicente Creek provide habitat for this species. This species was not observed during the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys of the project site. This species has the potential to occur within the project site.

Migratory Birds and Birds of Prey
Fish and Game Code 3503.5 protects all birds in the orders Falconiformes and Strigiformes (collectively known as birds of prey). The MBTA protects migratory birds and other birds of prey. Migratory birds and other birds of prey have the potential to nest within the trees within the riparian vegetation, the eucalyptus grove, and the ruderal/disturbed areas. No birds were observed nesting within the project site during biological surveys. Migratory birds and other birds of prey have the potential to nest within the project site.

4.3.5 IMPACT ANALYSIS

Thresholds of Significance

The significance criteria established by CEQA state that an impact to biological resources would be considered significant if the proposed project:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified or listed in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS;
- 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 CDFW or USFWS;

- 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, and coastal) 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.

Summary of Habitat Impacts

The Proposed Project will temporarily impact a total of 5.254 acres of terrestrial habitat and 1.38 acres of aquatic habitat. Temporary impacts refer to any areas that will be disturbed by construction of the Proposed Project, but will be returned to their pre-construction status after disturbance. Permanent impacts will result in permanent conversion of the habitat type after development is complete. Approximately 3.37 acres of terrestrial habitats and 0.07 acres of aquatic habitats will be permanently impacted.

Table 4.3-3 provides a summary of the terrestrial and aquatic habitat types impacted by the Proposed Project.

TABLE 4.3-3
HABITAT TYPES BY ACREAGES IMPACTED BY THE PROPOSED PROJECT

Habitat Types	Potential Temporary Impacts[1]	Permanent Impacts[2]
Terrestrial		
California Annual Grassland	0.23	0.00
Coastal Prairie	0.08	0.00
Coastal Scrub	1.94	0.00
Riparian Vegetation	0.28	0.00
Eucalyptus Grove	0.05	1.06
Agriculture	0.004	0.00
Ruderal/Disturbed Areas	2.67	2.31
Subtotal	**5.254**	**3.37**
Aquatic[3]		
Perennial Creek (San Vicente Creek at POD)	0.00	0.04
Perennial Creek (Unnamed at Bridgeport Dr.)	0.01	0.00
Intermittent Drainage	0.01	0.00
Reservoir (Denniston Reservoir the POD)	0.94	0.03
Seasonal Wetland	0.00	0.00
Subtotal	**1.38**	**0.07**
Total	**6.214**	**3.44**

[1]These acreages represent the temporary impacts from the Proposed Project. Once completed, each area will be restored.
[2] These acreages represent only the habitat which will be permanently lost through construction of the Proposed Project.
[3] Impacts to the aquatic habitats are approximate. The final acreages of aquatic impacts will be determined through the Sections 404, 401, and 1600 permitting processes.
Source: AES, 2013

Impact Analysis and Mitigation Measures

IMPACT 4.3-1. Development of the Proposed Project has the potential to impact special status species.

The project site provides potential habitat for one special status plant, eight special status wildlife, and migratory bird species and other birds of prey. These species could potentially be impacted by the Proposed Project. In accordance with Section 7 of the FESA, a Biological Assessment will be prepared and submitted to the USFWS and NMFS to initiate FESA consultation for impacts to federally listed species due to likelihood for the need to obtain a 404 permit from the USACE. As described in detail below, any potential impacts to endangered species will be reduced to a less than significant level with the incorporation of **Mitigation Measures 4.3-1a** through **4.3-1ii**.

Special Status Plants

Because the May 16 and 17, 2011, July 17, 2011, and November 13, 2013 biological surveys were conducted outside of the blooming period for fragrant fritillary, this species may have been present and not detected within the project site. Construction activities associated with the Proposed Project have the potential to impact fragrant fritillary through the trenching activities associated with the installation of pipeline within the coastal scrub, California annual grassland, and coastal prairie habitats. With implementation of the measures identified for this species in **Mitigation Measures 4.3-1a** through **4.3-1c**, including conducting a focused botanical survey within the evident and identifiable blooming period immediately prior to actual construction and, if present, salvaging and relocating any individuals prior to commencement of construction activities, impacts to fragrant fritillary would be reduced to **Less than Significant with Mitigation**.

> **Mitigation Measure 4.3-1a:** A qualified botanist shall conduct a focused botanical survey within the blooming period (February through April) for fragrant fritillary prior to commencement of construction activities within the coastal scrub, California annual grassland, and coastal prairie habitats. A letter report shall be prepared and submitted to the CCWD following the preconstruction survey to document the results. Should no fragrant fritillary be observed, then no additional mitigation will be required.
> **Mitigation Measure 4.3-1b:** Should fragrant fritillary be observed during the focused botanical survey, the botanist shall contact the CCWD and the CDFW within one day following the preconstruction survey to report the findings. If feasible, a ten-foot buffer shall be established around the species using construction flagging prior to commencement of construction activities.
> **Mitigation Measure 4.3-1c:** Should avoidance of fragrant fritillary, a CNPS-listed 1B species protected under the Native Plant Protection Act, be infeasible, the qualified botanist would salvage and relocate the individuals to an area comprised of suitable habitat in the vicinity of the project site that would not be impacted by the Proposed Project.

Special Status Wildlife

Central California Coast Steelhead - Central California Coast ~~ESU~~DPS (*Oncorhynchus mykiss irideus*)

Additional diversion of water from San Vicente Creek could result in impacts to water availability and habitat quality for salmonids, should they occur downstream. However, as discussed previously, there are no historical or present salmonoid fish resources documented within San Vicente Creek. A complete barrier to fish passage existed at the confluence of the Pacific Ocean and San Vicente Creek until it was removed in a restoration effort by the County of San Mateo in 2006. Despite this restoration effort, the portion of San Vicente Creek from the diversion structure site downstream to the Pacific Ocean contains several culverts that remain

significant obstacles to fish migration, in addition to passage obstructions at the mouth of the stream entering the Pacific Ocean. The existing diversion structure along San Vicente Creek is a barrier to fish passage upstream and downstream of the project site (**Figure 4.3-2c**: **Photograph 11**). Habitat within the channel is composed of shallow pools and loose sand that lacks gravel substrate required for spawning habitat within San Vicente Creek (AES, 2013). The stretch of San Vicente Creek that runs through the project site does not support suitable habitat for these species.

Additional diversion of water from Denniston Creek could result in impacts to water availability and habitat quality for salmonids, if they were to use habitat below Denniston Creek dam in the future. However, as discussed previously, there is evidence that anadromous fish runs have been blocked in Denniston Creek for decades and that native anadromous runs have been extirpated in the system. During average winter base flows, the creek channel is composed predominantly of low gradient reaches with runs/glides less than 12 inches deep, very few shallow pools measuring less than 20 inches deep, and loose sand and small gravel substrate, which provides only limited spawning potential within Denniston Creek between the dam and the Pacific Ocean (AES, 2013). Half Moon Bay Harbor itself may also present a barrier impassible by anadromous fish. The following measures would reduce impacts to these fish and/or their habitat to **Less than Significant with Mitigation**.

> **Mitigation Measure 4.3-1d:** All work within the bed or on the banks of either San Vicente or Denniston Creeks shall be restricted to low-flow periods, generally between July 1 and October 15. If the channel is dry, construction may occur outside of this period.
>
> **Mitigation Measure 4.3-1e**: In the event the channels are not sufficiently dry to allow work within them, water shall be diverted around the stream reach where the diversion structure is to be installed using coffer dams or other CDFW-approved methods.
>
> **Mitigation Measure 4.3-1f**: Best management practices (BMPs), including but not limited to, silt screens and sediment curtains, shall be placed downstream of the construction site to prevent transport of sediments from the project area to downstream reaches of the stream.
>
> **Mitigation Measure 4.3-1g**: To the extent feasible, the stream banks shall be returned to original grade slope after construction, and riparian vegetation shall be <u>enhanced or</u> replaced consistent with CDFW-approved methods. Bank stabilization measures, such as planting of riparian trees, the use of biodegradable jute netting, and/or hydro seeding with a native seed mix, shall be implemented to reduce potential for erosion and sedimentation within the stream channel. <u>Replacement of directly impacted riparian vegetation shall include planting of native species in similar species composition and densities as identified within the areas immediately upstream of the POD for each creek. Propagule material shall be obtained from an approved supplier of native vegetation.</u>

Mitigation Measure 4.3-1h: The new POD shall be screened for CRLF (see **Mitigation Measure 4.3-1i**).

California Red-Legged Frog (CRLF; *Rana aurora draytonii*) and San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)

The CRLF are found to occur in the vicinity of the proposed project site which also provides suitable habitat for SFGS. Aquatic foraging and breeding habitat for CRLF and SFGS would be temporarily impacted during removal of the existing diversion structure, construction of the new diversion structure and pump station on San Vicente Creek, modifications/installation of a pump station at the manmade off stream Upper San Vicente Reservoir, installation/upgrade of the pipeline within the riparian vegetation surrounding San Vicente Creek, and maintenance activities associated with removal of sediment to expand the manmade reservoir on Denniston Creek. Construction activities associated with the nonnative annual grassland could temporarily impact up to approximately 0.23 acres of upland dispersal habitat for CRLF and SFGS during construction of the pipeline from San Vicente Creek to the existing Denniston Creek pump station. The seasonal wetland near the pipeline route, which could provide habitat for these species, is avoided by project design. Long-term operation of the Proposed Project is likely to benefit CRLF, as maintaining Denniston Reservoir at a larger size and removing the dense tule monoculture in the reservoir would provide more ~~edge effect~~ diverse habitat for CRLF and therefore be beneficial to CRLF ~~habitat~~life stages.

The Proposed Project is likely to affect, but with mitigation is not likely to adversely affect, CRLF and may affect SFGS. Consultation with USFWS for potential impacts to CRLF and SFGS will be required during the CWA Section 404 permitting process for the installation of the new diversion on San Vicente Creek and possibly for the ongoing and future maintenance and operations activities for the dredging at Denniston Reservoir. ~~An Incidental Take Permit (ITP) may also be required from CDFW for the SFGS; although actual take is unlikely to occur as none have been observed in the project impact area.~~

The mitigation measures identified below in **Mitigation Measures 4.3-1i** through **4.3-1x** shall be implemented, and any additional mitigation measures required by the USFWS through Section 7 consultation ~~or by an ITP from CDFW if needed for the SFGS~~, as well as mitigation measures described in a SAA, will be required for both the new POD on San Vicente and ~~the~~ expanded dredging operations at Denniston Reservoir. The following measures shall be implemented to reduce impacts to CRLF and SFGS to **Less than Significant with Mitigation**.

Mitigation Measure 4.3-1i: Removal of the existing diversion structure and construction of the new diversion structure and pump station within San Vicente Creek and within the riparian vegetation surrounding San Vicente Creek, installation of the pipeline within the riparian vegetation surrounding San Vicente Creek, and maintenance activities

associated with dredging activities to maintain Denniston Reservoir shall be limited to the period of September 1 through October 15, which is after CRLF larval development and before the breeding season.

Mitigation Measure 4.3-1j: The proposed replacement of the existing pipeline and the installation of the new pipeline within the nonnative annual grassland and all other habitats within 1.6 kilometers of aquatic features shall be limited to the period of March 15 to October 15.

Mitigation Measure 4.3-1k: An approved biological monitor shall be present on site during all construction and dredging activities. This biological monitor shall have the authority to temporarily halt construction for the protection of listed wildlife species.

Mitigation Measure 4.3-1l: New intake structures shall be equipped with a barrier to prevent CRLF juveniles or tadpoles or SFGS from being entrained. The barriers shall consist of box-like structures of a minimum size of one square foot and shall be screened with ~~no greater than~~ material of a mesh size not to exceed five ~~millimeter mesh diameter~~millimeters.

Mitigation Measure 4.3-1m: To the degree cofferdams are needed and flows will be bypassed during construction, flow shall be restored to the affected stream immediately upon completion of work at that location. Flow diversions shall be done in a manner that shall prevent pollution and/or siltation and which shall provide flows to downstream reaches of Denniston Creek and San Vicente Creek.

Mitigation Measure 4.3-1n: During dredging activities at Denniston Reservoir, any decrease in water surface elevation (WSE) shall be controlled such that WSE does not change at a rate that increases turbidity to Denniston Creek that could be deleterious to aquatic life and/or the likelihood of stranding aquatic life in the manmade reservoir. Dredging activities shall be limited to the period of September 1 through October 15, which is after CRLF larval development and before the breeding season.
An approved biological monitor shall be present during all dredging activities. CCWD shall consult with CDFW and USFWS regarding the feasibility of de-watering areas of Denniston Reservoir to be dredged and installation of CDFW-approved exclusion fencing around these areas prior to dredging. To the extent feasible, dredging shall provide for a balance of shallow and deep water habitat to enhance habitat for CRLF and SFGS.

Mitigation Measure 4.3-1o: At least 14 days prior to the onset of any construction or maintenance activities, including dredging of Denniston Reservoir, the applicant shall submit the name(s) and credentials of biologists who ~~would~~shall conduct activities specified in the following measures. No project activities shall begin until the applicant has received written approval from the USFWS/CDFW that the biologist(s) is qualified to conduct the work.

Mitigation Measure 4.3-1p: Upon completion of the Section 7 consultation process, the USFWS will consider if an appropriate relocation site exists in the event a need arises to

relocate either of the species. The applicant would be required to obtain a biological opinion with an incidental take statement from the USFWS in the event that the USFWS determines that the Proposed Project would result in take of CRLF. If the USFWS approves moving CRLF, the approved biologist will be allowed sufficient time to move them from the work site before work activities begin. Close biological monitoring (see Mitigation Measure **4.3-1k** above) and encouraging the species to leave the work area of their own accord would be the preferred method. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF. Any SFGS found to occur shall be allowed to leave the work area of their own accord, and shall be monitored as practical by the biologist to ensure they do not reenter the work area. Furthermore, if SFGS are observed, exclusion fencing shall be considered in consultation with CDFW and USFWS to prevent the return of the SFGS.

Mitigation Measure 4.3-1q: Prior to commencement of any groundbreaking activities, all construction personnel will receive training on listed species and their habitats by an approved biologist. The importance of these species and their habitat will be described to all employees as well as the minimization and avoidance measures that are to be implemented as part of the Proposed Project. An educational brochure containing color photographs of all listed species in the work area(s) will be distributed to all employees working within the project site. The original list of employees who attend the training sessions will be maintained by the applicant and be made available for review by the USFWS and the CDFW upon request.

Mitigation Measure 4.3-1r: All BMPs prescribed by the San Mateo County planning office for work within sensitive habitat areas will be implemented to the full extent such as eliminating the use of herbicide or pesticide in a riparian area, protecting native vegetation, minimizing soil compaction, seed or plant temporary vegetation for erosion control, protect down slope drainage courses, streams, and storm drains with hay bales, temporary drainage swales, silt fences, berms or storm drain inlet filters (County of San Mateo Public Works).

Mitigation Measure 4.3-1s: Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and the additional and ongoing dredging of Denniston Reservoir shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to minimize disturbances to the maximum extent practicable.

Mitigation Measure 4.3-1t: All vehicles associated with construction and excavation activities will be clustered within designated staging areas at the end of each work day or when not in use to minimize habitat disturbance and water quality degradation.

Mitigation Measure 4.3-1u: Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the onsite biological monitor will check under the vehicles and their tires to ensure no listed species are utilizing the equipment as temporary shelter. In addition, the qualified

biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment. Any vehicle parked within the project site for more than 15 minutes shall be inspected by the biological monitor before it is moved to ensure that CRLF or SFGS have not moved under the vehicle.

Mitigation Measure 4.3-1v: Fifteen miles per hour speed limits shall be enforced while driving in the project site, including transporting excavated material to the disposal site for the dredging material associated with Denniston Reservoir to the previously identified and used disposal sites within the eucalyptus grove.

Mitigation Measure 4.3-1w: Prior to deposition of fill at the disposal site associated with the eucalyptus grove, the biological monitor shall inspect the areas to verify that CRLF or SFGS are not present. If any CRLF or SFGS are present, the excavated material shall not be placed until the individuals leave the area or unless the qualified biologist is permitted by the USFWS to capture and relocate the CRLF.

Mitigation Measure 4.3-1x: Because CRLF and SFGS may take refuge in cavity-like and den-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the biological monitor for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in any way.

Western Pond Turtle (WPT; *Actinemys marmorata*)

WPT has the potential to occur in the vicinity of the project site. Construction of the new diversion structure and pump station and removal of the existing structure along San Vicente Creek, installation of the pipeline within the riparian vegetation surrounding San Vicente Creek and Denniston Creek, and maintenance activities associated with sediment removal within the manmade reservoir along Denniston Creek could impact aquatic habitat for WPT. Construction activities associated with the nonnative annual grassland could impact upland movement for WPT. Implementation of measures identified in **Mitigation Measures 4.3-1y** through **4.3-1bb**, including daily preconstruction surveys, environmental awareness training, and presence of a biological monitor during construction and maintenance activities would reduce potential impacts to WPT to **Less than Significant with Mitigation**.

Mitigation Measure 4.3-1y: Construction equipment used to remove the existing diversion structure and construct the new diversion structure and pump station along San Vicente Creek and to dewater and dredge the manmade reservoir along Denniston Creek shall be located adjacent to aquatic habitats in upland areas with the least amount of riparian vegetation, to the maximum extent practicable.

Mitigation Measure 4.3-1z: Prior to commencement of any groundbreaking activities, all construction personnel will receive training on WPT. The training will be incorporated as described for CRLF and SFGS.

Mitigation Measure 4.3-1aa: Before vehicles move from the staging areas at the start of each work day or before they return to this location at the end of each work day, the biological monitor will check under the vehicles and their tires to ensure no WPT are utilizing the equipment as temporary shelter. In addition, the qualified biologist shall inspect the vicinity of the anticipated work area that will support the construction equipment.

Mitigation Measure 4.3-1bb: Prior to commencement of daily construction or excavation activities, the biological monitor will conduct a preconstruction survey for WPT. If WPT is present, the biologist will be allowed sufficient time to move them from the work site before work activities begin.

Pallid Bat (*Antrozous pallidus*)

Potential roosting habitat is present in the vicinity of the Proposed Project footprint for the pallid bat. If active roosts are present, tree removal associated with construction of the Proposed Project could impact bat species. With the implementation of **Mitigation Measures 4.3-1cc** through **4.3-1dd**, impacts to roosting bats would be reduced to less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.3-1cc: If any trees are proposed for removal, a qualified wildlife biologist shall conduct a focused survey for roosting bats no more than 14 days prior to the anticipated date of tree removal. Trees that contain cavities will be thoroughly investigated for evidence of bat activity. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of roosts, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.

Mitigation Measure 4.3-1dd: If special status bats are found roosting within any trees slated for removal, the areas shall be demarcated by exclusionary fencing and avoided until a qualified biologist can assure that the bats have vacated.

San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)

San Francisco dusky-footed woodrat has the potential to occur within the project site. Installation of the pipeline within the riparian vegetation surrounding San Vicente Creek and Denniston Creek could impact this species. With the implementation of **Mitigation Measure 4.3-1ee through Mitigation Measure 4.3-1ff**, impacts to San Francisco dusky-footed woodrat would be reduced to less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.3-1ee: A qualified biologist shall conduct a preconstruction survey to determine if active woodrat nests occur within a ten-foot buffer of areas to be cleared of riparian vegetation within 14 days prior to commencement of construction

activities. Similar surveys shall be conducted in and immediately adjacent to the use of the existing dredge disposal sites. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results. If the preconstruction survey determines that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.

Mitigation Measure 4.3-1ff: If woodrat nests are present and determined to be occupied, each woodrat shall be relocated to suitable habitat in consultation with the CDFW. If young are found within the nest, the nest material shall remain in its existing condition and a ten-foot buffer around the nest shall be established. No work shall occur within the ten-foot buffer until a qualified biologist determines that the young have been weaned (up to six weeks from birth), at which point the biologist should dismantle and relocate the nest to an area with suitable habitat that would not be impacted by the Proposed Project.

Migratory Birds and Other Birds of Prey

Potential nesting habitat is present within the Proposed Project footprint for migratory bird species and other birds of prey. If active nests are present in the vicinity of the Proposed Project site, potential disruption of nesting migratory birds and other birds of prey during construction could result in nest abandonment or mortality. Likewise, increased human activity and traffic, elevated noise levels, and operation of machinery could also impact birds if their nests or roosts are located within the vicinity of development areas. Riparian vegetation removal along either creek and dredging associated with the expansion of the manmade reservoir within Denniston Creek, the restoration of the creek channel within the exiting riparian area, riparian vegetation removal for the installation of the diversion structure along San Vicente Creek, and trenching activities associated with the Proposed Project could result in abandonment of the nest or loss of eggs and young, which would be a violation of the MBTA. The nests and eggs of any bird are protected from take pursuant to California Fish and Game Code section 3503. With the incorporation of the mitigation measures identified for nesting birds in **Mitigation Measures 4.3-1gg** through **4.3-1ii**, including preconstruction surveys, impacts to nesting birds would be reduced to less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.3-1gg: Should any trees be anticipated for removal, they should be removed between September 16 and March 14, which is outside of the nesting bird season (the nesting bird season is between March 15 and September 15).

Mitigation Measure 4.3-1hh: Should removal be required outside of the dates identified in 4.3-1ff then a qualified biologist shall conduct a preconstruction survey within 14 days prior to commencement of any construction activities associated with the Proposed Project should construction be anticipated to commence during the nesting season for

birds of prey and migratory birds (between March 15 and September 15). A letter report shall be prepared and submitted by the applicant following the preconstruction survey to document the results. If surveys show that there is no evidence of nests, then no additional mitigation will be required so long as construction commences within 14 days prior to the preconstruction survey.

Mitigation Measure 4.3-1ii: If any active nests are located within the vicinity of the project site, a buffer zone shall be established around the nests. A qualified biologist shall monitor nests weekly during construction to evaluate potential nesting disturbance by construction activities. The biologist should delimit the buffer zone with construction tape or pin flags within 100 feet of the active nest and maintain the buffer zone until the end of breeding season or the young have fledged. Guidance from the CDFW will be requested if establishing a 100-foot buffer zone is impractical. A letter report shall be prepared and submitted to the applicant following the preconstruction survey to document the results.

Critical Habitat

The approximately 36.58-acre project site lies within designated critical habitat unit SNM-1 for CRLF. Approximately 6.214 acres of the 36.58-acre project site would be temporarily impacted and 3.44 acres would be permanently impacted by the Proposed Project. Critical habitat unit SNM-1 for CRLF comprises a total of 34,952 acres. Trenching activities associated with the replacement of existing pipelines and the installation of the new pipelines would be temporary and all habitats would be restored back to their existing condition. All wetland habitat is being avoided by design. Maintaining Denniston Reservoir at a larger size would provide more edge effect for CRLF and therefore be beneficial to CRLF habitat. Based on the limited size of critical habitat affected by the Proposed Project, much of which would be temporary, the increased edge effect for CRLF, and the measures required to reduce project-related impacts to CRLF during construction activities and consultation with the USFWS which will occur, impacts to critical habitat is considered **Less Than Significant**.

Sensitive Habitats

IMPACT 4.3-2: Development of the Proposed Project has the potential to impact sensitive habitat including the riparian vegetation of San Vicente Creek and Denniston Creek.

The CDFW and the County General Plan consider riparian habitat to be a sensitive biological community. The Proposed Project could temporarily impact up to 0.28 acres of riparian vegetation, although there are no permanent impacts to riparian habitat. Construction of the POD on San Vicente Creek will permanently impact up to 0.04 acres of aquatic habitat in San Vicente Creek, and dredging in Denniston Reservoir will permanently impact up to 0.03 acres of aquatic habitat.

Impacts would occur to Denniston Creek through maintenance activities associated with removal of sediment to expand the manmade reservoir upstream and adjacent to the existing reservoir. Impacts to San Vicente Creek will occur through construction of the new diversion structure and pump station and removal of the existing structure within the channel and the surrounding riparian vegetation, and installation/upgrade of the pipeline within the riparian habitat.

Impacts may also occur to riparian habitat along San Vicente Creek through the San Vicente Creek preferred alternative (see **Section 4.8**, Hydrology and Water Quality). With a San Vicente Creek preferred alternative, stream flow has the potential to be considerably reduced downstream from the POD. However, impacts will be less than significant as San Vicente Creek will continue to receive natural run-off downstream of the diversion, groundwater from the water table downstream of the diversion, and year-round coastal fog that provides a source of water to the riparian vegetation downstream of the diversion. According to Balance Hydrologics, "San Vicente Creek is a gaining stream, which indicates that there is excess groundwater; even when the streambed appears dry, there is likely underflow below the stream" (Balance, 2014; **Appendix H**). Although the diversions will reduce the amount of surface water in San Vicente Creek, riparian vegetation is maintained year-round by groundwater or stream underflow, which will not be affected by the Proposed Project.

As discussed in **Section 4.8**, Hydrology and Water Quality, in a Denniston Creek preferred diversion scenario, diversions above the existing condition are minimal in all water year types, and there is not likely to be a large decrease in available water to downstream riparian habitat. Riparian habitat is similar to that on San Vicente Creek, and would be maintained by natural run-off downstream of the POD, groundwater input from the water table, and year-round coastal fog. As discussed by Balance Hydrologics, Inc., the "overall groundwater table is not likely to be significantly affected by the Proposed Project due to this combination of factors" and the "riparian corridor along Denniston Creek will not likely be significantly affected by the Proposed Project: (Balance, 2014; **Appendix H**). Therefore, impacts to riparian vegetation on Denniston Creek as a result of decreased water availability are less-than-significant.

A Section 1602 SAA shall be obtained from CDFW and the appropriate County permit under the LCP shall be obtained for impacts to riparian habitat, and all conditions and requirements of the permits shall be adhered to. Water diversion is an allowable use under the LCP. The in-stream impacts may also require a 404 permit from USACE. At minimum, the policies identified within the sensitive habitat component of the County's LCP and the General Plan shall be followed and impacts to riparian habitat and perennial creeks shall be restored, replaced, or enhanced consistent with **Mitigation Measures 4.3-2a** through **4.3-2d** and any additional permit terms as specified.

With mitigation, impacts to riparian habitat are **Less than Significant with Mitigation**.

> **Mitigation Measure 4.3-2a**: The applicant shall comply with the policies identified within the sensitive habitat component of the LCP and the General Plan by obtaining a CDP from the County
> **Mitigation Measure 4.3-2b**: The applicant shall comply with a Riparian Restoration and Monitoring Plan (RRMP). The RRMP shall include performance criteria and development standards for development permitted within the riparian vegetation.
> **Mitigation Measure 4.3-2c**: Riparian habitat impacts shall be replaced or enhanced in the area of impact or, if infeasible, within reasonable proximity to the project site as identified in the RRMP. Examples of restoration include but are not limited to re-contouring of the creek to offset the impacts from the current inefficient diversion and the related undercutting of the stream channel which has occurred, the replanting of native vegetation to offset any unavoidable removal of trees or understory and possible measures designed to avoid further erosion and the removal of debris from both creeks and their associated riparian habitat. If additional measures are required in the State or Federal Permitting process then they shall also be followed and included in the RRMP.
> **Mitigation Measure 4.3-2d**: To reduce the potential for off-site tracking of sediment and to eliminate the spread of invasive plant species, all construction equipment shall be inspected for seeds or plant parts before entering and leaving the site. If seeds or plant parts are found, the equipment shall be washed in the staging area.

IMPACT 4.3-3: Development of the Proposed Project has the potential to impact waters of the United States.

Construction activities associated with the Proposed Project would impact an estimated 0.04 acres of potential waters of the United States through the removal of the existing diversion structure and the construction of the new diversion structure and pump station within the manmade reservoir along San Vicente Creek. Maintenance activities associated with expanding the manmade reservoir along Denniston Creek would impact an estimated 0.03 acres, however, dredging activities within waters of the United States are not subject to Section 404 of the Clean Water Act (33 CFR 232.2(3)(i-iii)). Impacts to waters of the United States subject to USACE jurisdiction are considered preliminary until the USACE verifies the findings. The exact acreage of jurisdictional wetlands would be determined through the Section 404 Clean Water Act process upon completion of finalized design of in-stream structures. The applicant shall obtain a Section 404 Clean Water Act Permit from the USACE for impacts to jurisdictional wetlands and waters of the United States and comply with the mitigation measures identified in the Hydrology and Water Quality Section to prevent discharge of pollutants to surface waters during construction. This shall include complying with the State's National Pollution Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water

Runoff Associated with Construction Activity (General Permit) issued by the RWQCB and a Section 401 Permit for impacts to waters of the state. In addition, as a condition of the Section 404 Clean Water Act Permit, permanent impacts to jurisdictional waters of the United States shall be mitigated on site, as identified in **Mitigation Measures 4.3-3a** and **4.3-3b**. With the obtaining of required permits and following the mitigation outlined here, impacts to jurisdictional waters of the United States would be considered **Less than Significant with Mitigation**.

> **Mitigation Measure 4.3-3a**: Unavoidable impacts to waters of the United States shall be mitigated consistent with the existing agreements between the USACE and the USEPA with an emphasis on for onsite restoration to ensure a no net loss to waters of the United States and of the state.
> **Mitigation Measure 4.3-3b**: Avoid the 0.01 acre seasonal wetland during construction of the pipeline.

IMPACT 4.3-4: Removal and disposal of the dredge material has the potential to impact biological resources.

Two dredge disposal sites already identified as part of the District easements shall be the site of the disposal of the dredged material located at the eucalyptus groves. Use of these sites has the potential to impact biological resources because this area provides potential habitat for the CRLF, possibly the SFGS and the dusky wood rat. In addition the material could contain contaminants that could seep into the soil. Random sampling of dredge materials from the Denniston Reservoir was conducted by Erler & Kalinowski, Inc. in April 2012 on behalf of the Peninsula Open Space Trust (Cabrillo Farms) (EKI, 2013). The samples were tested for the following metal constituents, all of which tested within normal ranges (ranges from USGS Professional Paper 1270; USGS, 1984): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc. However, prior to dredging, all soils will be sampled and tested for the above-listed constituents and other hazardous materials. The following measures shall be implemented to reduce impacts to CRLF and SFGS to **Less than Significant with Mitigation.**

> **Mitigation Measure 4.3-4a**: Prior to dredging, soils to be removed will be sampled and tested for contaminants. The samples shall at a minimum be tested for the following constituents: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc. If sampling of the dredged materials indicates that soils may constitute hazardous materials, then they shall be disposed of in accordance with corresponding California statutory regulations at an approved dredge disposal site. Recycleworks.org is a

program of San Mateo County and is a guide for building contractors on how to properly dispose of hazardous materials.

Mitigation Measure 4.3-4b: Dredging shall generally be from the dam side and along the road in order to minimize impacts to the surrounding environment.

Mitigation Measure 4.3-4c: To the degree feasible the dredging shall be done in a manner that restores an upstream channel of Denniston Creek coming into the reservoir.

Mitigation Measure 4.3-4d: All dredged material will be disposed of at one of the two on-site disposal areas if sampling indicates that soils do not constitute hazardous materials.

Wildlife Movement and Migratory Corridors

The Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors or impede the use of native wildlife nursery sites. Impacts would be considered **Less than Significant.**

Tree Ordinance

IMPACT 4.3-5: Development of the Proposed Project has the potential to impact trees.

The project site contains trees identified within the Significant Tree Ordinance (San Mateo County, 2010). A permit is required for the removal of any indigenous or exotic tree with a circumference of at least 38 inches when measured at four feet vertically above the ground or immediately below the lowest branch, whichever is lower, as identified in the Significant Tree Ordinance (San Mateo County, 2010). If any trees are anticipated for removal, the applicant shall submit an arborist report with the required information to obtain a permit and comply with all conditions in the permit, as identified within **Mitigation Measure 4.3-5**. With mitigation, impacts to protected trees would be considered less than significant. **Less than Significant with Mitigation**.

Mitigation Measure 4.3-5: If trees covered by the County Tree Ordinance are required to be removed, the applicant shall comply with the policies identified within the San Mateo County Significant Tree Ordinance, including an arborist report and specific mitigation including replacement planting. No trees over 38 inches are currently anticipated to be removed under this project.

4.4 CULTURAL AND PALEONTOLOGICAL RESOURCES

4.4.1 INTRODUCTION

This section addresses the potential for the Proposed Project to impact cultural and paleontological resources. **Section 4.4.2** presents an overview of the regional cultural setting, as well as research methods and results of the study. The relevant federal, State, and local regulations are outlined in **Section 4.4.3** and project-related impacts and recommended mitigation measures are presented in **Section 4.4.4**.

4.4.2 ENVIRONMENTAL SETTING

A complete discussion of the cultural resources environmental setting is provided within the Cultural Resources Study (bound under separate cover).

Pre-historic and Historic Resources

Prehistorically, inhabitants of the Coast Ranges of California settled near lakes, along the shoreline, near major coastal and inland streams, and near large coastal estuaries such as Humboldt, San Francisco, and Monterey bays (Moratto, 1984). The San Francisco Bay Region encompasses an area of approximately 50 kilometers (km) square, and includes hill and valley country as well as the largest estuarine system in California. Principal water features include San Pablo, San Francisco, and Suisun bays, Carquinez Strait, and numerous channels and tidelands.

The Bay Area, and San Francisco in particular, underwent significant transformations after gold was discovered in Coloma in 1848. With the onset of the rush for gold that year, San Francisco had a population of about 500 to 600, but by the end of the following year, it had increased to nearly 25,000 (Wollenberg, 2002). The city had come to be an urban center, as well as a center of influence over the social and economic affairs of much of the American west.

San Mateo County, being somewhat geographically isolated from San Francisco, experienced slower growth into the twentieth century. San Mateo County was split from the southern portion of San Francisco County in 1854. San Mateo is Spanish for Saint Mathew. Governor Alvarado granted Candelario Mirimontes land in modern Half Moon Bay in 1841, and Half Moon Bay was developed around the Rancho Miramontes. The settlements and village that grew there became known as Spanishtown due to Spanish being the dominant language. Within 20 years, other Europeans began to settle the area. Around that time Henry Bidwell, nephew of the pioneer John Bidwell, became the first postmaster of the town. The post office was named Half Moon Bay after the shape of the coastline. Over the coming years, Half Moon Bay replaced

Spanishtown as the name of the emerging town (Hoover *et al*.,1990). Half Moon Bay is the oldest town in San Mateo County, having its roots in the 1840's.

Archival and Literature Search

A records search for the project site was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS), housed at California State University, Sonoma, on May 12, 2011 (NWIC #10-1079). The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of archaeological and historic records and reports for a 16 county area that includes San Mateo.

The NWIC records search verified that two prehistoric cultural resources or historic properties have been reported within the project area. These resources are P-41-068 and P-41-069, or Nelson 415 and 416 as they were originally recorded. These two sites are prehistoric shell mounds recorded by N.C. Nelson during the first intensive survey of archaeological sites in the Bay Area between 1906 and 1908 initiated through the University of California, Berkeley. Their locations were reported in Nelson's 1909 publication "San Francisco Bay Shellmounds" and the NWIC listed their locations as approximate. Further, a 1982 survey located probable shell midden remnants (P-41-239) in a resource south of the project area in agricultural land, which is a likely candidate for the westernmost Nelson Shellmound numbered 415.

The historic maps: 1859 Rancho Corral de Tierra Plat, 1896 USGS San Mateo Sheet, 1915 USGS San Mateo Quadrangle and the 1942 US Army Corps of Engineers Tactical Map, San Mateo Quadrangle were consulted and no historic properties or structures were found corresponding to extant structures.

A total of 11 previously recorded cultural resources have been recorded within the one kilometer area studied surrounding the project area. Additionally, 27 previous studies have been conducted within the same area along with nine overview studies.

Native American Consultation

Analytical Environmental Services (AES) initiated consultation by notifying the Native American Heritage Commission (NAHC) on May 2, 2011. The NAHC was asked to search their Sacred Lands Inventory File and to submit a list of local Native American contacts that may have information regarding the project area. The NAHC responded on June 10, 2011 with the results of the sacred lands file and Native American contacts. The record search failed to identify known sacred Native American sites within or adjacent to the project site. However, the NAHC provided a list of five Native American individuals and organizations that potentially have knowledge of the Proposed Project site. The individuals and organizations identified by the NAHC were contacted by letter on July 26, 2011 to solicit their comments and concerns

regarding the project. To date, none of the individuals or organizations contacted expressed any concern or provided specific information regarding Native American resources near the project site.

Field Survey

A field examination of the property and proposed pipeline alignments was conducted on May 16 and 17, July 28, 2011, and November 13, 2013, which resulted in the discovery of no new cultural resources. However, two nearby previously recorded resources identified through research could not be found and no surface manifestations of these resources were present within the project site.

The proposed pipeline alignments from the San Vicente point of diversion (POD) to the existing pump station that were examined were within or adjacent to existing improved gravel or dirt roads. Road-cuts and grading provided for excellent ground visibility in those areas; however, in all other areas ground visibility was reduced to near 10 percent due to dense vegetation. The improved gravel roads contained significant portions of imported gravels and significant land-form modification. The Denniston Pump Station and both Upper and Lower San Vicente Reservoir areas all showed evidence of significant land form modification, as would be expected in the creation and continued maintenance of the roads and reservoirs.

A concentrated effort was made to find the two prehistoric resources identified through the NWIC record search. The NWIC listed the locations as approximated based upon the 1909 mapping. It is likely that the degree of error in mapping during the 1909 study was large enough to have erroneously plotted the resources. No evidence was found that would lead to the conclusion that these cultural resources are present within the current project area.

The survey focused on the areas that were previously undisturbed within the project site and on areas where cultural resources had previously been mapped. Areas that were already developed and have no evidence of past cultural resource discoveries were not surveyed to the same extent. Therefore, the cultural resources survey did not cover the proposed Booster Pump Station location that occurs within the footprint of the existing Denniston booster pump station or the Bridgeport Pipeline location, as those areas are completely developed and no ground surface is visible beneath the pavement. However, cultural records searches included those areas and did not reveal any evidence of cultural resources.

Paleontological Resources

Paleontological resources are the traces or remains of prehistoric plants and animals. Such remains often appear as fossilized or petrified skeletal matter, imprints or endocasts, and reside in sedimentary rock layers.

The presence of paleontological resources at any particular site is influenced by geological composition resulting from formation processes occurring over long periods of time. Fossils typically reside in sedimentary layers, and may or may not become mineralized dependent upon the mineral composition within their depositional environment.

As described in **Section 4.5**, Geology and Soils, the region's geologic history is characterized by strike-slip faults, tectonic uplift and tilting, and moderate erosion. Soils within the project site consist mostly of sandy loams derived from quartz diorite and granitic alluvium. Significant fossil resources generally do not occur within the very shallow sediments such as those that occur within the project site.

The coastal shoreline of the San Francisco Bay has receded approximately 25 km in the last 10,000 to 15,000 years due to rising sea levels (caused by melting glaciers). Prior to 10,000 years before present (BP), the Sacramento River flowed through the Golden Gate and across the now-submerged continental shelf to empty into the ocean west of the Farallon Islands. By 8,000 years BP marine waters were inundating San Francisco Bay and the water level had risen by about 110 meters, submerging many coastline sites (Moratto, 1984). It is estimated that the sea level rose well over one meter per 1,000 years (Moratto, 1984). This fluctuation in sea level may have contributed to the deposition of paleontological resources along the coast of San Mateo County. Paleontological resources and prehistoric fossils have been discovered in the exposed bluffs above the ocean bench along the coast. These resources generally consist of molluscan fossils from the Pleistocene Period (San Mateo County, 1986).

A search of the University of California Museum of Palenotology's (UCMP) database indicates that 553 paleontological specimens have been reported in San Mateo County (UCMP, 2013). Areas along exposed bluffs above the ocean bench along the coast have the highest frequency of fossils in the County (San Mateo County, 1986).

In summary, indicators of significant paleontological resources within the project site and immediate vicinity are absent in the sources consulted. The geologic formation upon which the project site is located has not produced significant paleontological specimens of scientific consequence and is unlikely to do so in the future.

4.4.3 REGULATORY SETTING

Federal

Section 106 of National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The

Council's implementing regulations, "Protection of Historic Properties," are found in 36 Code of Federal Regulations (CFR) Part 800. The goal of the Section 106 review process is to offer a measure of protection to sites which are determined eligible for listing on the National Register of Historic Places (NRHP). The criteria for determining NRHP eligibility are found in 36 CFR Part 60. Amendments to the Act (1986 and 1992) and subsequent revisions to the implementing regulations have, among other things, strengthened the provisions for Native American consultation and participation in the Section 106 review process. While federal agencies must follow federal regulations, most projects by private developers and landowners do not require this level of compliance. Federal regulations only come into play in the private sector if a project requires a federal permit or if it uses federal money.

Antiquities Act

Passed in 1906, the Antiquities Act prohibits the collection, destruction, injury, or excavation of "any historic or prehistoric ruin or monument, or any object of antiquity" that is situated on federal land without permission of the appropriate land management agency. The Act also provides for the criminal prosecution, including fines and imprisonment, for individuals who commit one or more of the acts described above. While neither the Antiquities Act nor its implementing regulations (found at 43 CFR 3) explicitly mention fossils or paleontology, the inclusion of "object[s] of antiquity" in the Act has been interpreted to extend to paleontological resources by many federal agencies. As such, projects involving federal lands require permits for paleontological resource evaluation and mitigation efforts that involve excavation, collection, etc.

National Environmental Policy Act

The National Environmental Policy Act's (NEPA's) requirement that federal agencies take all practical measures to "preserve important historic, cultural, and *natural aspects* of our national heritage" has been widely interpreted to cover paleontological resources potentially impacted by federal projects (emphasis added). Thus, whenever possible, mitigation measures are recommended to lessen impacts to paleontological resources as a result of federal projects.

State

Under the California Environmental Quality Act (CEQA), historical resources are considered part of the environment (Public Resources Code, §§ 21060.5, 21084.1). An *historical resource* "includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California (Public Resources Code, §§ 21084.1, 5020.1, subd. (j))."

California Historic Register

The California Register of Historic Resources (CRHR) was created in 1992 (Public Resources Code, § 5024.1.) and is administered by the State Historical Resources Commission according to regulations implemented January 1, 1998 (Cal. Code Regs., tit. 14, § 4850 et seq.). The California Register includes historical resources that are listed automatically by virtue of their appearance on, or eligibility for, certain other lists of important resources (e.g., NRHP). The California Register incorporates historical resources that have been nominated by application and listed after public hearing. Also included are historical resources listed as a result of the State Historical Resources Commission's evaluation in accordance with specific criteria and procedures.

CEQA requires consideration of potential impacts to resources that are listed, or qualify for listing, on the California Register, as well as resources that are significant but may not qualify for listing.

The 2000 CEQA Guidelines (Section 15064.5) define four cases in which a property may qualify as a significant historical resource for the purposes of CEQA review:

A. The resource is listed in or determined eligible for listing in the CRHR. Section 5024.1 defines eligibility requirements and states that a resource may be eligible for inclusion in the CRHR if it:
    1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    2. Is associated with the lives of persons important in our past;
    3. Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values; or
    4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, a significant property must also retain integrity. Properties eligible for listing in the CRHR must retain enough of their historic character to convey the reason(s) for their significance. Integrity is judged in relation to location, design, setting, materials, workmanship, feeling, and association. Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purpose of CEQA (Public Resources Code section 5024.1[d][1]).

B. The resource is included in a local register of historic resources, as defined in section 5020.1(k) of the Public Resources Code, or is identified as significant in a historical

resources survey that meets the requirements of section 5024.1(g) of the Public Resources Code (unless the preponderance of evidence demonstrates that the resource is not historically or culturally significant).

C. The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record.
D. The lead agency determines that the resource may be a historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

Under the CEQA Guidelines, an effect is considered significant if a project will result in a substantial adverse change to the resource (PRC Section 21084.1). Actions that would cause a substantial adverse change to a historical resource include demolition, replacement, substantial alteration, and relocation. When it is determined that a project may cause a substantial adverse change, alternative plans or measures to mitigate the effects to the resource(s) must be considered.

Native American Consultation

SB-18 Tribal Consultation; Government Code Section 65352.3 (Senate Bill [SB] 18) requires local governments to consult with California Native American Tribes identified by the California NAHC regarding proposed local land use planning decisions and prior to the adoption or amendment of a general plan or specific plan. The purpose of this consultation is to preserve or mitigate impacts to cultural places.

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human grave. In the event that human graves are encountered, work should halt in the vicinity and the County Coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If human remains are of Native American origin, the Coroner must notify the NAHC within 24 hours of this identification.

Local

San Mateo County General Plan

The General Plan contains the following policies related to historical and archaeological resources applicable to the Proposed Project:

Historical and Archaeological Resources

5.15 Character of New Development

- Encourage the preservation and protection of historic resources, districts and landmarks on sites which are proposed for new development.

5.20 Site Survey

- Determine if sites proposed for new development contain archaeological/paleontological resources. Prior to approval of development for these sites, require that a mitigation plan, adequate to protect the resource and prepared by a qualified professional, be reviewed and implemented as part of the project.

5.21 Site Treatment

- Encourage the protection and preservation of archaeological sites.
- Temporarily suspend construction work when archaeological/paleontological sites are discovered. Establish procedures which allow for the timely investigation and/or excavation of such sites by qualified professionals as may be appropriate.
- Cooperate with institutions of higher learning and interested organizations to record, preserve, and excavate sites.

San Mateo County Local Coastal Program

The Local Coastal Program (LCP) contains the following policies relating to cultural resources applicable to the Proposed Project:

Locating and Planning New Development

1.24 Protection of Archaeological/Paleontological Resources

- Based on County Archaeology/Paleontology Sensitive Maps, determine whether or not sites proposed for new development are located within areas containing potential archaeological/paleontological resources. Prior to approval of development proposed in sensitive areas, require that a mitigation plan, adequate to protect the resources and prepared by a qualified archaeologist/paleontologist be submitted for review and approval and implementation as part of the project.

4.4.4 IMPACT ANALYSIS

Thresholds of Significance

CEQA *Guidelines* Section 15064.5 defines historic resource as a resource (1) listed on, or determined to be eligible by the State Historic Resources Commission for listing on, the CRHR; (2) listed in a local register of historic resources or as a significant resource in a historical resource survey; or (3) considered to be "historically significant" by a lead agency as supported by substantial evidence in the record.

Impacts to cultural resources would be considered significant if implementation of the Proposed Project would:

- Cause a substantial adverse change in the significance of a historic resource as defined in PRC 21083.2 and CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5;
- Disturbance or destruction of a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

CEQA *Guidelines* 15064.5 defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings.

PRC Section 21083.2 defines "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria: (1) that it contains information needed to answer important scientific research questions and that there is demonstrable public interest in that information; (2) that it has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important prehistoric or historic event or person.

Potential Direct and Indirect Impacts

IMPACT 4.4-1. Development of the Proposed Project may impact previously unidentified cultural resources or may disturb human remains.

While unlikely, there is a possibility of encountering previously unknown archaeological resources within the Proposed Project site. In the event that future undertakings inadvertently unearth buried archaeological material, such as flaked stone, historic debris, or human remains, the following mitigation shall be undertaken. Implementation of the mitigation measures presented below will ensure that impacts to cultural resources as a result of the Proposed Project are **Less than Significant with Mitigation.**

> **Mitigation Measure 4.4-1a:** Should any buried archaeological material, such as flaked stone, historic debris, or human remains be inadvertently discovered during ground-disturbing activities, work should stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop treatment measures in consultation with appropriate agencies.

Mitigation Measure 4.4-1b: If human remains are discovered during project construction, work will stop at the discovery location and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5). The San Mateo County coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of prehistoric Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Resources Code, Section 5097). The coroner will contact the NAHC. The most likely descendants (MLD) of the deceased will be contacted, and work will not resume until the appointed MLD has made a recommendation to the landowner or the person responsible for the excavation work for means of treating and disposing of, with appropriate dignity, the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98. Work may resume if NAHC is unable to identify a descendant or the descendant fails to make a recommendation within 48 hours.

4.5 GEOLOGY AND SOILS

4.5.1 INTRODUCTION

This section addresses the potential for the Proposed Project to result in impacts associated with geology and soils. Following an overview of the environmental setting in **Section 4.5.2** and the relevant regulatory setting in **Section 4.5.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.5.4**.

4.5.2 ENVIRONMENTAL SETTING

Regional Setting

The project site is situated within the Southern Coast Ranges, which are part of the greater Coast Ranges geomorphic province. This geomorphic province is characterized by northwest-trending valleys and ridges which were formed via a series of folds and faults that resulted from the collision of the Farallon and North American tectonic plates, as well as strike-slip faulting along the San Andreas Fault Zone. The Southern Coast Ranges are bounded by the Pacific Ocean to the west, San Francisco Bay to the north, the Central Valley to the east, and the Transverse Ranges to the south.

Site Topography

The project site is located on sloping terrain along the foothills of Montara Mountain, which is situated in the northern section of the Santa Cruz Mountain Range. The Bridgeport Pipeline project site runs along Bridgeport Drive, which is approximately 80 feet above mean sea level (amsl) in the northwest end and decreases to approximately 40 feet amsl at its termination with Coral Reef Avenue 0.5 miles to the southeast. Elevations along the northern San Vicente and Denniston site range from approximately 100 feet amsl, rising from the southeast to the northwest to approximately 180 feet amsl. Steep uphill slopes are located to northeast of the project site, while lesser downhill gradients are found to the southwest where the foothills meet the Half Moon Bay Terrace Formation and the coast beyond. As noted in **Section 4.8**, Hydrology and Water Quality, marine terraces and coastal valleys extend between the ocean and the crest of Montara Mountain, two miles to the east and over 1,800 feet higher. The marine terraces are dissected by streams of small watersheds, originating on steep slopes of the mountain. The steep canyons and ravines of the upper watersheds change abruptly to broad flat-bottomed and steep-walled lower valleys. The valleys are filled with unconsolidated alluvial and coastal terrace deposits to depths of up to more than 100 feet above the canyon bottoms. These deposits are largely coarse- and medium grained sand eroded from granitic rocks of Montara Mountain (Balance Hydrologics, 2002). The area's fractured, deeply weathered geology allows for substantial infiltration of drainage into underlying aquifers (Balance

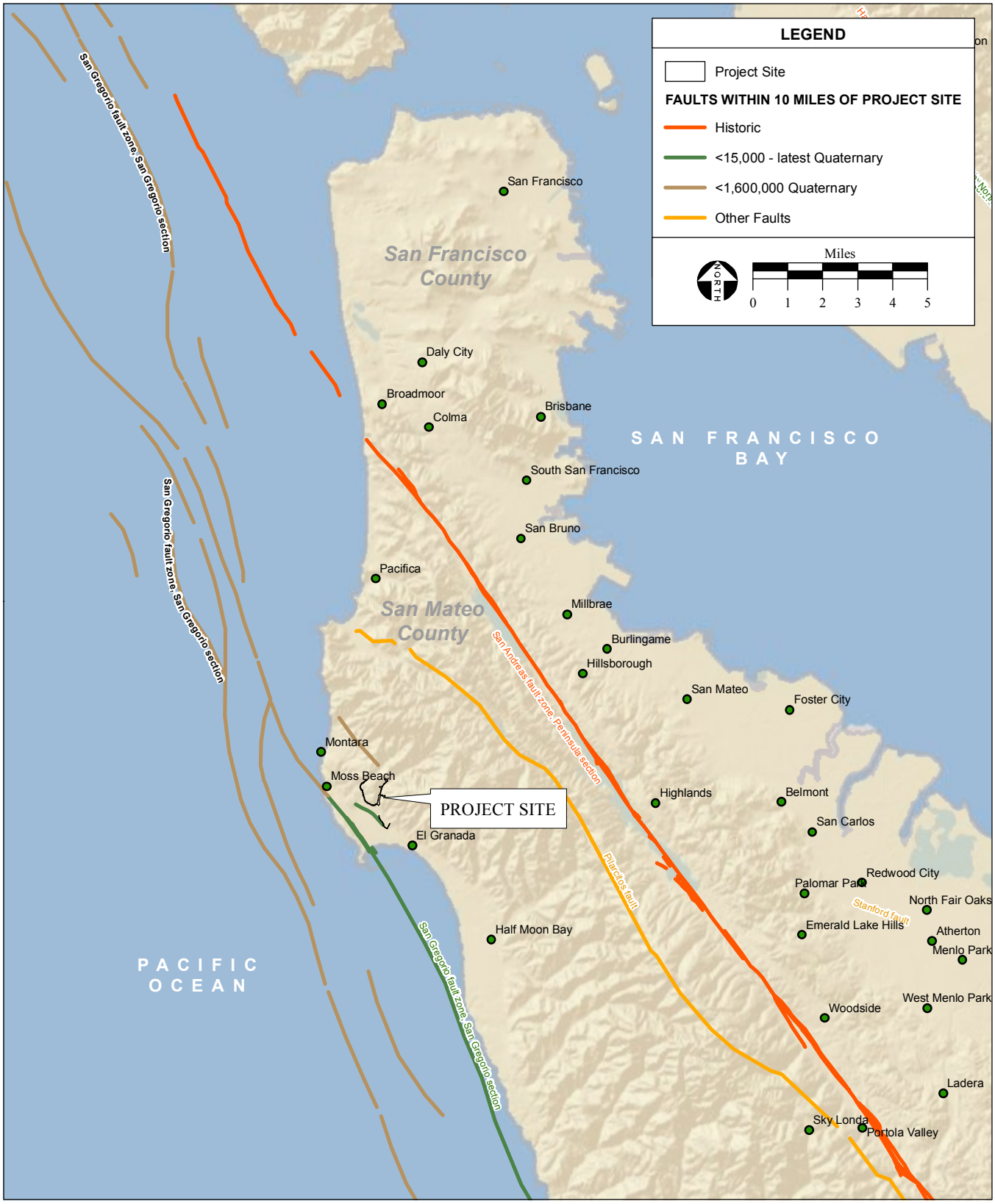
Hydrologics, 2012; **Appendix E**). Please see **Section 4.8,** Hydrology and Water Quality, for more information.

Regional Seismicity and Fault Zones

Active faults are defined as those that have shown seismic activity within the past 11,000 years and are classified as Holocene faults by the United States Geological Survey (USGS) (CGS, 2010). The USGS definition, adopted by the California Geological Survey (CGS), defines active faults as faults showing signs of activity up to the beginning of the Quaternary age (1.6 million years ago). The San Gregorio fault zone is a major fault which transects the vicinity of the project site (**Figure 4.5-1**). This late-Holocene active dextral slip fault is believed to be capable of producing a magnitude seven earthquake. The Pilarcitos fault zone is part of the San Gregorio fault system and is located approximately 3.7 miles east of the project site. There is also the Serra fault zone, which is approximately 6.5 miles from the project site. The northwest-striking front thrust Serra fault zone is part of the San Andreas fault system, which spans approximately 810 miles along the coast of California (USGS, 1994).

Seismic Shaking Intensity

A common measure of earthquake intensity and effects due to ground shaking is the Modified Mercalli Intensity (MMI) Scale. The range of MMI values and a description of intensity factors are displayed in **Table 4.5-1**. The MMI values for intensity range from I to XII, with intensity descriptions ranging from an event not felt by most people (I) to nearly total damage (XII). Between these two extreme ranges, intensities that range from IV to XI have the potential to cause moderate to significant structural damage.



SOURCE: USGS Earthquake Hazards Program, 2007; AES, 2013

Figure 4.5-1
Regional Fault Locations

TABLE 4.5-1
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015*g*
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015*g*
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.	< 0.0015*g*
IV.	During the day felt indoor by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably.	0.015*g*-0.02*g*
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03*g*-0.04*g*
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06*g*-0.07*g*
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.	0.10*g*-0.15*g*
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving cars disturbed.	0.25*g*-0.30*g*
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50*g*-0.55*g*
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 0.60*g*
XI.	Few, if any, masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60*g*
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60*g*

Note: [a] *g* is gravity = 9.8 meters per second squared.
Source: USGS, 2013a

The Richter Scale is a measure of magnitude of an earthquake's seismic energy release, with higher numerical values for stronger earthquakes and the effects associated with each level.

The relationship between an earthquake's magnitude (Richter) and intensity (MMI) is shown in **Table 4.5-2**.

TABLE 4.5-2
APPROXIMATE RELATIONSHIP BETWEEN EARTHQUAKE MAGNITUDE AND INTENSITY

Richter Scale Magnitude	Maximum Expected Intensity (MMI) Scale	Distance Felt (Approximate Miles)
3.0 – 3.9	I – III	15
4.0 – 4.9	IV – V	30
5.0 – 5.9	VI – VII	70
6.0 – 6.9	VII – VIII	125
7.0 – 7.9	IX - X	250

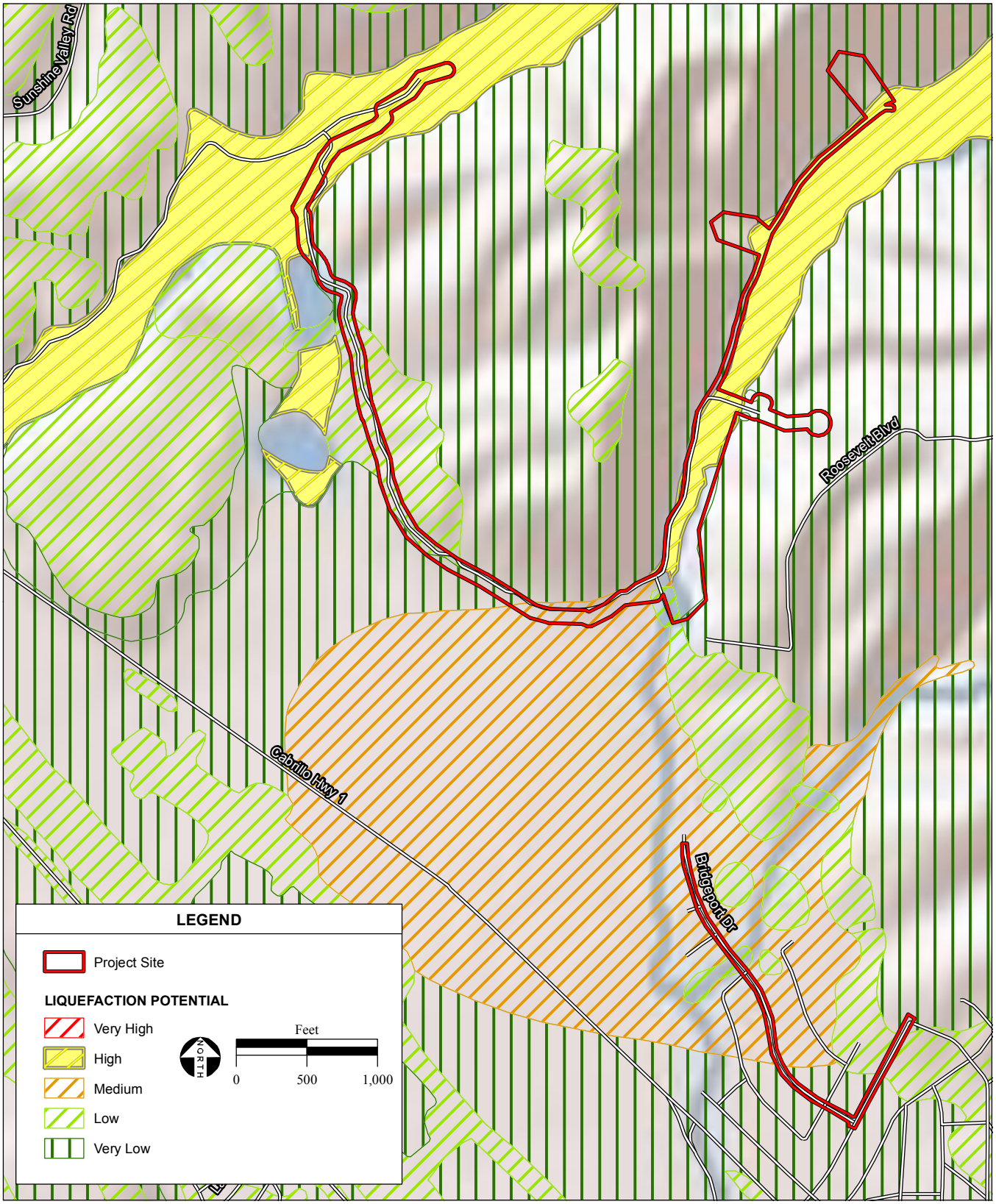
Source: USGS, 2013b

Figure 4.5-2 is a probabilistic seismic hazard map that shows the potential hazards of earthquakes that could occur in California. This map is probabilistic due to the inherent uncertainties of the size, location and the resulting ground motion effects. The seismic hazard map is expressed in terms of the probability of exceeding a certain ground motion (how many times the acceleration of gravity). For example, if a location has a ten-percent probability of exceedance in 50 years map, then there is an annual probability of one in 475 of being exceeded each year (CGS, 2008).

Ground motion probabilities are dependent upon site specific soil conditions, which CGS Seismic Hazard Maps classified for three types of soils: firm rock, soft rock, and alluvium. There is a 10 percent probability that the peak horizontal acceleration experienced at the site would exceed 0.477 gravity (g) from a seismic event in 50 years (CGS, 2008). The ground-shaking probabilities have associated average peak acceleration rates that correspond to MMI rating between VIII and IX (refer to **Table 4.5-1**).

Liquefaction, Slope Instability and Surface Rupture Potential

Areas susceptible to landslides are comprised of weak soils on sloping terrain. Landslides can be induced by weather, such as heavy rains, or strong seismic shaking events. The project site area contains a variety of slopes (0 to 75 percent slopes) and is susceptible to landslides. The hillside along the east side of the project side is comprised of steeper slopes and has a higher susceptibility to landslides. The two stream courses and watersheds are within a geologic formation dominated by granitic soils. There are three basic watershed types along the San Mateo Coast, dependent on the geologic formation underlying them: Granitic; cauck; and



SOURCE: USGS Open-File Reports 00-444 and 2006-1037; California Geological Survey, 9/2009; ABAG, 2001; AES, 2013

Figure 4.5-2
Earthquake Hazards

normal coastal stream watersheds. The project site is within a granitic-dominated geologic watershed area (Balance Hydrologics, 2002). The bed, banks, and floodplain of Denniston Creek where it travels through the valley are classified as Farallone coarse sandy loam. This soil type is described as seeped, coarse sandy loam on top of coarse sands that are found on gentle slopes. The USGS classifies this area's liquefaction susceptibility as very high. Thus, during earthquakes and large storm events these soils can liquefy, which would cause damage to manmade structures. Special building permits and surveys may be required to build in this area (TRC Essex, 2006).

Subsidence and Settlement

Seismic settlement is the compaction of soil materials caused by ground-shaking or the extraction of underground fluids (water, oil, gas). Settlement can be caused by liquefaction or densification of silts and loose sands as a result of seismic loading. Such settlement may range from a few inches to several feet, and be controlled in part by bedrock surfaces (which prevent settlement) and old lake, slough, swamp, or stream beds which settle readily. Static settlement can occur through increased loading of the surface or subsurface materials, such as that imposed by foundations for structures. Dewatering for excavation and foundation construction can cause settlement of drying subsurface materials if water formed part of the support for the surface soils.

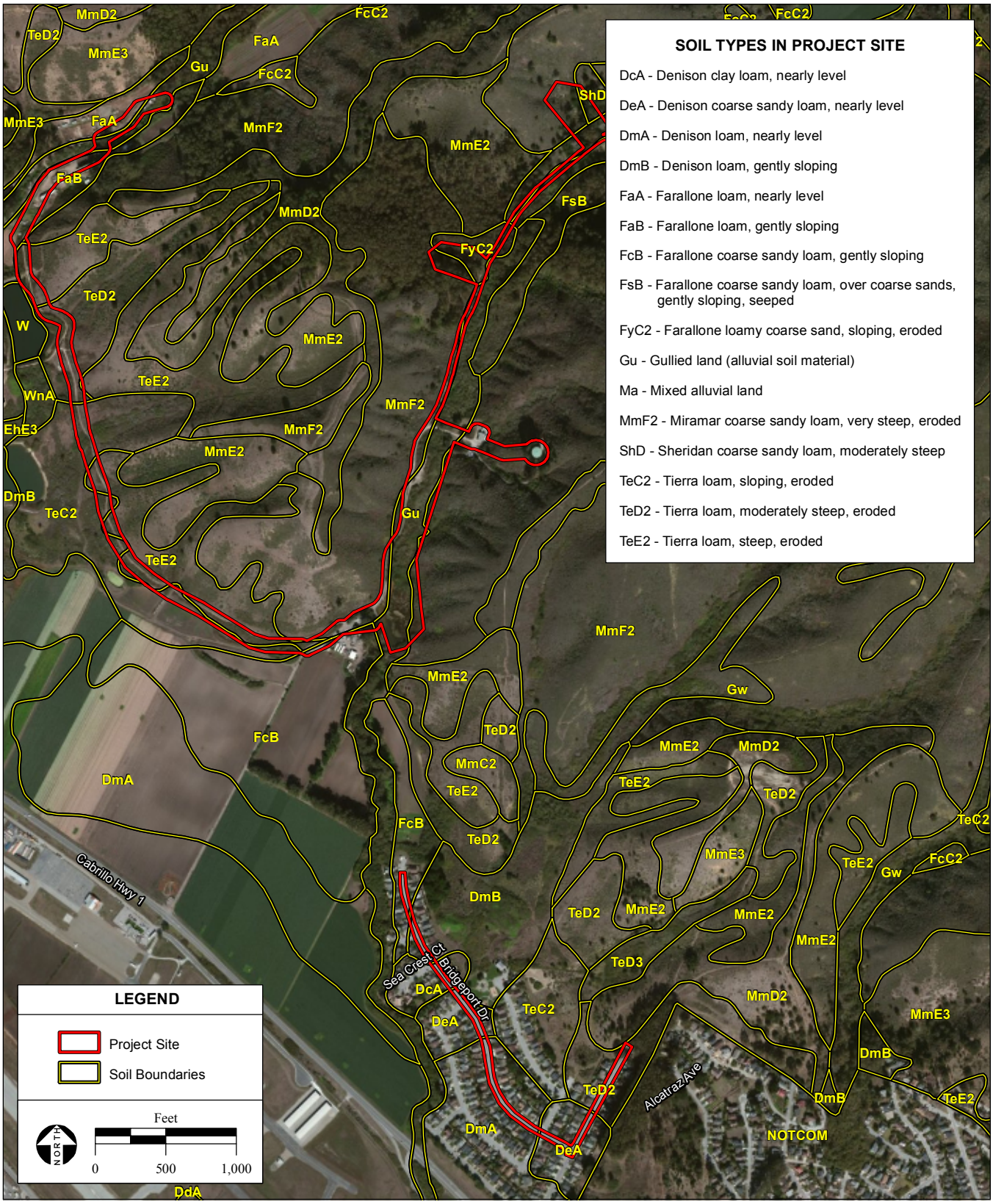
Surface Fault Rupture

Surface ground rupture along faults is generally limited to a linear zone a few meters wide. Though the project site is not located within an Alquist-Priolo Earthquake Fault Zone, several active faults have been mapped in the vicinity of the project site by the CGS or USGS. These faults are not within the project site, nor will the Proposed Project result in the construction of buildings that would be susceptible to failure in the event of surface fault rupture.

Soil Resources

Soil Types

Soil types and their distribution in the project area are depicted in **Figure 4.5-3** and were identified through a review of maps provided by the Natural Resources Conservation Service (NRCS). With the exception of urbanized areas where soils typically consist of engineered fill, the NRCS soil characteristics describe native, undisturbed soils. A summary of the soil characteristics for the major map units found on the project site is provided in **Table 4.5-3**.



SOURCE: USDA NRCS Soil Survey Geographic (SSURGO) database for San Mateo Area, California, 7/2010; USGS Aerial Photograph, 6/30/2008; AES, 2013

Figure 4.5-3
Soils Map

TABLE 4.5-3
PROJECT SITE SOILS

Map Unit Symbol(s)	Map Unit Name	Expansiveness	Erosion Susceptibility
DmB, DcA, DeA, DmA	Denison loam	Moderate	Moderate
FaA, FaB, FaC, FcB, FyC2, FsB	Farallone loam	Low	Moderate
Gu	Gullied land (alluvial soil material)	Not Rated	Moderate
MmC2, MmE2, MmE3, MmF2	Miramar coarse sandy loam	Low/Moderate	Moderate
TeC2, TeD2, TeE2	Tierra loam	Moderate	Moderate
WnA	Watsonville loam	Moderate	Moderate

Source: NRCS, 2013

Soil Erosion

Soil erosion is the removal and transportation of soil materials from the ground surface that results in deposition in a remote location. Common mechanisms of soil erosion include natural occurrences, such as wind and storm water runoff, as well as human activities that may include changes to drainage patterns and the removal of vegetation. Factors that influence the rate of soil erosion include the physical properties of the soil, topography and slopes, rainfall and peak rainfall intensity. As noted above, soils on the project site have mild to moderate potential of erosion and have low to moderate expansiveness. Erosion and potential project-related impacts due to erosion are discussed in more detail within **Section 4.8**.

Mineral Resources

Known mineral resource zones in San Mateo County consist of several limestone areas in the Montara Mountains to the east of the project site, along with shell areas, mercury areas, and areas of significant stone scattered throughout the County (San Mateo County, 1986). The closest mine to the Proposed Project is the Pilarcitos Quarry. This mine is located approximately 2.5 miles southeast of the project site and produces primarily granitic rock for aggregates, sands, and other uses. No known mineral resources occur on the project site.

4.5.3 REGULATORY SETTING

Federal

Federal Earthquake Hazards Reduction Act

In October 1997, the U.S. Congress passed the Earthquake Hazards Reduction Act to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” To

accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and USGS.

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed by the California Legislature to mitigate the hazard of surface faulting to structures. The act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Fault Study Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (Public Resources Code Sections 2690–2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Standards Code (CBC)

The State of California provides minimum standard for building design through the CBC (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBC also applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used

widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed and/or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design.

Local

San Mateo County General Plan

The San Mateo County General Plan (General Plan) contains the following policies related to geology and soil resources applicable to the Proposed Project (San Mateo County, 1986):

Soil Resources

2.17 Regulate Development to Minimize Soil Erosion and Sedimentation

- Regulate development to minimize soil erosion and sedimentation; including, but not limited to, measures which consider the effects of slope, minimize removal of vegetative cover, ensure stabilization of disturbed areas and protect and enhance natural plant communities and nesting and feeding areas of fish and wildlife.

2.23 Regulate Excavation, Grading, Filling, and Land Clearing Activities

- Regulate excavation, grading, filling, and land clearing activities to protect against accelerated soil erosion and sedimentation.

2.25 Regulate Topsoil Removal Operations

- Regulate topsoil removal operations to protect against accelerated soil erosion and sedimentation through measures which ensure slope stabilization and surface drainage control.

Natural Hazards

15.12 Locating New Development in Areas Which Contain Natural Hazards

- As precisely as possible, determine the areas of the County where development should be avoided or where additional precautions should be undertaken during review of development proposals due to the presence of natural hazards.
- Give preference to land uses that minimize the number of people exposed to hazards in these areas.

- Require detailed analysis of hazard risk and design of appropriate mitigation when development is proposed in these areas.

Geotechnical Hazards

15.20 Review Criteria for Locating Development in Geotechnical Hazard Areas

- Avoid the siting of structures in areas where they are jeopardized by geotechnical hazards, where their location could potential increase the geotechnical hazard, or where they could increase the geotechnical hazard to neighboring properties.
- Wherever possible, avoid construction in steeply sloping areas (generally above 30 percent slope).
- Avoid unnecessary construction of roads, trails, and other means of public access into or through geotechnical hazard areas.
- In extraordinary circumstances when there are no alternative building sites available, allow development in geotechnical hazardous and/or steeply sloping areas when appropriate structural design measures to ensure safety and reduce hazardous conditions to an acceptable level are incorporated into the project.

4.5.4 IMPACT ANALYSIS

Method of Analysis

This section identifies any impacts associated with geology and soils that could occur from construction, operation, and/or maintenance of the Proposed Project. Impacts to and from geological resources were analyzed based on an examination of the project site, published information regarding geological hazards of the project area, field studies, and comparison of these factors to the significance criteria listed below.

The impact analysis focused on the potential for the Proposed Project to impact the geology and soils within the project site, as well as geologic features in close proximity that might have an adverse impact on the site. The evaluation was made in light of project plans and applicable regulations and guidelines. If it was determined that implementation of the Proposed Project has the potential to meet or exceed the significance criteria listed below, mitigation measures have been recommended to increase the compatibility and safety of the project site and to reduce impacts to less-than-significant levels.

Thresholds of Significance

Criteria for determining the significance of impacts associated with geology and soils have been developed based on Appendix G of the California Environmental Quality Act's (CEQA) *Guidelines*. Impacts associated with geology and soils would be considered significant if the Proposed Project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
    - Strong seismic ground shaking;
    - Seismic-related ground failure, including liquefaction; or
    - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located in a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- of off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Impact Analysis and Mitigation Measures

IMPACT 4.5-1. The Proposed Project would result in the construction of structures within a seismically active area.

Though the Proposed Project includes construction of infrastructure (the permanent diversion structure on San Vicente Creek, a pipeline connecting the point of diversion to an existing pump station on Denniston Creek, a Booster Pump Station, and pipeline improvements along Bridgeport Drive) in an area that is bounded by active faults, the Proposed Project would not expose people to risk of loss, injury or death.

The permanent diversion structure on San Vicente Creek would replace the existing diversion structure which is temporary in nature and more likely to fail in the event of seismic activity. The permanent diversion structure (**Figure 3-4**) is not a dam that would impound water, and would therefore not result in potential downstream flooding impacts in the event of a failure.

Construction of all facilities, including the Booster Pump Station, will be subject to all regulations within the 2010 California Building Codes, which require careful design of structures for the consideration of seismic risk in order to minimize hazard.

All pipelines would be constructed underground and monitored by the CCWD following seismic activity to ensure that any subsequent damage is repaired in a timely manner.

Impacts related to geology and soils as a result of this project are **Less than Significant**.

4.6 GREENHOUSE GAS EMISSIONS

4.6.1 INTRODUCTION

This section addresses the potential for the Proposed Project to contribute to global warming. Following an overview of the existing climate change settings in **Section 4.6.2** and the relevant regulatory setting in **Section 4.6.3**, project-related impacts and recommended mitigation measures, if any, are presented in **Section 4.6.4**.

4.6.2 ENVIRONMENTAL SETTING

Climate Change

It is anticipated that the average global temperature could rise 0.6 degrees Celsius (º C) (1.08 degrees Fahrenheit [º F]) to 4.0º C (7.2º F) between the years 2000 and 2100 (IPCC, 2007). The extent to which human activities affect global climate change is a subject of considerable scientific debate. While many in the scientific community contend that global climate variation is a normal cyclical process that is not necessarily related to human activities, the International Panel on Climate Change (IPCC) report identifies anthropogenic greenhouse gases (GHGs) as a contributing factor to changes in the Earth's climate (IPCC, 2007). Consistent with the policies of the State of California and the County of San Mateo (discussed further below in **Section 4.6.3**), the following analysis assumes anthropogenic GHGs are in fact contributing to global climate changes.

Temperatures in California could increase by about 5º F in winter and summer and by about 4º F in spring and fall over the next 100 years. Precipitation is projected to change little in the spring, summer, and fall and to increase by about 10 percent in winter. The frequency of extreme hot days in summer is expected to increase along with the general warming trend (IPCC, 2007).

To help address these overall climate change impacts the State of California has adopted the policy of reducing California's GHG emissions to 1990 levels by the year 2020.

Existing Environment

Primary sources of GHG emissions in San Mateo County include vehicles, trucks, natural gas dispensing stations, and electricity generation facilities; however, there are many other sources of GHG emissions in the Proposed Project's vicinity.

4.6.3 REGULATORY SETTING

Climate change is a global phenomenon attributable to the sum of all human activities and natural processes. All levels of government are now taking action to address this GHG issue.

Federal

The U.S. Supreme Court has held that the GHG carbon dioxide (CO_2) falls under the Clean Air Act's (CAA's) definition of an "air pollutant", such that the Environmental Protection Agency (EPA) has statutory authority to regulate the emissions of this gas (Massachusetts v. Environmental Protection Agency, 549 U.S., 497, 532 [2007]).

The following are the most recent regulatory actions taken by U.S. government agencies related to climate change:

- On July 23, 2009, the EPA published a final "rule which proposes to establish the criteria for including sources or sites in a Registry of Recoverable Waste Energy Sources (Registry)," as required by the Energy Independence and Security Act of 2007. Waste energy can be used to produce clean electricity. The clean electricity produced by waste energy would reduce the need for non-renewable forms of electricity production, thus reducing GHG emissions.
- On September 15, 2009, EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. EPA proposed the first national GHG emissions standards under the Clean Air Act, and NHTSA proposed an increase in the Corporate Average Fuel Economy standards under the Energy Policy and Conservation Act.
- In response to the Fiscal Year 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. Signed by the Administrator on September 22, 2009, the rule requires that suppliers of fossil fuels and industrial GHGs, manufacturers of vehicles and engines outside of the light duty sector, and facilities that emit 25,000 metric tons or more of GHGs per year to submit annual reports to EPA. The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change.
- On September 30, 2009, the EPA proposed new thresholds for GHG emissions that define when Clean Air Act permits under the New Source Review and Title V operating permits programs would be required. The threshold was set at 25,000 metric ton of GHG emissions.
- In February, 2010 the Council on Environmental Quality released a memorandum titled *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*. The memorandum provides guidance on how project-

related GHG emission should be analyzed in National Environmental Policy Act (NEPA) documents. The draft guidance provides that a NEPA climate change analysis shall provide quantification and mitigation to reduce GHG emissions. The guidance also provides that 25,000 metric tons of GHG emissions per year may be a helpful guideline to assist lead agencies in making informed decisions on climate change impacts resulting from a project subject to NEPA. The guidance notes that the 25,000 metric tons is not an indicator of a threshold of significant effects, but rather, it is an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving emissions of GHGs.

State

California has been a leader among the states in outlining and aggressively implementing a comprehensive climate change strategy that is designed to result in a substantial reduction in total statewide GHG emissions in the future. California's climate change strategy is multifaceted and involves a number of state agencies implementing a variety of state laws and policies. These laws and policies are summarized below:

Assembly Bill 1493 (2002)

Signed by the Governor in 2002, Assembly Bill (AB) 1493 (2002 Cal. Stats. ch. 200) adopted Health and Safety Code section 43018.5, which requires the California Air Resource Board (CARB) to adopt regulations that achieve the maximum feasible and cost-effective reductions of GHG emissions by motor vehicles in the state. EPA granted California's waiver request, enabling the state to enforce its greenhouse gas emissions standards for new motor vehicles. With the granting of the waiver on June 30, 2009, it is expected that the regulations will reduce GHG emissions from California passenger vehicles by about 22 percent in 2012 and about 30 percent in 2016 (CARB, 2008).

Executive Order S-3-05 (2002)

Executive Order (EO) S-3-05 was signed by the Governor on June 1, 2005. EO S-3-05 established the following statewide emission reduction targets:

- Reduce GHG emissions to 2000 levels by 2010;
- Reduce GHG emissions to 1990 levels by 2020; and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

EO S-3-05 created a "Climate Action Team" or "CAT" headed by the CEPA and including several other state jurisdictional agencies. The CAT is tasked by EO S-3-05 with outlining the effects of climate change on California and recommending an adaptation plan. The CAT is also

tasked with creating a strategy to meet the target emission reductions. In April 2006 the CAT published an initial report that accomplished these two tasks.

Assembly Bill 32 (2006)

Signed by the Governor on September 27, 2006, AB 32 (2006 Cal. Stats., ch. 488) adopted Health and Safety Code sections 38550-38551, which codify a key requirement of EO S-3-05, specifically a statewide GHG emissions limit at 1990 levels, to be achieved by 2020. AB 32 tasks CARB with monitoring state sources of GHGs and designing emission reduction measures to comply with the law's emission reduction requirements. (Health and Safety Code, §§ 38560-38565).

To accelerate the implementation of emission reduction strategies, AB 32 requires that CARB identify a list of discrete early action measures that can be implemented relatively quickly (Health and Safety Code, §38560.5.) In October 2007, CARB published a list of early action measures that could be implemented and would serve to meet about a quarter of the required 2020 emissions reductions (CARB, 2007a). To assist CARB in identifying early action measures, the CAT published a report in April 2007 that updated its 2006 report and identified strategies for reducing GHG emissions (CAT, 2007). In the October 2007 report, CARB cited the CAT strategies and other existing strategies that may be utilized in achieving the remainder of the emissions reductions. AB 32 required that CARB prepare a comprehensive "scoping plan" that identifies all strategies necessary to fully achieve the required 2020 emissions reductions. (Health and Safety Code, § 38561.) On October 8, 2008 CARB released the Climate Change Scoping Plan, 2008 and on December 12, 2008, CARB approved the Climate Change Scoping Plan (CARB, 2008). CARB provided an update to the December 2008 Scoping Report in November 2009. The update provided additional reduction strategies and an overview of methods to further reduce GHG emissions in California; however, no definitive numerical GHG emissions threshold was provided.

Executive Order S-01-07 (2007)

EO S-01-07 was signed by the Governor on January 18, 2007. It mandates a statewide goal to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020. This target reduction was identified by CARB as one of the AB 32 early action measures identified in its October 2007 report.

CEQA Guidelines

On December 30, 2009 the Natural Resources Agency adopted CEQA Guideline Amendments for the quantification and mitigation of greenhouse gas emissions. The adopted amendments provide the following direction for consideration of climate change impacts in a CEQA document:

- The determination of significance of GHG emissions calls for a careful judgment by the lead agency.
- The lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of GHG emissions resulting from a proposed project.
- A model or methodology may be used to quantify GHG emissions resulting from a CEQA project.
- Significance may rely on qualitative analysis or performance based standards.
- The lead agency may adopt thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.
- The CEQA document shall discuss regional and/or local GHG reduction plans.
- A CEQA document shall analyze GHG emissions if they are cumulatively considerable.
- A description of the effects of climate change on the environment shall be included in CEQA documents.
- A CEQA document shall contain mitigation measures, which feasibly reduce GHG emissions.
- GHG analysis in a CEQA document may be Tiered or Streamlined.

Senate Bill 375

SB 375 was approved by the Governor on September 30, 2008. (2008 Cal. Stats., ch. 728.) SB 375 provides for the creation of a new regional planning document called a "sustainable communities strategy" (SCS) (Govt. Code, § 65080, subd. (b)(2)). An SCS is a blueprint for regional transportation infrastructure and development that is designed to reduce GHG emission from cars and light trucks to target levels that will be set by CARB for 18 regions throughout California. Each of the various metropolitan planning organizations and the Association of Bay Area Governments (ABAG) must prepare an SCS and include it in that region's regional transportation plan. The SCS would influence transportation, housing, and land use planning. CARB will determine whether the SCS will achieve the region's GHG emissions reduction goals. Under SB 375, certain qualifying in-fill residential and mixed-use projects are eligible for streamlined CEQA review (Pub. Res. Code, § 21155.2).

4.6.4 IMPACT ANALYSIS

Methodology

Since the Bay Area Air Quality Management District (BAAQMD) does not provide extensive off-road construction GHG emissions factors and the South Coast Air Quality Management District (SCAQMD) does, project-related off-road construction and operation GHG emissions were estimated using emission factors provided by the SCAQMD (SCAQMD, 2008). Emission

factors from the SCAQMD were for the year 2014. On-road construction and operational GHG emission factors were provided by 2007 EMFAC air quality model (CARB, 2007b).

Thresholds of Significance

Criteria for determining the significance of impacts to climate change have been developed based on Appendix G of the CEQA *Guidelines* and relevant agency thresholds. Impacts to climate change would be considered significant if the proposed project would:

- Generate GHG 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.

Since CARB and BAAQMD do not have a significant threshold for construction GHG emissions, for this analysis construction emissions will be added to operational emissions and compared to the BAAQMD operational significance threshold of 1,100 metric tonnes (MT) per year to get the totals in the "construction year." In subsequent operating years when no additional emissions will occur due to construction, the operational emissions will stand alone in the quantification.

Impacts and Mitigation Measures

IMPACT 4.6-1. Construction and operation of the Proposed Project has the potential to result in the generation of GHG emissions, either directly or indirectly, that may have a significant impact on the environment and conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The Proposed Project would involve the construction of a permanent diversion structure at the location of the San Vicente Creek POD; a total of 8,760 linear feet of pipeline (6,100 linear feet of new pipeline connecting the Upper San Vicente Reservoir and the existing Denniston Pump Station located adjacent to the Denniston Reservoir, and approximately 3,460 feet of new pipeline along Bridgeport Drive); plant upgrades to increase the throughput capacity of Denniston Water Treatment Plant to 1,500 gallons per minute (gpm); and a new Booster Pump Station located adjacent to the existing Denniston Pump Station.
As shown in **Table 4.6-1** construction emissions are estimated at 140.45 MT of carbon dioxide equivalent (CO_2e). GHG emission estimates were based on one trencher, one cement mixer, one loader/backhoe, worker trips, and a six month construction period. With the implementation of **Mitigation Measures 4.6-1a**, construction GHG emissions would be reduced by 4 tons. **Table 4.6-1** also shows operational GHG emissions of 4.60 MT per year, which would be generated from typical maintenance activities and the annual dredging of Denniston Reservoir.

Construction and operational emissions would be 143.84 MT in the first year, which is less than the BAAQMD operational threshold of 1,100 MT per year.

TABLE 4.6-1
ESTIMATED PROJECT-RELATED GHG EMISSIONS

Construction					
Equipment	**Horsepower**	**Emission Factors[1]**		**Hours/miles of Use**	**Emissions**
		CO_2	**CH_4**		
		Pounds per Hour/miles			**MT of CO_2e**
Tractor/Loader/Backhoe	175	101.39	0.01	880	40.22
Cement Mixer	25	17.6	0.0023	24	0.19
Trencher	250	222.90	0.02	880	88.44
Worker	-	1.22	0.000034	21,120	11.60
				Subtotal	**140.45**
GHG Emission Reduction from **Mitigation Measure 4.2-1a**					<4>
Construction Related GHG Emissions					*136.45*
Operation					
Equipment	**Horsepower**	**Emission Factors[1]**		**Hours/miles of Use**	**Emissions**
		CO_2	**CH_4**		
		Pounds per Hour/miles			**MT of CO_2e**
Dump Truck	250	272.33	0.02	16	1.96
Tractor/Loader/Backhoe	175	101.39	0.01	16	0.73
Worker	-	1.22	0.000034	160	0.09
Maintenance worker trip	-	1.22	0.000034	10	0.01
Pump[2]					4.60
Operation Related GHG Emissions					*6.39*
				Total Project Related GHG Emissions	**143.84**

MT = metric tonnes.
[1] Emission factors from South Coast Air Quality Management District.
[2] Based on 10 megawatt hours of electricity use and emissions factor of 921.1 pounds of CO_2 per MWh.
Source: EMFAC, 2007b; SCAQMD, 2008; AES, 2014

As discussed in **Section 3.0**, project implementation would reduce the need to import water from the San Francisco Public Utilities Commission (SFPUC). The reduction in water transport would reduce energy used to pump water from the SFPUC. Although not quantified, the reduction in energy would reduce project-related indirect GHG emissions. This reduction could occur from the reduced need to pump water and the reduced reliance on an energy intensive systems (water transfers). This reduction will further lower, by project design, the GHG impacts from energy impacts due to less need to transport water over longer distances.

The Proposed Project would produce a total of 143.83 MT of GHG emissions, which is a less-

than-significant impact, and the mitigation measures provided in **Section 4.2**, Air Quality, will reduce this impact. Construction and operation of the Proposed Project therefore would not result in the generation of GHG emission that, directly or indirectly, has a significant impact on the environment or conflict with California and local policy and regulation adopted for the purpose of reducing the emissions of GHG. Impacts to climate change from project-related GHG emission would be **Less than Significant with Mitigation**.

> **Mitigation Measure 4.6-1**: Implement **Mitigation Measure 4.2-1**, which would reduce project-related GHG emissions by three percent.

4.7 HAZARDS AND HAZARDOUS MATERIALS

4.7.1 INTRODUCTION

This section addresses the potential effects on human health and the environment due to hazards and hazardous materials in conjunction with the Proposed Project. **Section 4.7.2** describes the environmental setting, including hazards and hazardous materials in and around the project site. **Section 4.7.3** describes the relevant regulatory setting. Project-related impacts and recommended mitigation measures are presented in **Section 4.7.4**.

4.7.2 ENVIRONMENTAL SETTING

Definition of Hazardous Material

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> *A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed" (CCR, Title 22, Section 66260.10).*

Project Area Database Report

Database searches were conducted for records of known sites of hazardous materials generation, storage, and/or contamination within the vicinity of the project site. Databases were searched for sites and listings up to 1.0 mile from a point roughly equivalent to the center of project site. The environmental database review was accomplished by using the services of the computerized search firm *Environmental Data Resources, Inc*. (EDR). EDR uses a geographical information system to plot locations of past and/or current hazardous materials involvement.

No known sites of past or current hazardous materials contamination occur within the project site; however, the EDR report identified one site located approximately half a mile southwest of the project site (EDR, 2012). A description of this site is provided below. The complete list of reviewed databases is provided in **Appendix D**.

- The Half Moon Bay Flight Strip is located at 46 Cabrillo Hwy, approximately 0.4 mile west of the project boundary. The Half Moon Bay Flight Strip property is listed on the formally used defense site (FUDS) list. Prior to land transfer to San Mateo County, the Department of Defense (DOD) constructed military refueling facilities at the Half Moon Bay Flight Strip including two underground storage tanks (UST) used for jet fuel, two abandoned USTs, seven underground fuel pump pits, and two exposed concrete sumps. The two USTs are currently in operation. Due to the distance and the groundwater gradient in the vicinity and the lack of documented leaks or spills, this site does not likely to pose a risk to the environmental quality of the project site.

The California Hazardous Waste and Substances Sites list (CORTESE) was additionally examined for records of listed sites in the vicinity of the project site. No records were found for the project site or surrounding properties.

Project Site Setting

A site reconnaissance of the project site was conducted by AES staff on June 14, 2011 to determine if any Recognized Environmental Conditions (RECs) exist. RECs refer to the presence or likely presence of conditions on a property that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products on the property or into the ground, groundwater, or surface water of the property.

The project site is mostly undeveloped and dominated by coastal scrub and ruderal grassland vegetation, as well as several eucalyptus groves. Herbicides, pesticides, and fungicides were possibly used at one point in ruderal/developed areas of the project site, although the presence of these substances has not been identified on the site. Numerous buildings associated with the equestrian facility, including stables and other animal pens, are in the general vicinity of the San Vicente Creek point of diversion (POD). These buildings do not contain underground septic systems nor was evidence of herbicides and/or pesticides noted in this area during the June 2011 site visit. One abandoned home site is located in the eastern dredge disposal site. Due to the lack of service connections, this home site is assumed to contain an underground septic system and associated leach field. No excavation is anticipated to occur in the vicinity of this home site.

During the June 2011 site visit, general farm materials (pesticides and herbicides) were observed on the adjacent property southwest of Denniston Creek portion of the project alignment.

Sensitive Receptors

Sensitive receptors are primarily those that have the potential to be harmed through exposure to hazardous materials. The nearest public school, Farallone View Elementary School, is located in the community of Montara Beach approximately 1.1 miles northwest of the project site. Surrounding the project site are several housing developments to the north and south, as well as agricultural fields to the west.

Air Strips and Airports

The Half Moon Bay Airport is located approximately 0.4 miles west of the project site. The project site is located within the Traffic Overflight Zone (TOZ) for the airport (San Mateo County, 1996). The TOZ is a large area (roughly 10,000 feet in diameter, centered on the airport) under the airport traffic pattern and is less restrictive in terms of compatibility issues than those zones closer to the airport.

Wildland Fires

The project site is located on land designated partially as "State Responsibility Area (SRA) Very High Fire Hazard Safety Zone (FHSZ)" and partially as "Local Responsibility Area (LRA) unincorporated" according to the San Mateo County Draft Fire Hazard Zones Map produced by the California Department of Forestry and Fire Protection (CalFire) (CalFire, 2007).

4.7.3 REGULATORY SETTING

Federal

United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) administers numerous statutes pertaining to human health and the environment. The EPA regulates toxic air contaminants through its implementation of the Clean Air Act (CAA). Although the CAA covers a range of air pollutants, Section 112(r) specifically covers "extremely hazardous materials" which include acutely toxic, extremely flammable, and highly explosive substances. Section 112(r) (referred to as the EPA's Risk Management Program) requires facilities involved in the use or storage of extremely hazardous materials to implement a Risk Management Plan (RMP). A RMP requires a detailed analysis of potential accident factors present at a facility and requires the implementation of mitigation measures designed to reduce the identified accident potential.

The EPA also regulates the land disposal of hazardous materials through the Resource Conservation and Recovery Act (RCRA). Under RCRA, the EPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as the "cradle-to-grave"

regulation. The "cradle-to-grave" regulation requires detailed documentation and record keeping for hazardous materials generators, transporters, and/or handlers in order to ensure proper accountability for violations.

Federal Occupational Safety and Health Administration

The Occupational Safety and Health Act (OSHA) (29 CFR) regulates the preparation and enforcement of occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through regulations governing work place procedures and equipment.

U.S. Department of Transportation

The United States Department of Transportation (USDOT) regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

State

Department of Toxic Substances Control

The California Department of Toxic Substances Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the State Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Occupational Safety and Health Administration

California Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing state workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 C.F.R. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the California Code of Regulations, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information

requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985, often referred to as the Business Plan Act, requires facility operators to prepare Hazardous Materials Business Plans (HMBP). HMBPs are required to inventory hazardous materials stored and used on site, disclose the location of storage and use on site, maintain an emergency response plan, and contain provisions specifying employee training in safety and emergency response procedures. Local regulatory authorities such as San Mateo Environmental Health Division collect hazardous Materials Business Plans.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Boards (RWQCB), regulate hazardous substances, materials and wastes through a variety of state statutes including, for example, the Porter Cologne Water Quality Control Act, Cal. Water Code §13000 et seq., and the underground storage tank cleanup laws (Cal. Health and Safety Code §§25280-25299.8). The RWQCB regulates all pollutant or nuisance discharges that may affect either surface water or groundwater. Any person proposing to discharge waste within any region must file a report of waste discharge with the appropriate regional board. The project site is located within the jurisdiction of the San Francisco Bay RWQCB (SFRWQCB).

California Accidental Release Program

The California Accidental Release Program (CalARP), governed by regulations set forth in the California Health and Safety Code (Section 25531 through 25543.3), requires that a facility that stores, generates, treats, or manufactures a regulated hazardous material to develop and submit RMPs. The RMPs must document all regulated hazardous materials, method of storage, location of storage areas, amounts present at a facility, and safety features for containing a potential release. The purpose of the CalARP is to prevent the accidental release of hazardous materials from a stationary source. The San Mateo Environmental Health Services Department administers the CalARP Programs within San Mateo County.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by Federal, State, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is administered by the state Emergency Management Agency, which coordinates the responses of other agencies including California Environmental Protection Agency (Cal/EPA), the California Highway Patrol, California Department of Fish and Wildlife (CDFW), the SFRWQCB, and the San Mateo County Office of Emergency Services.

Local

San Mateo County

The San Mateo County General Plan (General Plan) contains the following policies related to hazards and hazardous materials applicable to the Proposed Project (San Mateo County, 1986):

Natural Hazards

15.12 Locating New Development in Areas which Contain Natural Hazards

- As precisely as possible, determine the areas of the County where development should be avoided or where additional precautions should be undertaken during review of development proposals due to the presence of natural hazards.
- Give preference to land uses that minimize the number of people exposed to hazards in these areas.
- Determine appropriate densities and development standards for new development proposed in these areas.
- Require detailed analysis of hazard risk and design of appropriate mitigation when development is proposed in these areas.

15.29 Review Criteria for Locating Development Outside of Fire Hazard Areas

- Insure that fire safety is adequately addressed in the review of new development proposed in unincorporated areas located outside of fire hazard areas through measures including but not limited to referral of proposals for development to appropriate fire protection agencies for conditions of approval.

Man-Made Hazards

16.14 Regulate Land Uses to Assure Airport Safety

- Regulate land uses surrounding airports to assure airport safety. Measures may include restrictions on permitted land uses and development review height criteria.

16.53 Regulate Location of Hazardous Material Uses

- Regulate the location of uses involving the manufacture, storage, transportation, use, treatment, and disposal of hazardous materials to ensure community compatibility. Provide adequate siting, design, and operation standards.

Half Moon Bay Airport Land Use Plan

The following is a list of general safety policies of the San Mateo County Comprehensive Airport Land Use Plan (ALUP) for the Half Moon Bay Airport that apply to the Proposed Project:

- The following safety zones are established at Half Moon Bay Airport: Approach Protection Zone (APZ), Runway Protection Zone (RPZ), and Traffic Overflight Zones (TOZ).
- Non-structural uses may be permitted in an APZ if they do not cause a concentration of more than 10 people per net acre on a 24-hour basis.

4.7.4 IMPACT ANALYSIS

Thresholds of Significance

Criteria for determining the significance of impacts to hazardous materials have been developed based on Appendix G of the CEQA *Guidelines* and any relevant agency thresholds. For the purposes of this EIR, the Proposed Project would generally be considered to have a significant adverse impact to the public or the environment if it would:

- Create a significant hazard through the routine transport, use or disposal of hazardous materials;
- Create a significant hazard through reasonably foreseeable upset and accident conditions involving the release hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter miles of an existing or proposed school;
- Be located on a site that is listed as a hazardous materials site compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- Be located within an airport land use plan or within an area were such a plan has not been adopted, that would result in a safety hazard to people residing or working in the project area;
- Result in a safety hazard for people residing or working in the project area for a project located within the vicinity of a private airstrip;
- 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.

Impacts and Mitigation Measures

IMPACT 4.7-1. Equipment used during grading and construction activities may create sparks, which could ignite dry grass on the project site.

During construction, the use of power tools and acetylene torches may increase the risk of fire hazards on the project site. This risk, similar to that found at other construction sites, is potentially significant. **Mitigation Measures 4.7-1a** and **4.7-1b** will reduce potentially significant impacts associated with fire hazards created during construction to **Less than Significant with Mitigation**.

> **Mitigation Measure 4.7-1a:** During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a firebreak.
>
> **Mitigation Measure 4.7-1b:** Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

IMPACT 4.7.2 The Proposed Project is located within the planning area for the San Mateo County Comprehensive Airport Land Use Compatibility Plan, and therefore could result in potential safety hazards for people residing or working in the project area.

Operation of the Proposed Project would not exceed the maximum usage intensities nor would it result in the construction of any object over 100 feet tall. The Proposed Project would not result in conflicts with adopted policies in the Half Moon Bay ALUP. Therefore, the Proposed Project would not result in a safety hazard to people residing or working in the project area. This impact is **Less than Significant**.

IMPACT 4.7-3 Construction of the Proposed Project would include the routine storage and handling of hazardous materials, which could result in a public health or safety hazard from the accidental release of hazardous materials into the environment.

During grading and construction activities it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, hydraulic fluid, solvents, oils, etc. would be brought to the project staging areas. Temporary storage units (bulk above-ground storage tanks, 55-gallon drums, sheds/trailers, etc.) would likely be used by various contractors for fueling and maintenance purposes. As with any liquid and solid, the handling and transfer between one container to another has the potential for an accidental release. Construction contractors will be required to comply with applicable federal and state environmental and workplace safety laws. Adherence to these regulatory requirements would ensure that this impact is less than significant. **Mitigation Measures 4.7-2** is provided to further decrease the potential for impacts from accidental release of hazardous materials during construction of the Proposed Project. This impact is **Less than Significant with Mitigation**.

> **Mitigation Measure 4.7-2:** Personnel shall follow written Standard Operating Procedures (SOPs) for filling and servicing construction equipment and vehicles. The SOPs, which are designed to reduce the potential for incidents involving the hazardous materials, shall include the following:
>
> - Refueling shall be conducted only with approved pumps, hoses, and nozzles;
> - Catch pans shall be placed under equipment to catch potential spills during servicing;
> - All disconnected hoses shall be placed in containers to collect residual fuel from the hose;
> - Vehicle engines shall be shut down during refueling;
> - No smoking, open flames, or welding shall be allowed in refueling or service areas;
> - Refueling shall be performed away from bodies of water to prevent contamination of water in the event of a leak or spill;
> - Service trucks shall be provided with fire extinguishers and spill containment equipment, such as absorbents;
> - Should a spill contaminate soil, the soil shall be put into containers and disposed of in accordance with local, State, and Federal regulations;
> - All containers used to store hazardous materials shall be inspected at least once per week for signs of leaking or failure. All maintenance and refueling areas shall be inspected monthly. Results of inspections shall be recorded in a logbook that would be maintained on site; and

- The amount of hazardous materials used in project construction and operation shall be consistently kept at the lowest volumes needed.

IMPACT 4.7-4 Sediment removal activities associated with the Proposed Project could create a significant hazard through upset and accident conditions involving the release hazardous materials into the environment.

The sediment removal program would require the dredging, excavation, and disposal of soil / sediment from the Denniston Reservoir. Although an ongoing sediment removal program is currently authorized by the CDFW through a Streambed Alteration Agreement (SAA), the potential exists for the release of contaminants potentially located in the sediment within the Denniston Reservoir. Improper disposal of this material would result in a potentially significant impact. This impact is discussed in **Section 4.3**, Biological Resources, and is reduced to a less-than-significant level through implementation of **Mitigation Measures 4.3-4a** through **4.3-4d**. This impact is **Less than Significant Impact with Mitigation**.

4.8 HYDROLOGY AND WATER QUALITY

4.8.1 INTRODUCTION

This section provides information regarding hydrology and water quality relevant to the Proposed Project. Following an overview of the existing setting in **Section 4.8.2** and the relevant federal, State, and local regulations in **Section 4.8.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.8.4**.

4.8.2 ENVIRONMENTAL SETTING

Regional Setting

Climate

The region has a coastal Mediterranean climate with distinct wet and dry seasons. Nearly 95 percent of the precipitation is recorded during the months of October through April, with over 80 percent of the precipitation falling from November through March. Winter storms are typically temperate Pacific fronts. The average annual precipitation in Half Moon Bay (recorded since 1939) is 26.16 inches (WRCC, 2013). The region has steady minimum temperatures throughout the year. The summer season is generally characterized by cool and foggy weather, and frosts are rare in the winter. Temperatures in the region vary with a minimum average temperature of 47º F and a maximum average temperature of 62.2º F. Fog acts as an integral part of the local climate by moderating heat and drought during the summer seasons and contributing to the water supply in the area (CCC, 2008).

Regional Geology and Hydrogeology

As noted in **Section 4.5**, the Proposed Project occurs near the western edge of the California Coast Ranges in a region topographically dominated by Montara Mountain. Marine terraces and coastal valleys extend between the ocean and the crest of Montara Mountain two miles to the east and over 1,800 feet higher in elevation. The marine terraces are bisected by streams of small watersheds originating on steep slopes of the mountain. The steep canyons and ravines of the upper watersheds transition abruptly into broad, flat-bottomed, and steeply-walled lower valleys. The valleys are filled with unconsolidated alluvial and coastal terrace deposits to depths of up to 100 feet above the canyon bottoms. These deposits are largely coarse- and medium-grained sand eroded from granitic rocks of Montara Mountain (Balance Hydrologics, 2002). Sediment from San Vicente and Denniston Creeks has also accumulated in a down-faulted basin (the Pillar Point Graben), forming the coastal plain on which the Half Moon Bay Airport was established (CCC, 2008).

Groundwater in the region generally moves through a complex coastal aquifer system composed of four distinct units, as described in the *Midcoast Groundwater Study* prepared for

the County of San Mateo (Balance Hydrologics, 2002). The four aquifer types consist of: (1) heavily-fractured Cretaceous granitic rocks of the Montara Mountain batholith that forms the basement bedrock; (2) overlying weakly to moderately consolidated sandstone and siltstone of the Pliocene-aged Purisima Formation; (3) Quaternary marine terrace deposits of various ages, and (4) Holocene coarse-grained alluvium and colluvium.

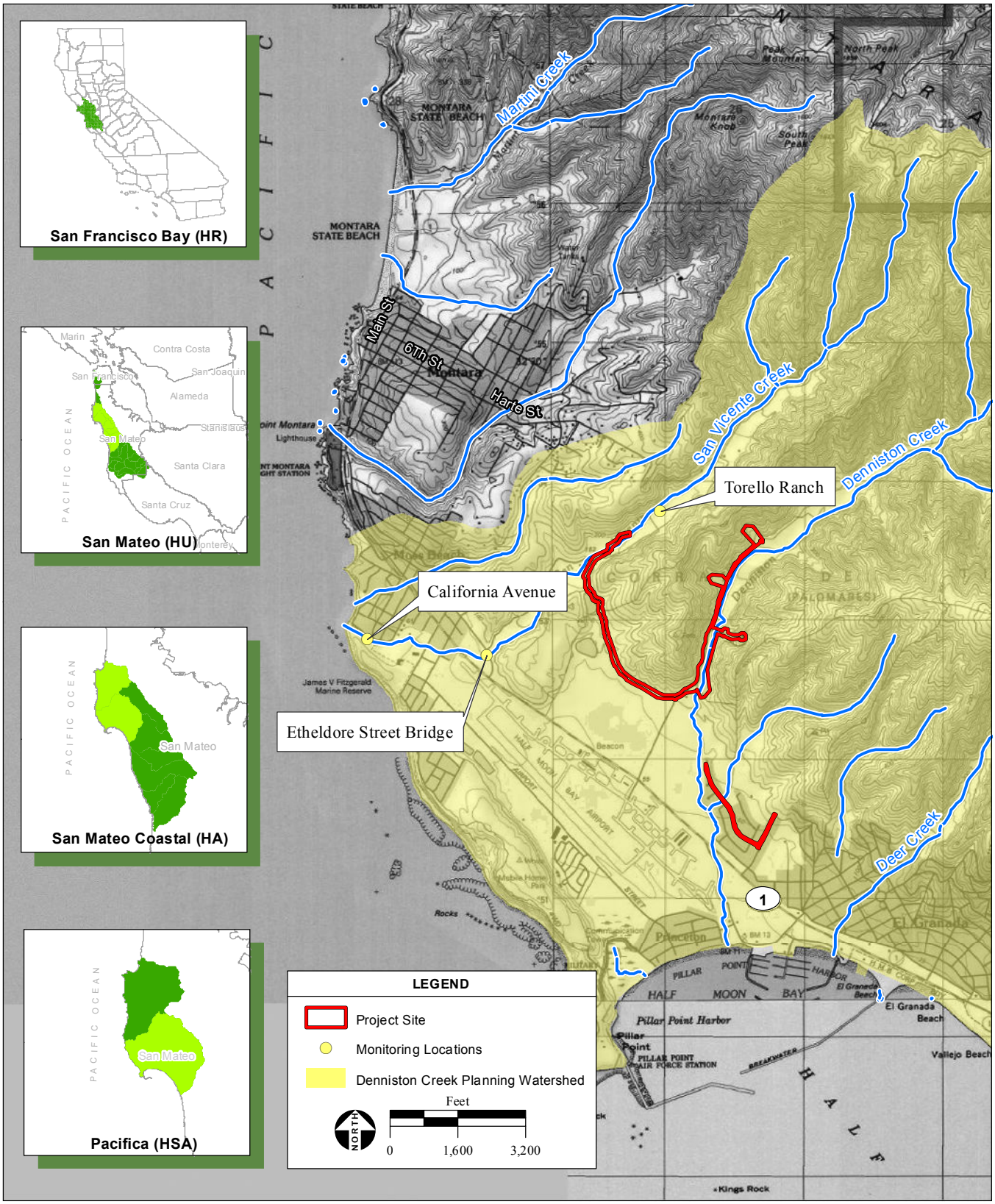
Site-specific surface water and groundwater hydrology and water quality features are discussed in more detail below.

Project Area Setting

Surface Water Quantity

There are two creeks and several man-made water storage ponds in the immediate vicinity of the project site. The two creeks are within the Denniston Creek planning watershed (pws) as shown in **Figure 4.8-1**.

Table 4.8-1 details the various existing riparian rights and water right permits and licenses for San Vicente and Denniston Creeks. Cabrillo Farms diverts and uses water from San Vicente and Denniston Creeks under licenses and statements of diversion to irrigate approximately 165 acres of farmland ~~that it leases from the National Park Service (NPS)~~. In an agreement between National Park Service (NPS) and Peninsula Open Space Trust (POST), the former owner of the land, ~~and Cabrillo Farms~~ dated December 9, 2011, Cabrillo Farms agreed to limit its total diversions from both creeks to 248 acre-feet per year (AFY). In addition, the Half Moon Bay Properties agreements, specifically the Grant Reciprocal Easement Agreement dated February 27, 1985 between CCWD and Half Moon Bay Properties (the former owner of Cabrillo Farms), gives priority use of the San Vicente diversion and pipeline to Cabrillo Farms during the summer months (April 1 to October 31) and to CCWD during the winter months (November 1 to March 31). The agreement also stipulates that both upper and lower San Vicente reservoirs must be full on March 31 (end of CCWD diversions) if CCWD uses the San Vicente point of diversion (POD). These agreements will remain in place and would be unchanged by the construction and operation of the Proposed Project.



SOURCE: California Interagency Watershed Map of 1999;
"Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle,
T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra,
Mt. Diablo Baseline & Meridian; AES, 2015

Figure 4.8-1
Watershed Map of the Project Area

TABLE 4.8-1
WATER RIGHTS FOR SAN VICENTE AND DENNISTON CREEKS[1]

	San Vicente Creek					Denniston Creek		
	License 11983	**License 12384**	**Statement of Diversion #S009377**	**Statement of Diversion #S009378**	**Permit 15882**	**Statement of Diversion #S009375**	**Statement of Diversion #S009376**	**Permit 15882**
Water User	Cabrillo Farms	Cabrillo Farms	Cabrillo Farms	West Coast Farms	CCWD	Cabrillo Farms	Cabrillo Farms	CCWD
Diversion Season	Nov. through June	Nov. through June	March through October	n/a	All Year[2]	May through October	March through October	All Year
Volume (AFY)	49 AFY (41 AF usable)	49 AFY	79 AFY	Maximum 248 AFY[3]	n/a	Maximum 248 AFY[3]	n/a	n/a
Allowable Rate of Diversion (cfs)	1.0 cfs	1.0 cfs	1.0 cfs	n/a	2.0 cfs	1.0 cfs	0.75 cfs	2.0

[1] Cabrillo Farms also holds Permits 18122 and 18124 for diversions from Denniston Creek to offstream storage and Permit 17627 for diversions from San Vicente Creek to offstream storage. These permits are not being used and never have been used.
[2] The District may only divert from San Vicente between June and October if there is surface flow at the boundary of Torello Ranch downstream.
[3] Paragraph 26(a) of the agreement with NPS limits the farmers' total diversions to 248 AFY from San Vicente and Denniston Creeks, combined.
Source: State Water Resources Control Board and Frahm, 2011 (Appendix F)

San Vicente Creek

San Vicente Creek flows from a 1.79 square mile watershed on the western slope of Montara Mountain and flows into the Pacific Ocean at the Fitzgerald Marine Reserve. The entire watershed upstream from Highway 1 is underlain by deeply weathered quartz diorite derived from Montara Mountain, which is capable of holding considerable amounts of water, and which slowly and steadily yields a persistent baseflow (Balance Hydrologics, 2012; **Appendix E**). This persistent baseflow ensures that flows in San Vicente Creek do not decline as much as other creeks in other coastal watersheds during mid-winter dry spells during average precipitation years.

Surface water from San Vicente Creek is currently diverted under Application 25353 (License 11983) and Application 25355 (License 12384) by local farmers (Cabrillo Farms) into two offstream reservoirs for irrigation purposes: the Upper and Lower San Vicente reservoirs. The diversion amounts listed in **Table 4.8-2** are estimates made by Tim Frahm from discussions with the local farmers, research of available public records, and assumptions made based on crop acreage and crop type (2011; **Appendix F**). Another water user (West Coast Farms) has a riparian right (Statement 9378) on San Vicente Creek for diversions upstream of the diversion for the Upper and Lower San Vicente Reservoirs, but no record of any actual diversion or use was available. Balance Hydrologics gage data taken on the stream over three consecutive years measured this annual diversion between 5 and 6 AFY, so 6 AFY was assumed for all

years. The existing diverters on San Vicente Creek and amounts diverted are shown in **Table 4.8-2**.

TABLE 4.8-2
CEQA BASELINE CONDITION ON SAN VICENTE CREEK BY DIVERTER

Water Right	Water User	Amount Diverted[1]
License 11983	Cabrillo Farms	49 AFY
License 12384	Cabrillo Farms	49 AFY
#S009377	Cabrillo Farms	79 AFY
#S009378	West Coast Farms	6 AFY[2]
Total		**183 AFY**
Unimpaired Flow[2]	**Amount Diverted**	**Baseline Flow Below POD**
764 AFY	183 AFY	581 AFY

[1] Source: Frahm, 2011 (**Appendix F**)
[2] Source: Balance Hydrologics, 2013 (**Appendix G**). San Vicente Creek in a normal water year (A water year is considered normal if it falls between 85 and 120 percent of the average annual precipitation for that area).

The CEQA baseline condition of San Vicente Creek is broken out by month and water year type in **Table 4.8-3**. Complete gage data by water year type is not available for San Vicente Creek. Therefore, Balance Hydrologics (2013; **Appendix G**) calculated the unimpaired flow based on modeled correlation with Pescadero Creek because the Pescadero Creek model most closely predicted the actual flow data available for San Vicente and Denniston Creeks. In addition, Pescadero Creek has a large data set (61 years) of gage data, and is geographically close to the Denniston Creek pws, reducing error related to storm pattern variation. The CEQA baseline condition includes all authorized diverters on San Vicente Creek, which are presented in **Table 4.8-2** and summarized in the "Other Diversions" column below. The CEQA baseline is calculated by subtracting existing diversions from the unimpaired flow.

TABLE 4.8-3
CEQA BASELINE CONDITION ON SAN VICENTE CREEK BY MONTH

Dry Year				
	Unimpaired Flow (cfs)[1]	**Other Diversions (cfs)[2]**	**Existing CCWD Diversion (cfs)**	**CEQA Baseline Flow (cfs)**
October	0.57	0.15	0.00	0.42
November	0.59	0.30	0.00	0.29
December	0.84	0.45	0.00	0.39
January	1.31	0.45	0.00	0.86
February	1.24	0.15	0.00	1.09
March	1.31	0.15	0.00	1.16
April	0.81	0.30	0.00	0.50
May	0.61	0.30	0.00	0.30
June	0.49	0.15	0.00	0.34

July	0.44	0.15	0.00	0.29
August	0.40	0.23	0.00	0.18
September	0.37	0.23	0.00	0.14
Normal Year				
	Unimpaired Flow (cfs) [1]	**Other Diversions (cfs) [2]**	**Existing CCWD Diversion (cfs)**	**CEQA Baseline Flow (cfs)**
October	0.61	0.15	0.00	0.45
November	0.74	0.30	0.00	0.44
December	1.60	0.45	0.00	1.14
January	1.80	0.45	0.00	1.34
February	2.07	0.15	0.00	1.92
March	1.80	0.15	0.00	1.65
April	1.28	0.30	0.00	0.97
May	0.86	0.30	0.00	0.55
June	0.61	0.15	0.00	0.45
July	0.54	0.15	0.00	0.39
August	0.50	0.23	0.00	0.28
September	0.45	0.23	0.00	0.23
Wet Year				
	Unimpaired Flow (cfs) [1]	**Other Diversions (cfs) [2]**	**Existing CCWD Diversion (cfs)**	**CEQA Baseline Flow (cfs)**
October	0.66	0.15	0.00	0.50
November	0.89	0.30	0.00	0.59
December	1.80	0.45	0.00	1.34
January	3.46	0.45	0.00	3.01
February	3.26	0.15	0.00	3.11
March	3.39	0.15	0.00	3.24
April	2.25	0.30	0.00	1.95
May	1.31	0.30	0.00	1.01
June	1.01	0.15	0.00	0.86
July	0.96	0.15	0.00	0.81
August	0.87	0.23	0.00	0.65
September	0.81	0.23	0.00	0.58

[1] Source: Balance Hydrologics, 2013 (**Appendix G**)
[2] Source: Adapted from **Table 4.8-2**

The existing diversion structure consists of a sandbag and plywood check dam, which shunts water into an excavated spur channel where it enters a PVC pipeline. Water is conveyed from this ~~point of diversion (~~POD~~)~~ on San Vicente Creek through a gravity flume and pipe system to Upper San Vicente Reservoir and is then transported via gravity to Lower San Vicente Reservoir. The existing pipeline from the POD on San Vicente Creek to Upper San Vicente

Reservoir will be replaced and upgraded as part of the Proposed Project (SWRCB, 1984a; 1984b). While functional, this POD is poorly constructed and in disrepair, and over time has facilitated significant downcutting of the channel below the seasonal check dam. A properly engineered structure will be necessary to ensure that continued use of this POD does not further degrade water quality or the integrity of the channel. The Cabrillo Farms water rights allow for the licensed diversion of up to 98 acre-feet (AF) to offstream storage in the two reservoirs (49 AF per reservoir) from San Vicente Creek and additional water based on the riparian right documented by Statements of Diversion (Kleinfelder, 2008). Cabrillo Farms shares this POD with CCWD.

Of the 98 AF of water diverted to storage by Cabrillo Farms, 90 AF is available for use each year (License 11983 requires a "reserve" of 8 AF of water to remain in the pond) (SWRCB, 1984a). Each license allows up to 1.0 cubic foot per second (cfs) diversion rate (for a combined allowed diversion rate of 2.0 cfs from San Vicente Creek for winter diversion) (SWRCB, 1984a; 1984b). The farmer also reports his riparian diversion from this same POD (Statement of Diversion and Use (Statement) 9377) on San Vicente to supplement their water needs (SWRCB, 2002b). Riparian water is taken from the stream at the same POD and through the same conveyance system described above to the reservoirs. Water stored in Upper and Lower San Vicente reservoirs is pumped out and used to irrigate the agricultural fields to the south and west. Water diverted under riparian rights essentially tops off the storage capacity of the Upper and Lower Reservoirs and is generally taken during the irrigation season, when sufficient water is available in stream, during the months of March through early October. The diversion rate under this riparian right is up to 1.0 cfs, and the actual rate of diversion according to the farmer is substantially less (approximately 0.25 cfs, for a total usage of 79 AFY). Application 25356 (Permit 17627) is also permitted for diversions from the stream, but appears to not be in operation and never to have been used in the past (SWRCB, 2012). For this reason, this application is part of the CEQA baseline condition for this stream as shown in **Tables 4.8-1** and **4.8-2**. On average, approximately 186 AF of water is currently diverted from San Vicente Creek under the Cabrillo Farms and West Coast Farms licenses and riparian rights. All but the 6 AF used by West Coast Farms is diverted from San Vicente Creek at the POD that will be upgraded as part of the Proposed Project.

The CCWD has diverted and used San Vicente Creek water from the same POD intermittently in the past, primarily during the early 1980's when a temporary, above ground pipeline was installed from the point where the existing pipeline from the POD empties into Upper San Vicente Reservoir; this temporary pipeline generally followed the proposed route of the project pipeline to the Denniston pumping station adjacent to Denniston Reservoir. The proposed pipeline will closely follow the existing farm roadways rather than the exact previous pipeline route. The proposed pipeline will replace the current pipeline from the POD to Upper San Vicente Reservoir where it will join the proposed new pipeline and allow the CCWD diversion to

convey water to the existing Denniston Pump Station and thence to the Denniston Water Treatment Plant (WTP). CCWD has existing easements for the pipeline route.

Denniston Creek

Denniston Creek flows parallel to San Vicente Creek from a 3.82 square mile watershed on the western slope of Montara Mountain, and flows into the Pacific Ocean at Pillar Point Harbor. The entire watershed upstream from Highway 1 is underlain by deeply weathered quartz diorite from Montara Mountain, which is capable of holding considerable amounts of water, and which slowly and steadily yields a persistent baseflow (Balance Hydrologics, 2012; **Appendix E**). This persistent baseflow ensures that flows in Denniston Creek do not decline as much as they do in creeks in other coastal watersheds during mid-winter dry spells in average precipitation years.

Denniston Reservoir, located approximately one mile upstream from Highway 1, is an onstream, regulating reservoir. Built by local farmers in the early 1930's, the reservoir facilitates diversions for both the CCWD and the adjacent farmer with a maximum of 30 days storage allowable for each diverter. Denniston Reservoir is located at an elevation of 115 feet (TRC Essex, 2006). The CCWD's Denniston WTP is located approximately 0.3 miles north of the dam. The existing pump station that moves water from the Denniston Reservoir uphill to the Denniston WTP is located at the westerly side of the reservoir and is currently in place. The proposed San Vicente pipeline will be tied in to the current infrastructure at this existing pump station.

Denniston Reservoir is the POD and water source for the CCWD and the adjacent farmer. Cabrillo Farms diverts water at this shared POD under a riparian right (Statement 9375), as shown in **Table 4.8-2** (SWRCB, 1977a, 1977b, 1977d). The farmer also has rights to pump water directly from Denniston Creek at an existing farm field above the Denniston Reservoir under a riparian right described in Statement of Diversion 9376. Although there are existing permits under Applications 25467 and 25469 according to the State Water Resources Control Board (SWRCB), the reservoirs described in these applications were never constructed (SWRCB, 1977c, 2002a; Frahm, 2011; **Appendix F**).

One riparian right (Statement 9376) is for direct diversions from Denniston Creek, and is used to serve a 21-acre field known as the Canyon Field, which lies approximately 0.7 mile upstream of the Denniston Reservoir site. Water may be diverted from the creek at a diversion rate 0.75 cfs during the months of May through October (the irrigation season), although the farmer reports the actual diversion rate is substantially less. The other riparian right (Statement 9375) is used for direct diversions from Denniston Creek at the Denniston Reservoir POD to irrigate agricultural fields in the vicinity. The diversion rate is up to 1.0 cfs over a season of May through October, but the actual rate of diversion, according to the farmer, is less. The existing diverters on Denniston Creek and amounts diverted are shown in **Table 4.8-4**. The riparian right diversions are estimates made by Tim Frahm from discussions with the local farmers,

research of available public records, and assumptions made based on crop acreage and crop type (2011; **Appendix F**). The CCWD diversion rates are based on reported diversions and permittee progress reports provided by the District. The District's diversions are capped at all times by the 2.0 cfs limit in Permit 15882.

TABLE 4.8-4
CEQA BASELINE CONDITION ON DENNISTON CREEK BY DIVERTER

Water Right	Water User	Amount Diverted[1]
#S009375	Cabrillo Farms	79 AFY
#S009376	Cabrillo Farms	80 AFY
Permit 15882	CCWD	811 AFY[2]
Total		**971 AFY**
Unimpaired Flow[3]	**Amount Diverted**	**Baseline Flow Below POD**
1,693 AFY	971 AFY	722 AFY

[1] Source: Frahm, 2011 (**Appendix F**)
[2] Source: CCWD, 2013
[3] Source: Balance Hydrologics, 2013 (**Appendix G**), Denniston Creek in a normal water year.

The CEQA baseline condition on Denniston Creek is broken out by month and water year type in **Table 4.8-5**. Complete gage data by water year type is not available for Denniston Creek. Therefore, Balance Hydrologics (2013; **Appendix G**) calculated the unimpaired flow based on correlation between Pescadero Creek because Pescadero Creek has similar watershed geology and lack of impairment in the watershed that mirrors the Denniston Creek pws. The CEQA baseline includes all authorized diverters on Denniston Creek, which are presented in **Table 4.8-4** and summarized in the "Other Diversions" column and the "Existing CCWD Diversion" column. The District's diversions are what the District has reported to the SWRCB, averaged over the period of 1994 through 2003, which reflects the most recent period under an approved petition for extension of time. For the purpose of this analysis, CCWD's existing diversions are limited to no greater than the maximum demonstrated annual use of 811 AFY. The CEQA baseline is calculated by subtracting the other diversions and CCWD's diversions from the unimpaired flow.

TABLE 4.8-5
CEQA BASELINE CONDITION ON DENNISTON CREEK BY MONTH

Dry Year				
	Unimpaired Flow (cfs)[1]	**Other Diversions (cfs)[2]**	**Existing CCWD Diversion (cfs)**	**CEQA Baseline Flow (cfs)**
October	1.24	0.13	0.86	0.25
November	1.38	0.27	0.71	0.40
December	1.90	0.40	1.05	0.44
January	2.79	0.40	1.21	1.18

February	2.94	0.13	1.31	1.49
March	3.18	0.13	1.29	1.75
April	2.07	0.27	1.39	0.41
May	1.45	0.27	1.34	0.00
June	1.06	0.13	1.22	0.00
July	0.92	0.13	1.16	0.00
August	0.86	0.20	1.11	0.00
September	0.79	0.20	0.98	0.00
Normal Year				
	Unimpaired Flow (cfs) [1]	**Other Diversions (cfs)[2]**	**Existing CCWD Diversion (cfs)**	**CEQA Baseline Flow (cfs)**
October	1.31	0.13	0.86	0.32
November	1.61	0.27	0.71	0.64
December	3.08	0.40	1.05	1.62
January	3.70	0.40	1.21	2.08
February	4.27	0.13	1.31	2.82
March	4.35	0.13	1.29	2.93
April	3.26	0.27	1.39	1.61
May	2.25	0.27	1.34	0.64
June	1.45	0.13	1.22	0.09
July	1.14	0.13	1.16	0.00
August	1.06	0.20	1.11	0.00
September	0.97	0.20	0.98	0.00
Wet Year				
	Unimpaired Flow (cfs) [1]	**Other Diversions (cfs)[2]**	**Existing CCWD Diversion (cfs)**	**CEQA Baseline Flow (cfs)**
October	1.33	0.13	0.86	0.33
November	1.73	0.27	0.71	0.75
December	3.39	0.40	1.05	1.94
January	5.65	0.40	1.21	4.03
February	5.73	0.13	1.31	4.28
March	6.22	0.13	1.29	4.79
April	4.94	0.27	1.39	3.29
May	3.51	0.27	1.34	1.90
June	2.40	0.13	1.22	1.05
July	2.00	0.13	1.16	0.71
August	1.83	0.20	1.11	0.52
September	1.66	0.20	0.98	0.48

[1] Source: Balance Hydrologics, 2013 (**Appendix G**)
[2] Source: Adapted from **Table 4.8-4**

Flows on Denniston Creek immediately below the reservoir consist of spillage over and seepage through the dam. The spillage over the dam and seepage through the dam are dependent on the total hydraulic head (pressure gradient) within the system; a higher water level behind the dam puts more pressure on the system and induces more outflow, while a lower reservoir level leads to a lesser hydraulic head and less outflow. The incoming flow to the reservoir is affected by the total amount of water in the system, which is dependent on local weather patterns, and by the upstream utilization of water by the farmer, which is dependent on seasonal crop irrigation requirements. The District's diversions outside of the winter months are timed to not disrupt the farmers' diversions, determined in large part by mutual operational information sharing between the farmers and the District. Dam spillage is greatest in the winter when the incoming flow is highest and the irrigation needs of the farmer are lowest.

Although **Table 4.8-5** indicates that the baseline condition on Denniston Creek at the dam has several months (in normal and dry water years, only) where flow recedes to 0 cfs, there is a persistent baseflow in lower Denniston Creek downstream of the dam in all water year types due to the following factors:

- dam spillage and seepage;
- inflow from one minor tributary to the stream; and
- groundwater discharge into the stream channel.

Flow is present below the dam in all months, including drier summer months, in most years. Prolonged droughts, which leave only a wetted channel in Denniston Creek, are the exception to this existing normal downstream flow.

Surface Water Quality

Section 303(d) of the Clean Water Act (CWA) requires states to periodically prepare a list of all surface waters in their respective jurisdictions for which beneficial uses of the water – such as for drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants. These include water bodies that do not meet state surface water quality standards and are not expected to improve within the next two years. States establish a priority ranking of these impaired waters for purposes of developing water quality control plans that include Total Maximum Daily Loads (TMDLs). A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and includes an allocation for each of the pollutant's sources. These water quality control plans describe how an impaired water body will meet water quality standards through the use of TMDLs.

San Vicente is listed as impaired under the 303(d) list for coliform bacteria (DWR, 2010). The TMDL for San Vicente Creek is expected to be completed in 2019.

Denniston Creek is not listed as an impaired water body under the 303(d) list. However, due to the heavy composition of fine granitic particles derived from Montara Mountain, water that is pumped out of Denniston Reservoir is highly turbid, especially during storm events, and requires extensive treatment at the Denniston WTP. Please see the **Water Supply** section below for more information regarding Denniston Reservoir.

Drainage and Flooding

The topography of the project area is generally flat in the west with rolling hills in the east. Surface layer soils are characterized as being well-drained to somewhat poorly-drained (NRCS, 2013). The regional geology's unique combination of hydrologic, sedimentologic, hydrogeologic, and geomorphic processes leads to streams with muted and lagged storm and seasonal hydrographs. This suggests that the area's fractured, deeply weathered geology allows for substantial infiltration of drainage into underlying aquifers. Baseflows in the project area also tend to be higher than other more typical coastal watersheds; this is due to the gradual drainage of a larger recharge volume from rainfall due to both the weathered mantle and the soils and aquifers of the region (Balance Hydrologic, 2012; **Appendix E**).

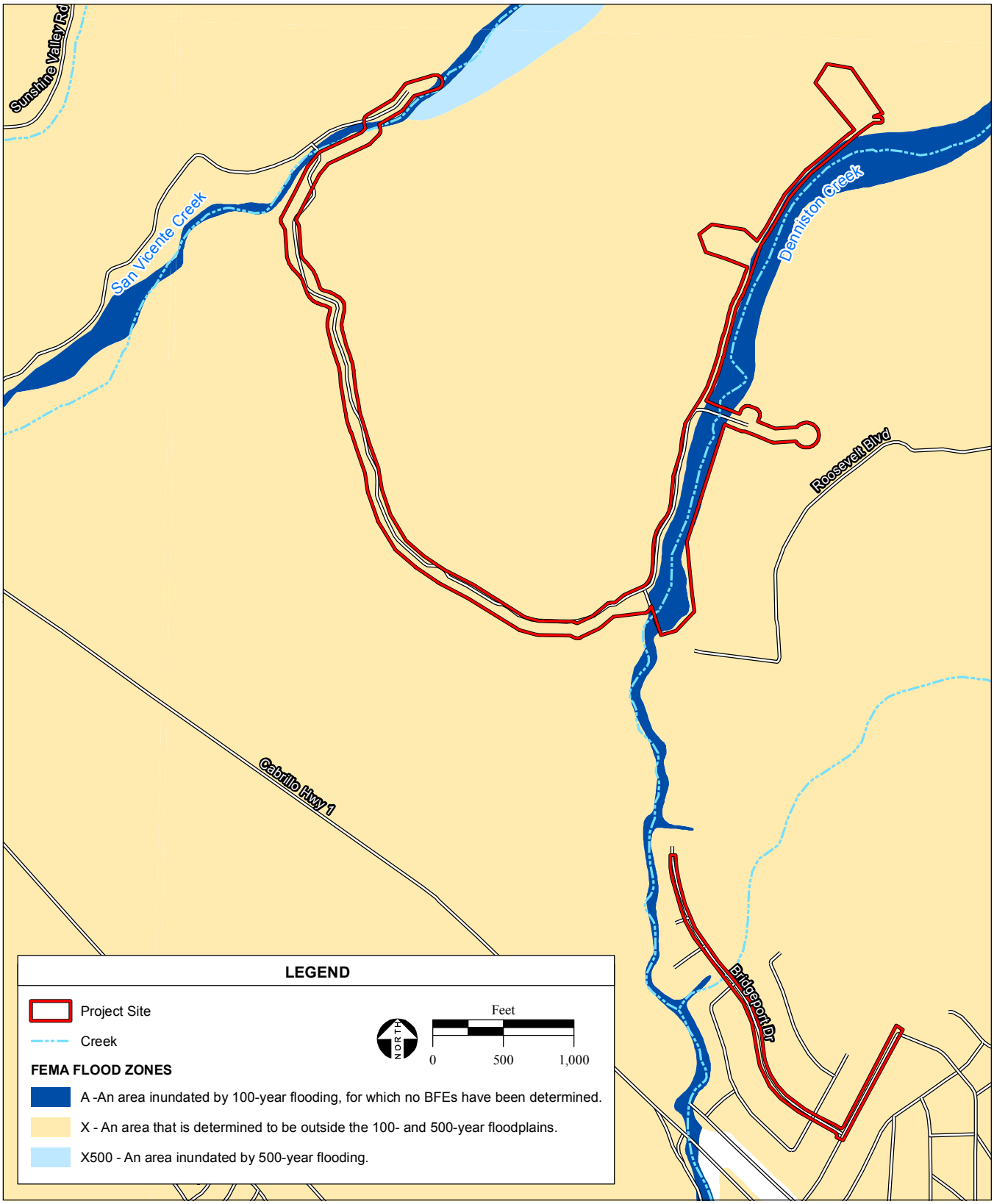
Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), provided as **Figure 4.8-2,** designate the northwestern and southeastern parts of project area within the 100-year floodplain (FEMA, 2012). Other portions of the project site are located in an area that is determined to be outside the 100- and 500-year floodplain.

Existing CCWD Water Supplies

As noted in **Section 3.3**, the CCWD currently serves a population of approximately 20,000 customers with water from four sources: 1) imported water from the San Francisco Public Utilities Commission (SFPUC); 2) wells in the vicinity of Pilarcitos Creek; 3) Denniston Creek; and 4) wells located in the Airport Terrace Aquifer (West Yost Associates, 2010).

Surface water may be directly diverted by the CCWD from both Denniston and San Vicente Creeks under CCWD's existing water rights permit (Permit 15882). The total diversions under these permits are limited to 4.0 cfs, with a maximum of 2.0 cfs from each creek. This permit is discussed further below.

Currently, CCWD directly diverts water from Denniston Creek at the Denniston Reservoir. Between 1979 and 1989 CCWD diverted up to 811 AFY (1.89 cfs) from Denniston Creek. Since 1990, the CCWD has diverted an average of 537 AFY (with a monthly average diversion rate of up to 1.89 cfs) from Denniston Creek; the amount able to be taken from Denniston Creek declined due to siltation around the Denniston POD and limitations at the Denniston WTP, which have been resolved through recent improvements to again allow a higher rate of diversion (D.



SOURCE: FEMA Q3 Flood Data, 1996; AES 2013

Figure 4.8-2
FEMA Flood Types

Dickson, pers. comm., 31 July 2012). The CEQA baseline conditions used in this EIR assume the higher documented usage rate by the District on Denniston Creek (1.89 cfs), consistent with the current CCWD permit and the probable water right license limit if CCWD's Petition for Extension of Time were denied.

The CCWD does not currently have a permanent diversion structure or conveyance system that can utilize its permitted right to divert (up to 2.0 cfs) from San Vicente Creek. Historic usage of the diversion on San Vicente Creek by the CCWD has been limited to some use in the 1980's, when a temporary pipeline from Upper San Vicente Reservoir to the Denniston Creek pumping station was installed and used. As previously stated, approximately 90 usable AF of water are diverted annually to storage from San Vicente Creek under the Cabrillo Farms licenses to fill two offstream storage resevoirs south of San Vicente Creek (98 AF of volume, 8 AF must remain in the reservoirs at all times). Additional diversions also occur under a riparian right (Statement 9377) on San Vicente Creek. Licensed diversions (Applications 25353 and 25355) from San Vicente Creek generally only occur during the winter months, while diversions reported under Statement 9377 of the riparian right usually occur between March through October (SWRCB, 1984a; 1984b; 2002b). One additional diversion, also under riparian right (Statement 9378), occurs above the current shared POD on San Vicente Creek and is also irrigation-season dependant.

Application 22680 (Permit 15882)

The CCWD has identified the need to increase its diversions from and to maximize its use of local surface supplies from Denniston and San Vicente Creeks to help provide a more secure supply water to its customers. As noted in **Section 3.1**, the CCWD is seeking approval from the SWCRB of a petition for extension of time for Water Right Permit 15882 (Application 22860) to allow sufficient time for the District to implement the necessary infrastructure upgrades and to demonstrate beneficial use through integrated use of the current permitted surface water from both streams. The infrastructure needs that were identified to put diverted water to beneficial use under this permit have not changed significantly since originally conceived. Issues, largely regulatory, with other components of the District's treatment and distribution system have delayed the completion of this portion of the District's local water supply until now.

CCWD filed Water Right Application 22680 with the State Water Rights Board (SWRB) in 1966. In 1969, the SWRCB, the successor to the SWRB, issued Water Right Permit 15882. The most recent Petition for Extension of Time was filed with the SWRCB on July 19, 2004 to request an order that would give the District sufficient time to complete the infrastructure upgrades under the Proposed Project.

The improvements proposed under the Proposed Project would increase the availability and reliability of local water sources, thereby lessening dependence on imported water from the SFPUC. This full beneficial use of approved local water supplies, combined with targeted

efforts to reduce per capita water use in the CCWD service area, will enable the District to meet the future water needs of its population, which is expected to increase by approximately 15.8 percent (over 2010 population data) by 2035 (West Yost Associates, 2010). Permit 15882 allows for the direct diversion of a maximum of 4.0 cfs from both creeks during the entire year (January 1 through December 31 each year). The permit provides that the quantity diverted from either San Vicente Creek or Denniston Creek shall not exceed 2.0 cfs. If the SWRCB grants the Petition for Extension of Time, CCWD would have until December 31, 2016 to complete construction of the proposed water collection system improvements and to divert and beneficially use the water to the maximum extent authorized by Permit 15882. Water from Denniston Creek may be stored within Denniston Reservoir for a maximum of 30 days before it is pumped to the Denniston WTP. Diversion from San Vicente would be directly diverted to the Denniston pumping station from the new diversion structure and pump station, through the new pipeline, and then into the Denniston WTP. Water from San Vicente would include primarily winter flows and diversions would be timed so as not to impact other water right holders. Groundwater would continue to be used conjunctively, during times when the water supply from both creeks cannot meet demand (i.e. during consecutive drought years or dry months, as needed), and as the Denniston WTP capacity allows.

Groundwater Quantity

The groundwater basins within the Montara Mountains are a combination of deeply-weathered granitics, canyon alluvium, and coastal terraces (Balance Hydrologics, 2012; **Appendix E**). Weathered granitic bedrock gives Montara-type streams a unique set of hydrologic, sedimentologic, hydrogeologic, and geomorphic processes when compared to other coastal watersheds across California. The capacity of the groundwater system is large, but water is exchanged relatively slowly, due to the granitic bedrock and the almost complete absence of sand and gravel zones within the aquifers, unlike other coastal watersheds in California. This large capacity allows considerable storage, with water yielded at relatively slow rates. Rapid infiltration into the aquifer from the streams or rapid outflow from the aquifer is not reported. The groundwater system contributes to the attenuated flows in Denniston and San Vicente streams by accepting and slowly yielding considerable recharge from rainfall (Balance Hydrologics, 2012; **Appendix E**).

The area in the vicinity of the project site is part of the Half Moon Bay Terrace Basin (Basin Number 2-22) described in the Department of Water Resources (DWR) Bulletin 118. The most current version of the DWR Bulletin 118 does not contain a groundwater description for the Half Moon Bay Terrace; however, inferences suggest the Half Moon Bay Terrace Basin covers an area of approximately 9,150 acres (West Yost Associates, 2010).

In 2002, the San Mateo County Board of Supervisors commissioned a groundwater study to identify where and how much water may be safely taken from the ground from Half Moon Bay

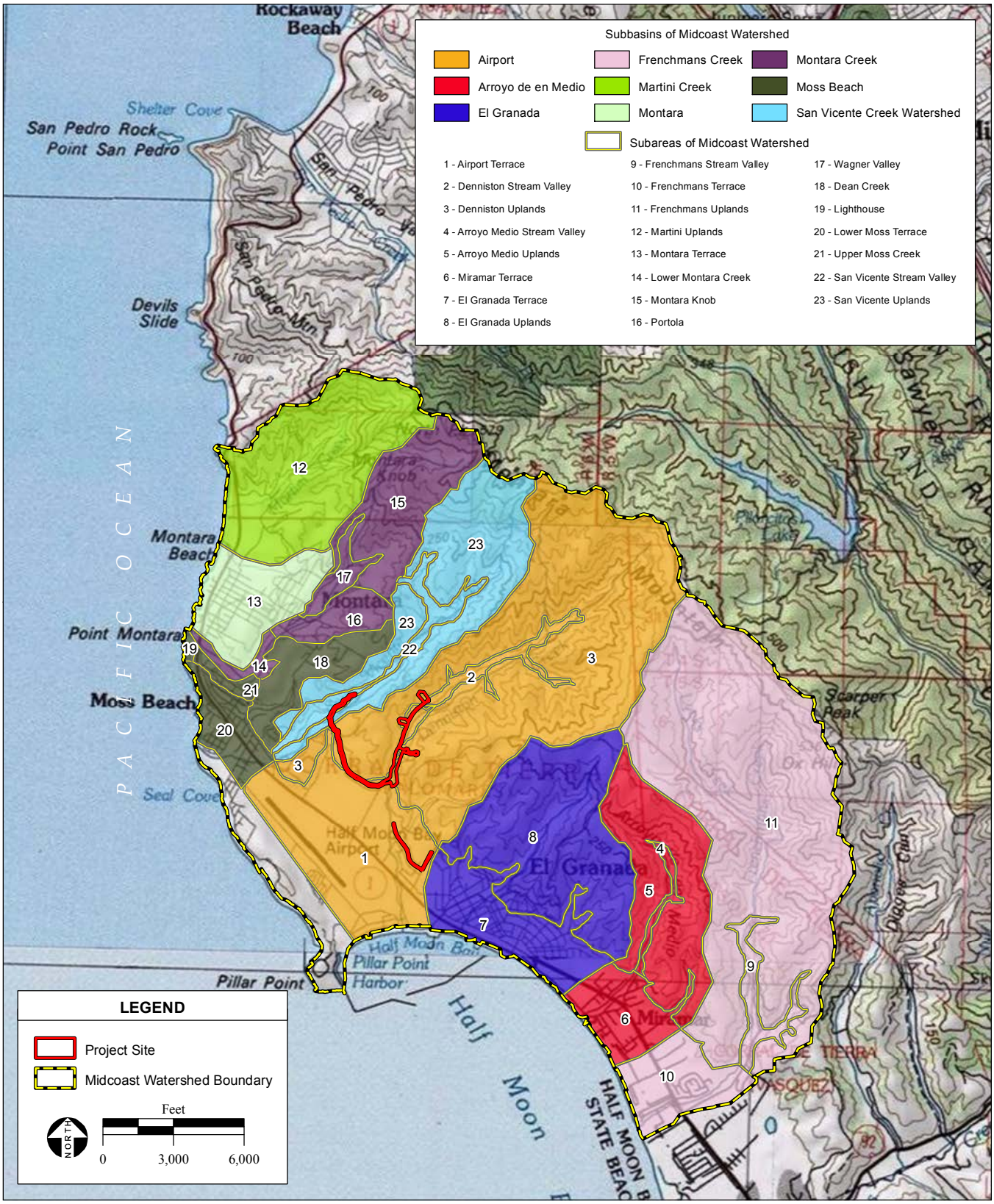
north to Devils Slide (which includes the Half Moon Bay Terrace) without posing significant risks during an extended drought to community health or environmental resources or values. The results from these studies, in addition to further studies by the California Coastal Commission (CCC) (2008), West Yost Associates (2010), Balance Hydrologics (2012) as they relate to the project area, are detailed below.

The Half Moon Bay Terrace Basin includes the Airport Subbasin, which is further divided into several subareas: the Airport Terrace Subarea, Denniston Upland Subarea, Denniston Stream Valley Subarea, San Vicente Upland Subarea, and the San Vicente Stream Valley Subarea (**Figure 4.8-3**; Kleinfelder, 2008). The Airport Subbasin has accumulated coarse-grained alluvial fan and stream deposits that are primarily made up of decomposed granite from Montara Mountain, deposited by San Vicente Creek on the north and Denniston Creek on the south (Balance Hydrologics, 2002). Extending headward along both creeks are coarse-grained alluvial aquifers and underlying fractured granitic bedrock aquifers (CCC, 2008). The Airport Aquifer has young groundwater, dated less than 10 years old, and is classified as a "highly vulnerable area" that has wide swings in seasonal fluctuation as well as drought-wet year cycles (Balance Hydrologics, 2010; 2012).

The project site overlays the Airport Terrace Subarea, which is approximately 871 acres and bounded by faults on the east and west and a groundwater divide to the south near San Vicente Creek and Half Moon Bay (West Yost Associates, 2010). Although the surface soils end at Half Moon Bay, the earth materials that constitute the Airport Terrace Subarea, specifically marine terrace deposits, continue to the south under the bay.

In the upper portions of the watershed, where San Vicente and Denniston Creeks originate and pass through the project site, significant slopes and generally rapid water drainage lead to relatively limited storage capacity of groundwater within the immediate vicinity of the recharge areas. However, recent data suggest that the areas upstream of the Proposed Project's PODs provide large amounts of recharge to the groundwater basin (Balance Hydrologics, 2014; **Appendix H**). Percolated water is not stored in the granitic bedrock around the creeks, but travels relatively quickly to the terrace deposits, where it accumulates (Kleinfelder, 2008). The surface water flowing through Denniston Creek that infiltrates to groundwater stays almost exclusively within the Airport Terrace Subarea. Surface water from San Vicente Creek that infiltrates to groundwater is divided into two groundwater basins, with approximately 85 percent feeding the Lower Moss Beach Subarea and 15 percent infiltrating to the Airport Terrace Subarea (Kleinfelder, 2008).

Precipitation is the main source of recharge for the Airport Terrace Subarea (Kleinfelder, 2008). Using over 55 years of precipitation records and adjusting for orographic and other effects caused by the hilly terrain, Kleinfelder (2008) estimates that approximately 600 AF of water



SOURCE: Kleinfelder. 2006; "Montara Mountain, CA" USGS 7.5 Minute Topographic Quadrangle, T4S & 5S R5W & 6W, Unsectioned Area of Corral de Tierra, Mt. Diablo Baseline & Meridian; AES, 2013

Figure 4.8-3

Midcoast Watershed Groundwater Basins and Subareas

derived from precipitation runs off the land while about 120 AF of water percolates directly into the Airport Terrace Subarea each year. Balance Hydrologics (2014) found that the Airport Aquifer below the project site "refills quickly and completely following the first storms of each rainy season," further suggesting that precipitation plays a large role in this aquifer system (**Appendix H**). Since the 1950's, groundwater levels in the project area have remained steady, with no apparent long-term fluctuations in water levels (Balance Hydrologics, 2002). Balance Hydrologics (2002) estimates that a total of 2,900 AF of water storage occurs in unconsolidated material including pocket aquifers, and approximately 3,300 AF of water occurs in fractured bedrock within the Airport Terrace Subarea. Surface to groundwater interactions are considerable in the San Vicente and Denniston Creek watersheds, and groundwater recharge from Denniston Creek through the Airport Terrace Subarea is significant during the dry season (Balance Hydrologics, 2010). Recent data collected by Balance suggest that Denniston Creek provides approximately 180 AFY of groundwater recharge, which is "far less than previously estimated contributions from Denniston Creek, which was most recently estimated by Kleinfelder (2008) to be approximately 790 AFY" (Balance, 2014; **Appendix H**).

Balance Hydrologics has been collecting data along San Vicente and Denniston Creeks for multiple years to determine the nature of the groundwater in the vicinity of the project site. Their ~~recent data~~technical memorandum, presented in **Appendix H**, used stream gaging, well monitoring, and specific conductance data to monitor and extrapolate the groundwater-surface water interaction along San Vicente and Denniston Creeks. The data collected on San Vicente Creek ~~determined~~ show that there are "measureable groundwater discharges into San Vicente Creek" from the underlying aquifer. ~~Therefore,~~ In normal and wet years, San Vicente Creek is a gaining stream in the reaches downstream of the Proposed Project's POD, as a result of groundwater discharges into the creek. However, in dry years, San Vicente Creek may be a losing stream because water may flow from the creek into the aquifer.

Groundwater outflows from the Airport Subbasin occur as pumpage, outflow to the ocean, persistent baseflow to streams, and evapotranspiration. Groundwater is extracted by several water users, including the Montara Water and Sanitary District (MWSD), the Pillar Ridge Manufactured Home Community (PRMHC), and the CCWD (Balance Hydrologics, 2010). The MWSD has three production wells along Highway 1 and near the Airport. The PRMHC operates four wells, but one is currently inactive. The MWSD supplies water to the PRMHC when their wells are incapable of meeting demand or when the quality of their well water is poor. Due to a growing dependency on the basin, and the fact that the Airport Sub-basin interfaces with the ocean at Half Moon Bay, in 1994 the CCC adopted a limit of 459 AFY on groundwater extractions to ensure seawater intrusion is avoided and impacts to the regional marsh habitats were avoided. The Coastal Development Permit (CDP) issued in 1976 for CCWD's Denniston Well Field limits the annual total production from the wells to 130 MG/year (approximately 399 AFY) (West Yost Associates, 2010). Water from the Denniston Well Field is an important part of

the CCWD's goal of increasing utilization of local water supplies in order to meet future project demand for water (West Yost Associates, 2010) (**Figure 4.8-3**).

Kleinfelder (2008), Lowney-Kaldveer (1974), and Luhdorf and Scalmanini (1991) all concluded that the Airport Terrace Subarea is "in general long-term balance" (Kleinfelder, 2008). During drought years, some decline in water levels has been observed. However, outflow to the oceans has also dropped during drought years, reducing the impact of drought conditions, and the water table has been observed to recover rapidly during wet years (Kleinfelder, 2008).

As noted above, surface streams within the project area are utilized by a number of water permit holders for agricultural and consumption uses. Due to the unique geology of the watershed, the aquifer refills quickly and nearly completely from precipitation, and groundwater outflow is not rapid, allowing for lower peak runoffs and more baseflows to feed the watershed streams throughout the year. Additionally, the diversion to irrigation and to storage on these streams allows more time for surface water to percolate into groundwater, thereby facilitating the recharge of the Airport Terrace Aquifer.

Groundwater Quality

The region's deeply weathered granitic mantle produces high quality groundwater with low mineral content (Balance Hydrologics, 2012; **Appendix E**). Regional groundwater from the weathered granitics of Montara Mountain typically produce waters with total dissolved solids (TDS) content of 150 to 300 mg/L, roughly 25 to 35 percent of the minerals found in the Purisima aquifer, the other principal source of groundwater in the Midcoast (Balance Hydrologics, 2012; **Appendix E**). Streams emanating from the granitics have the same low TDS content. At least one study by Balance Hydrologics (2005) also reports high nitrate levels in the northernmost part of the Half Moon Bay Terrace Basin, which requires pumped groundwater used for domestic supply to be blended with surface water of lower nitrate concentration; however, the location of this well is outside the proposed project area. Possible sources of nitrate and nitrogen include fertilizer use for agriculture in the region and the Airport restaurant's septic leach field.

As noted above, the Airport Terrace Subarea interfaces with the ocean at Half Moon Bay; therefore the potential for seawater intrusion is a source of concern. Presently, chloride concentrations in the area's groundwater are low and do not appear to indicate the occurrence of seawater intrusion at past or current levels of groundwater production (Balance Hydrologics, 2002).

Nutrients, specifically nitrogen and phosphorus, are essential for life and play a primary role in ecosystem functions. In addition to naturally present concentrations in the atmosphere and organic matter, nutrients are introduced to water bodies through human or animal waste

disposal or agricultural application of fertilizers. Nutrients are commonly the limiting factor for growth in aquatic systems; however, excessive levels of nutrients affect aquatic systems in a wide range of ways, including producing toxic or eutrophic conditions, both of which impair aquatic life.

The open, rechargeable nature of the project area's weathered granitics, and the alluvial and colluvial deposits derived from them, makes them susceptible to constituents introduced from the surface, including chemicals and sediment from erosion.

Nitrate, which only rarely is found in elevated concentrations in natural systems, is a principal constituent which enters these open systems from various land and water uses in the area. As deeply-weathered granitic rocks yield low-mineralized, high quality waters throughout California's central coast, the baseflow emanating from the granitic aquifers in the region are of high quality with a low mineral composition. Because the area's soils are open to recharge, nitrates and other surficial contaminants can enter the soils and aquifers with few restrictive horizons to attenuate the deep percolation of constituents (Balance Hydrologics, 2012; **Appendix E**). As mentioned above, San Vicente Creek is listed as impaired under the 303(d) list for coliform bacteria (DWR, 2010). According to the SWRCB, the TMDL has not yet been defined for San Vicente Creek, but is anticipated to be defined by 2019. Denniston Creek is not listed on the 303(d) list.

Denniston and San Vicente Creeks will transport a very high proportion of sediment in comparison to other coastal creeks; specifically, the bedload and suspended load are moved at approximately equal transport rates, unlike other non-Montara type channels (Balance Hydrologics, 2012; **Appendix E**). Denniston and San Vicente Creeks transport sediment compositions that are almost exclusively sands of granitic origin. This combination of sandy watersheds and high summer flows (due to the slower percolation of baseflows from the granitic aquifer) results in a high sediment yield draining into the ocean throughout the year from the creeks (Balance Hydrologics, 2012; **Appendix E**). Erosion from the vicinity of the project site and surrounding area likely enters the channels following major storms, wildfires, and floods (Balance Hydrologics, 2012; **Appendix E**). Sediment enters the channels during these episodic events from the surrounding hillsides, often accumulating into colluvial wedges that are eventually incised by rills and gullies during the intervening periods between storm events. Logjams within channels provide channel stability and grade control, and woody plants within the riparian zone prevent rapid incision and stabilize channel beds.

4.8.3 REGULATORY SETTING

There are several federal, State, and local laws, policies, and regulations that apply to hydrology and water quality for the Proposed Project.

Federal

Clean Water Act (CWA)

The CWA (33 USC §§ 1251-1376), is the major federal statute governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important sections of the CWA 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 CWA and state water quality laws. The Water Quality Certification may serve as both a certification for a federal permit, under Section 401 of the CWA, and a Waste Discharge Requirement under the Porter-Cologne Water Quality Control Act.
- Section 402 establishes the National Pollutant Discharge Elimination System (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 Regional Water Quality Control Boards (RWQCBs) and is discussed in detail below.
- Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is administered by the United States Army Corps of Engineers (USACE).

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). Once a water body or segment is listed, the state is required to establish a TMDL for the pollutant causing the conditions of impairment. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards. The intent of the 303(d) list is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for continued water quality degradation. The San Francisco Regional Water Quality Control Board (SFRWQCB) has identified waters that are polluted and need further attention to support their beneficial uses. The 303(d) list includes the San Vicente Creek for coliform bacteria.

Federal Anti-degradation Policy

The Federal Antidegradation Policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless

the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Safe Drinking Water Act

Under the Safe Drinking Water Act (SDWA) (Public Law 93-523), passed in 1974, the United States Environmental Protection Agency (EPA) regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the SDWA enacted in 1986 established an accelerated schedule for setting drinking water MCLs.

Federal Emergency Management Agency

San Mateo County is a participant in the National Flood Insurance Program (NFIP), a Federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 adopted a desired level of protection that would protect developments from floodwater damage associated with an Intermediate Regional Flood (IRF), a flood which is defined as having an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year.

U.S. Army Corps of Engineers (USACE)

- The USACE has jurisdiction and permitting authority under Section 10 of the Rivers and Harbors Act of 1899 over the Nation's waterways and their associated wetlands. The USACE also has authority under Section 404 of the CWA to protect the quality of the Nation's waters. The USACE regulates potential impacts on wetlands, threatened or endangered species, other valuable fish and wildlife resources, and cultural resources found in wetland areas.
- Both dredging and filling of waters under the USACE protection are activities regulated by the USACE. The Section 404 permit program for discharge of fill or dredged materials into waters of the U.S. may be applicable to the Proposed Project. The general criteria for such discharges is to have "no net loss" of wetlands due to project impacts, essentially requiring compensatory mitigation.

State

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB and the nine RWQCBs have the authority in California to protect and enhance water quality, both as the lead agencies in implementing the Section 319 nonpoint source NPDES program of the federal CWA, and from the state's primary water-pollution control legislation, the Porter-Cologne Water Quality Control Act. The SWRCB is also responsible for processing water rights applications, the issuance of permits and licenses, as well as evaluating petitions for extensions of time for existing water rights permits through the Division of Water Rights (Division). The Proposed Project is within the jurisdiction of the San Francisco Bay RWQCB.

California Department of Fish and Wildlife (CDFW)

- The CDFW has authority over resources associated with rivers, streams, and lakes under California Fish and Game Code Section 1600 to 1616. The CDFW has authority to regulate development and other work that will: substantially divert, obstruct or change the natural flow of a river, stream or lake; substantially change the bed, channel or bank of a river, stream, or lake; or use material from a streambed. Typical activities regulated by the CDFW include re-channeling and diverting streams, stabilizing banks, implementing flood control projects, river and stream crossings, diverting water, damming streams, gravel mining, and logging operations.
- The CDFW should be contacted if any portion of the project would interfere with a water course under the CDFW's jurisdiction. Alterations to the wetlands on-site are planned, and these alterations may require a permit from the CDFW. Once such a permit is acquired and permit conditions are met, the project should be in compliance with the CDFW regulations protecting wetlands and surface waters in California.
- To issue a Streambed Alteration Agreement (SAA), CDFW will need to ensure the project complies with all other provisions of the California Fish and Game Code, including the California Endangered Species Act.

California Coastal Commission (CCC)

- The California Coastal Act created the CCC, an independent, quasi-judicial state agency which regulates development along California's coastline. In addition to preserving the coastline, the CCC also is charged with wetland preservation. Regional regulation is implemented by Local Coastal Programs (LCPs), which are prepared by the cities and counties located within the coastal zone. Prior to beginning construction, development within the "Coastal Zone" also requires a Coastal Development Permit.
- The San Mateo LCP, which has been certified by the CCC, defines wetlands as areas "where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils, or to support the growth of plants which are normally found

to grow in water or wet ground" (San Mateo County, 1998). The San Mateo LCP is discussed further below.

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) provides the basis for water quality regulation within California. The Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state.

State Antidegradation Policy

In 1968, as required under the Federal Antidegradation Policy described previously, the SWRCB adopted an Antidegradation Policy aimed at maintaining high quality for waters in California. The Antidegradation Policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

a. Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.

b. Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements which would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

San Francisco Bay Water Quality Control Plan (Basin Plan)

The San Francisco Bay RWQCB regulates water quality in the Bay area in accordance with its Water Quality Control Plan, often referred to as the "Basin Plan" (San Francisco RWQCB, 2013). The Basin Plan presents the beneficial uses, which the RWQCB has specifically designated for local aquifers, streams, marshes, rivers, and the Bay, as well as the water quality objectives and criteria that must be met to protect these uses.

Local

San Mateo County's 1986 General Plan (General Plan) seeks to promote the conservation, enhancement, protection, maintenance, and managed use of the County's vegetation, water,

fish, and wildlife resources. The following General Plan guiding and implementation policies are applicable to the Proposed Project.

Vegetation, Water, Fish, and Wildlife Resources Policies

The following General Plan guiding and implementation policies associated with hydrological resources are applicable to the Proposed Project.

Guiding Policies

1.25: Protect Water Resources

- Ensure that development will 1) minimize the alteration of natural water bodies; 2) maintain adequate stream flows and water quality for vegetative, fish, and wildlife habitats; 3) maintain and improve, if possible, the quality of groundwater basins and recharge areas; and 4) prevent to the greatest extent possible the depletion of groundwater resources.

Implementing Policies

1.28: Establish buffer zones

- Establish necessary buffer zones adjacent to sensitive habitats which include areas that directly affect the natural conditions in the habitat.

1.36: Protect the Productive Use of Water Resources

- Ensure that land uses and development on or near water resources will not impair the quality or productive capacity of these resources.

1.40: Encourage Coordinated, Countywide Management of Vegetative, water, fish, and wildlife resources

- Encourage all federal, state, regional, County, and city agencies with jurisdiction in San Mateo County to cooperate and coordinate the management and protection of vegetative, water, fish, and wildlife resources.

San Mateo Local Coastal Policy

2.32: Groundwater Proposal

- Require, if new or increased well production is proposed to increase supply, that:
  a. Water quality be adequate, using blending if required, to meet the water standards of Policy 2.30.
  b. Wells are installed under inspection according to the requirements of the State and County Department of Public Health.
  c. The amount pumped be limited to a safe yield factor which will not impact water dependent sensitive habitats, riparian habitats and marshes.

5.23: Priorities for Agricultural Water Supplies

- Recommend to the California State Water Resources Control Board that when issuing permits for appropriate water rights they establish the following priorities:
  a. The protection of minimum stream flows as determined by the State Department of Fish and Wildlife;
  b. New and existing agricultural operations;
  c. New and existing farm family and farm labor housing;
  d. Coastal-dependent uses;
  e. Public recreation and visitor-serving facilities;
  f. Other.

7.7: Definition of Riparian Corridors

- Define riparian corridors by the "limit of riparian vegetation" (i.e., a line determined by the association of plant and animal species normally found near streams, lakes and other bodies of freshwater: red alder, jaumea, pickleweed, big leaf maple, narrow-leaf cattail, arroyo willow, broadleaf cattail, horsetail, creek dogwood, black cottonwood, and box elder). Such a corridor must contain at least a 50% cover of some combination of the plants listed.

7.9: Permitted Uses in Riparian Corridors

- Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects.

4.8.4 IMPACTS AND MITIGATION MEASURES

Method of Analysis

This section identifies the impacts to hydrology and water quality that could occur from construction, operation, and/or maintenance of the Proposed Project. An examination of the project site, project components, and published information regarding the water resources in the project area was conducted to determine impacts to hydrology and water quality.

As discussed in **Section 3.0**, Project Description, the Proposed Project includes a petition for extension of time to develop necessary infrastructure so that authorized diversions from San Vicente and Denniston Creeks may be applied to beneficial use. Part of the infrastructure improvements includes expanding the capacity of the Denniston WTP to 1,500 gallons per minute (gpm; 3.34 cfs) in order to increase security and availability of local water supplies, and to reduce the use of imported water from SFPUC.

This EIR will analyze the impacts of two CCWD surface diversion scenarios, each one prioritizing the diversion and use of water from one creek: the San Vicente Preferred and Denniston Preferred scenarios. These two scenarios represent the maximum amounts of water that CCWD could feasibly divert under Permit 15882 based on the largest WTP capacity upgrade as proposed by the District. Under each scenario, the primary source of water is from the preferred stream, with additional water taken from the other stream as needed, up to the capacity of the Denniston WTP. Although actual CCWD diversions will be operationally balanced between the two streams based on factors such as water availability, water year type, and other diverters' usage, this analysis of these two scenarios provides for the maximum range of impacts that could arise in each creek from implementation of the Proposed Project.

San Vicente Creek

According to modeling done by Balance Hydrologics (2013), San Vicente Creek reaches its lowest flows in September, and peaks in winter months (approximately January to February). The average annual flow in San Vicente Creek is approximately 1.72 cfs, and the unimpaired volume of water is 1,230 AFY in a wet year. In normal years, the average flow is approximately 1.07 cfs (764 AFY), and in dry years, the average flow is approximately 0.75 cfs (534 AFY) (please see **Table 4.8-3**).

A term of Water Right Permit 15882 (Application 22860) requires that surface flow be present at ~~a wetted channel passing~~ the southerly boundary of Torello Ranch (NW ¼ of NW ¼ of Section 2, Township 5S, Range 6W, Mount Diablo Baseline and Meridian) before diversions may occur between June 1 and October 1. This corresponds to a location near ~~to, but downstream of,~~ the San Vicente POD (37.5317 North, -122.4919 West), as shown on **Figure 4.8-1**.

Under the San Vicente Preferred scenario, the District would divert the maximum amount of surface water from San Vicente Creek that is available, up to the authorized 2.0 cfs. The District would divert additional water from Denniston Creek, up to the maximum capacity of the Denniston WTP. **Table 4.8-6** below shows the maximum amounts of water that CCWD could divert in a dry, normal, or wet water year under this scenario. Average rainfall is the average annual precipitation that falls in a region in one hydrologic year (also referred to as a water year; the period from October 1 to September 31 of the subsequent year). A dry year is defined as any year with less than 85 percent of the average annual rainfall. A water year is considered normal if it falls between 85 and 120 percent of the average annual precipitation for that area. A wet year is defined as any year with greater than 120 percent of the average annual precipitation.

To be effective, the POD structure pictured in **Figure 3-4** will require some type of in-channel

diversion to move water into the diversion structure. Based on the design of the structure, some water will bypass the screened diversion; however at this point it is impossible to quantify that bypass flow. Below is an impact analysis assuming that resulting creek flows on San Vicente Creek are 0.0 cfs (the totality of the stream is diverted) in some months. However, some bypass will occur, although it is an unquantifiable amount that is not taken into account in **Table 4.8-6**.

TABLE 4.8-6
SAN VICENTE PREFERRED SCENARIO

Dry Year						
	Denniston Creek			**San Vicente Creek**		
	CEQA Baseline Flow (cfs)[1]	**Proposed Project Diversions (cfs)[2]**	**Resulting Creek Flows (cfs)[3]**	**CEQA Baseline Flow (cfs)[4]**	**Proposed Project Diversions (cfs)**	**Resulting Creek Flows (cfs)**
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.43	0.75	0.86	0.86	0.00
February	1.49	0.00	1.49	1.09	1.09	0.00
March	1.75	0.32	1.43	1.16	1.16	0.00
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
Total (AFY)	**353**	**134**	**219**	**354**	**354**	**0**
Normal Year						
	Denniston Creek			**San Vicente Creek**		
	CEQA Baseline Flow (cfs)[1]	**Proposed Project Diversions (cfs)[2]**	**Resulting Creek Flows (cfs)[3]**	**CEQA Baseline Flow (cfs)[4]**	**Proposed Project Diversions (cfs)**	**Resulting Creek Flows (cfs)**
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.43	1.19	1.14	1.14	0.00
January	2.08	0.00	2.08	1.34	1.34	0.00
February	2.82	0.00	2.82	1.92	1.92	0.00
March	2.93	0.00	2.93	1.65	1.65	0.00
April	1.61	0.61	0.99	0.97	0.97	0.00
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00

August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
Total (AFY)	**758**	**162**	**596**	**584**	**584**	**0**
Wet Year						
	Denniston Creek			**San Vicente Creek**		
	CEQA Baseline Flow (cfs)[1]	**Proposed Project Diversions (cfs)[2]**	**Resulting Creek Flows (cfs)[3]**	**CEQA Baseline Flow (cfs) [4]**	**Proposed Project Diversions (cfs)**	**Resulting Creek Flows (cfs)**
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.23	1.71	1.34	1.34	0.00
January	4.03	0.00	4.03	3.01	2.00	1.01
February	4.28	0.00	4.28	3.11	2.00	1.11
March	4.79	0.00	4.79	3.24	2.00	1.24
April	3.29	0.00	3.29	1.95	1.95	0.00
May	1.90	0.66	1.24	1.01	1.01	0.00
June	1.05	0.78	0.27	0.86	0.86	0.00
July	0.71	0.71	0.00	0.81	0.81	0.00
August	0.52	0.52	0.00	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
Total (AFY)	**1,433**	**266**	**1,167**	**1,050**	**850**	**200**

[1] On Denniston Creek, the CEQA baseline flow includes the monthly diversions (totaling a maximum of 811 AFY) that the District is authorized to divert.
[2] The "Proposed Project Diversions" are anything above the District's current diversions (monthly diversion data for Denniston Creek is shown in **Table 4.8-5** above, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**).
[3] Resulting creek flows are the flows in each creek after diversions by the farmer and by the District.
[4] The CEQA Baseline Flow on San Vicente Creek is calculated in **Table 4.8-3** above.

Denniston Creek

Currently, flows downstream of the Denniston Reservoir are partly based on water that spills from the existing dam. The timing of flows in Denniston Creek follows a similar flow profile to the San Vicente Creek profile, but overall more water flows through Denniston Creek. In wet years, the average flow is 3.37 cfs (2,404 AFY); in normal years the average flow is 2.37 cfs (1,693 AFY); and in dry years, the average flow is approximately 1.72 cfs (1,224 AFY) (please see **Table 4.8-5**).

Under the Denniston Preferred scenario, the District would divert the maximum amount of surface water from Denniston Creek that is available, up to the authorized 2.0 cfs. The District will divert additional water from San Vicente Creek, up to the maximum capacity of the Denniston WTP. **Table 4.8-7** below shows the maximum amount of water that CCWD could divert in a dry, normal, or wet water year under this scenario.

TABLE 4.8-7
DENNISTON PREFERRED SCENARIO

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)[1]	Proposed Project Diversions (cfs)[2]	Resulting Creek Flows (cfs)[3]	CEQA Baseline Flow (cfs)[4]	Proposed Project Diversions (cfs)[2]	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.26	0.03
December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.79	0.39	0.86	0.50	0.36
February	1.49	0.69	0.81	1.09	0.37	0.73
March	1.75	0.71	1.04	1.16	0.77	0.39
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
Total (AFY)	**353**	**220**	**133**	**354**	**265**	**89**
Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)[1]	Proposed Project Diversions (cfs)[2]	Resulting Creek Flows (cfs)[3]	CEQA Baseline Flow (cfs)[4]	Proposed Project Diversions (cfs)[2]	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.95	0.67	1.14	0.63	0.52
January	2.08	0.79	1.29	1.34	0.50	0.85
February	2.82	0.69	2.13	1.92	0.37	1.55
March	2.93	0.71	2.22	1.65	0.77	0.88
April	1.61	0.61	0.99	0.97	0.97	0.00
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
Total (AFY)	**758**	**323**	**435**	**584**	**358**	**226**

Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)[1]	Proposed Project Diversions (cfs)[2]	Resulting Creek Flows (cfs)[3]	CEQA Baseline Flow (cfs) [4]	Proposed Project Diversions (cfs)[2]	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.95	0.99	1.34	0.63	0.72
January	4.03	0.79	3.24	3.01	0.50	2.51
February	4.28	0.69	3.60	3.11	0.37	2.74
March	4.79	0.71	4.08	3.24	0.77	2.48
April	3.29	0.61	2.67	1.95	1.25	0.69
May	1.90	0.66	1.24	1.01	1.01	0.00
June	1.05	0.78	0.27	0.86	0.86	0.00
July	0.71	0.71	0.00	0.81	0.81	0.00
August	0.52	0.52	0.00	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
Total (AFY)	**1,433**	**475**	**958**	**1,050**	**506**	**544**

[1] On Denniston Creek, the CEQA baseline flow includes the monthly diversions (totaling a maximum of 811 AFY) that the District is authorized to divert. This is calculated in **Table 4.8-5** above.
[2] The "Proposed Project Diversions" are anything above the District's current diversions (monthly diversion data for Denniston Creek is shown in **Table 4.8-5** above, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**).
[3] Resulting creek flows are the flows in each creek after diversions by the farmer and by the District.
[4] The CEQA Baseline Flow on San Vicente Creek is calculated in **Table 4.8-3** above.

As noted above, each scenario identifies the maximum diversion of water that could occur from one stream, up to the 2.0 cfs authorized under the permit and based on the amount of water available from that stream, with additional water, up to the Denniston WTP capacity, being diverted from the other creek. The CEQA Baseline Flow for Denniston Creek (calculated in **Table 4.8-5**, above) shows the creek flow receding to 0 cfs in some months out of the year (in dry and normal water year types) due to existing diversions. However, as discussed in **Section 4.8.2** (on page 4.8-10), there is a persistent baseflow in Denniston Creek that results from the spillage over and seepage under the dam at Denniston Reservoir, inflow from an unnamed tributary, and groundwater exfiltration into the stream channel. Dam seepage is pictured in **Figure 4.3-2d: Photograph 19**. The effect of the Proposed Project would be to reduce the spillage over the dam, but the other factors that contribute to Denniston Creek baseflow would not be altered by the Proposed Project.

The actual diversions will likely vary due to conditions such as the minimum flow needed to divert through the proposed new POD structure on San Vicente Creek and the operations of the other diverters. These two scenarios as set forth in this EIR provide a basis to analyze the

maximum possible impacts to each creek.

Thresholds of Significance

Based on Appendix G of the CEQA *Guidelines*, the Proposed Project would have a significant environmental impact to hydrology and water quality if it 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 level (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 increases 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;
- 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;
- Result in inundation by seiche, tsunami, or mudflow; or
- Change the water volume and/or pattern of seasonal flows that could result in a significant reduction in water supply downstream of the diversion for senior water right holders and a significant reduction in the available aquatic habitat or riparian habitat for native species of plants or animals.

Impacts and Mitigation Measures

IMPACT 4.8-1 Construction activities may substantially degrade surface water and/or groundwater quality.

Construction-related earth disturbing activities associated with the Proposed Project would involve:

- Diversion structure, piping, and pump station on San Vicente Creek – land clearing and soil disturbance to clear existing soil for approximately 6,100 feet of piping from the San Vicente POD to the existing Denniston pump station, a new distribution pump station located at the POD, and a new permanent diversion structure to replace the semi-permanent structure currently in use at the POD on San Vicente Creek;
- Denniston WTP capacity upgrade – these improvements would not involve clearing of new land;
- Booster Pump Station – the Booster Pump Station would be installed adjacent to the existing Denniston Pump Station and would not involve earth disturbing activities;
- Upgrade of the Bridgeport Pipeline – approximately 3,460 feet of pipeline will be placed below Bridgeport Drive within already developed areas; and
- Expanded sediment removal program – removing sediment from Denniston Reservoir would involve dredging and storage on two sites north of the reservoir: the Westerly Sand Disposal Area and the Easterly Sand Disposal Area. This is an ongoing activity to maintain and expand the current capacity of the Denniston Reservoir.

Disturbed areas, stockpiled soils, and sediment exposed to winter rainfall could lead to sediment discharge into surface waters, resulting in a degradation of water quality. In addition, construction equipment and materials have the potential to leak, thereby discharging additional pollutants into local waterways. Pollutants potentially include particulate matter, sediment, oil, and grease in addition to construction supplies such as concrete, paint, and adhesives. Changes to drainage patterns, resulting from construction activities, could result in discharge of these pollutants into surface waterways, causing an exceedance of water quality objectives which could adversely impact beneficial uses of downstream water resources.

The Proposed Project would be required to comply with the California General NPDES Permit for construction activities under **Mitigation Measure 4.8-1**. The General NPDES Permit requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. Dischargers must also comply with water quality objectives as defined in the San Francisco Bay Water Quality Control Plan. If Plan objectives are exceeded, corrective measures would be required. With compliance with the proposed mitigation, impacts to surface water, including San Vicente Creek, and groundwater quality from construction activities would be less than significant. With implementation of **Mitigation Measure 4.3-4a through 4.3-4e** in **Section 4.3 Biological Resources**, impacts due to the dredging activities at Denniston Reservoir would be less than significant. After mitigation, the project would be consistent with federal and State water quality standards, including the objectives within the federal and State antidegredation policies. Because impacts to surface water quality would be less than significant, the project would have no affect on the water quality objectives and beneficial uses described in the Basin Plan. **Less Than Significant Impact with Mitigation.**

Mitigation Measure 4.8-1: CCWD shall comply with the SWRCB NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). The SWRCB requires that all construction sites have adequate control measures to reduce the discharge of sediment and other pollutants to streams to ensure compliance with Section 303 of the Clean Water Act. To comply with the NPDES permit, prior to construction the applicant shall file a Notice of Intent with the SWRCB and prepare a Storm Water Pollution Prevent Plan (SWPPP), which includes a detailed, site-specific listing of the potential sources of stormwater pollution; pollution prevention measures (erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills); a description of the type and location of erosion and sediment control best management practices (BMPs) to be implemented at the project site; and a BMP monitoring and maintenance schedule to determine the amount of pollutants leaving the Proposed Project site. A copy of the SWPPP must be current and remain on the project site. Control measures are required prior to, and throughout, the rainy season. Water quality BMPs identified in the SWPPP shall include, but are not limited to, the following:

- Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.
- Sediment shall be retained onsite by the detention basin, onsite sediment traps, or other appropriate measures.
- A spill prevention and countermeasure plan shall be developed which would identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan would also require the proper storage, handling, use, and disposal of petroleum products.
- Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.
- Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.

- Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.
- Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events. Re-use of topsoil for restoration of native vegetation shall be limited to topsoil salvaged from areas with only native plant species.
- Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.
- Disturbed areas shall be revegetated after completion of construction activities.
- Provide sanitary facilities for construction workers.

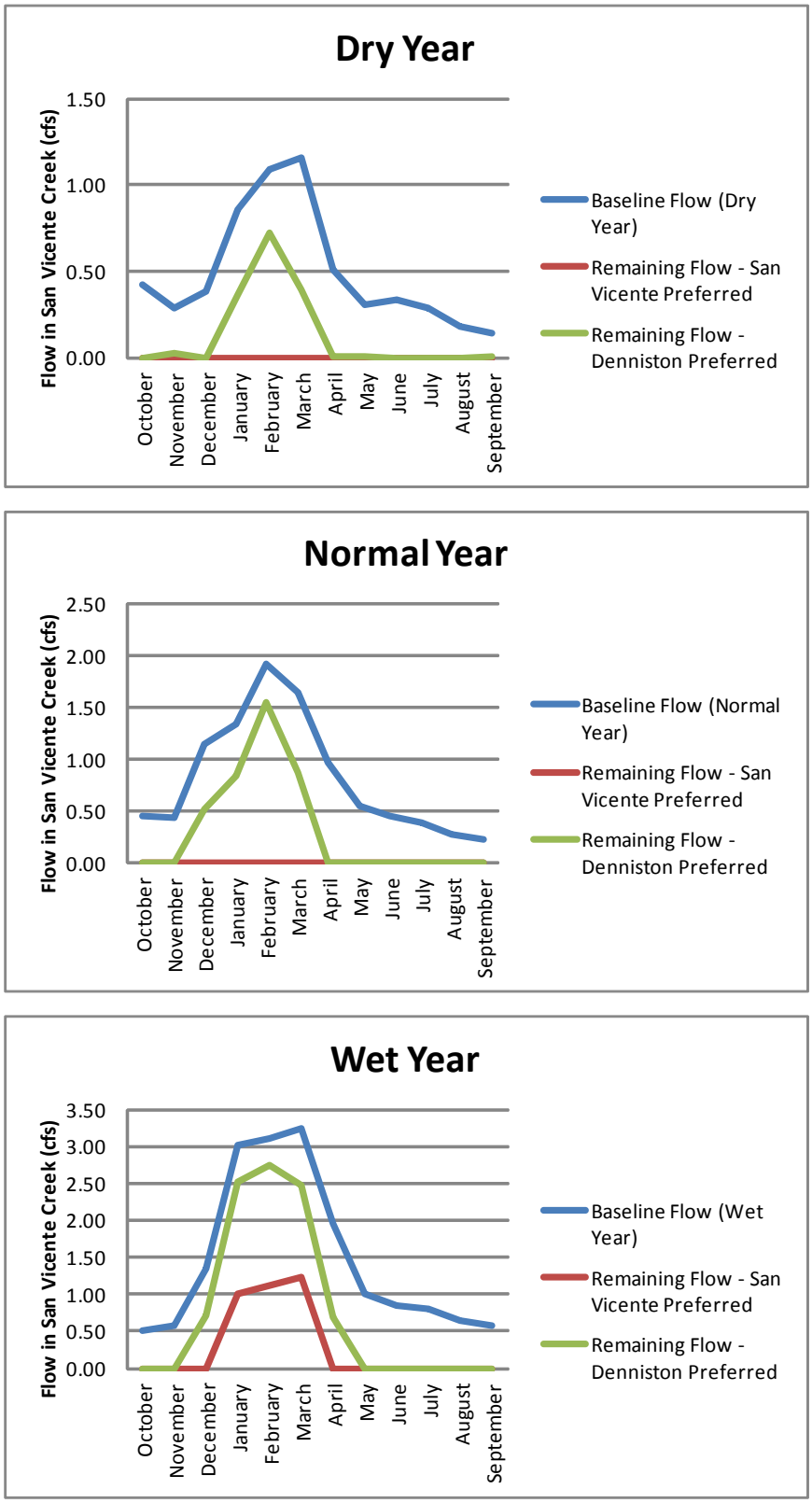
IMPACT 4.8-2 The Proposed Project would change the water volume and/or pattern of seasonal flows in a manner that could result in a significant reduction in water supply downstream of the diversion for senior water right holders and a significant reduction in the available aquatic habitat or riparian habitat for native species of plants or animals.[1]

Construction of the infrastructure improvements under the Proposed Project will not affect flows in San Vicente and Denniston Creeks. However, the project objectives to utilize full beneficial use of water authorized under Permit 15882 will change the water volume in San Vicente and Denniston Creeks and could reduce water available for downstream flows.

The CEQA baseline conditions on San Vicente Creek include only the farmer's diversions and no diversions by CCWD. Although the District has been authorized to divert up to 2.0 cfs under Permit 15882, it has not had the infrastructure to do so in the past. Therefore, any water that is diverted under the Proposed Project will be above the CEQA baseline. **Table 4.8-6** shows the amount of water proposed to be diverted above the CEQA baseline conditions by month under each water year type for the San Vicente Preferred scenario and **Table 4.8-7** shows the amounts for the Denniston Preferred scenario.

Table 4.8-8 shows the District's diversions from San Vicente Creek above the CEQA baseline under each scenario. These diversions will result in decreased flows downstream of the POD on San Vicente Creek. Resulting flows in San Vicente Creek as a result of implementation of the Proposed Project are shown by water year type and diversion scenario in **Figure 4.8-4**.

[1] This impact is taken from the SWRCB's custom CEQA Checklist for analyzing water right applications, found online at http://www.waterboards.ca.gov/waterrights/. In this EIR, impacts to aquatic habitat and riparian vegetation are discussed and analyzed in **Section 4.2 Biological Resources**.



Resulting Flows in San Vicente Creek after Implementation of the Proposed Project

SOURCE: AES, 2013

Figure 4.8-4
Resulting Flows in San Vicente Creek

These decreases will be significant if they would result in a significant reduction in water supply for downstream, senior right holders. Through voluntary cooperative agreements between CCWD and the other water users on the stream (Cabrillo Farms and West Coast Farms), CCWD has agreed to divert water only if and when the other water right holders have sufficient water available to divert under their licenses and statements of diversion.

TABLE 4.8-8
SAN VICENTE CREEK IMPACTS: PROJECT DIVERSIONS
ABOVE EXISTING CCWD DIVERSIONS (0.00 CFS)

	San Vicente Preference (AFY)	Denniston Preference (AFY)
Dry Year	354.0	265.0
Normal Year	584.2	358.5
Wet Year	850.0	506.2

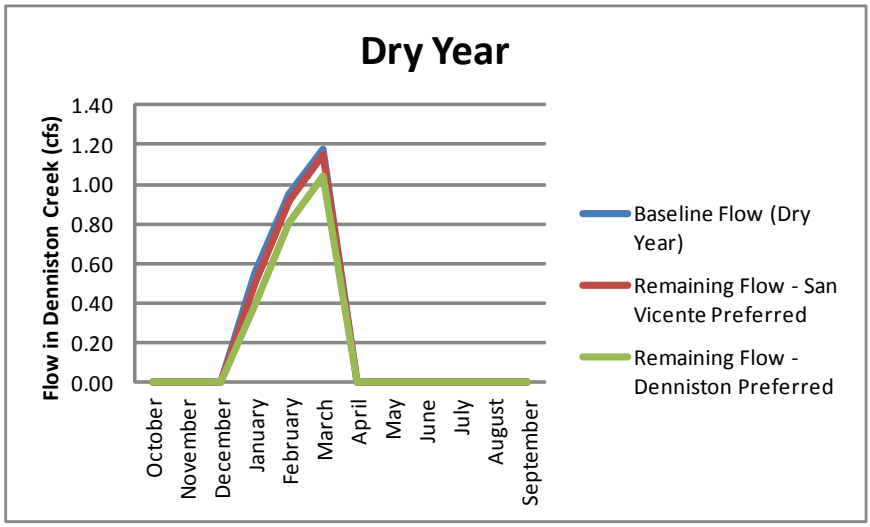
Because of the cooperative agreements in place, the impacts to senior water diverters would be less than significant. After implementation of **Mitigation Measure 4.8-2**, which identifies two new downstream monitoring points on San Vicente Creek, impacts to hydrology and the reduction in water supplies downstream of the POD on San Vicente Creek would be less than significant. These locations were chosen in consultation with Balance, as discussed in a technical memorandum included as **Appendix I**.

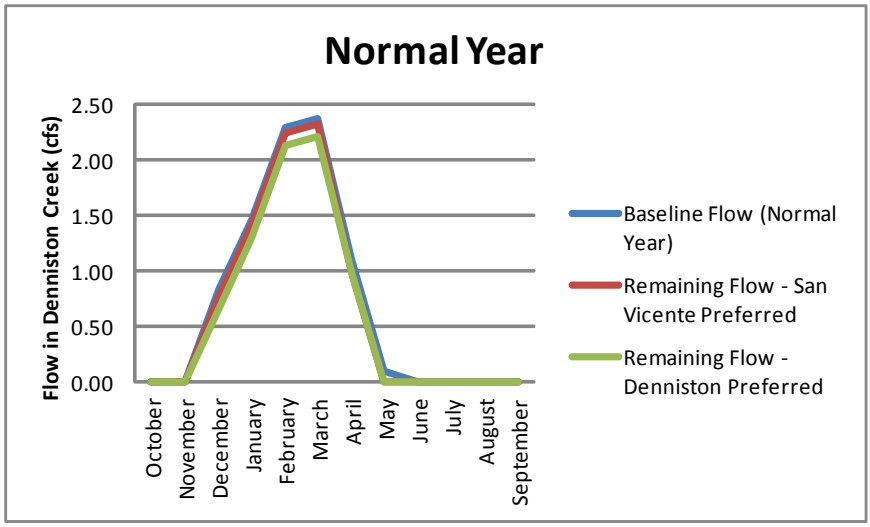
The CEQA baseline conditions on Denniston Creek include CCWD's historical diversion and use of up to 811 AFY. This diversion is part of the CEQA baseline and will not be affected by implementation of the Proposed Project; however, any additional water that is diverted in excess of the existing CCWD diversion from Denniston Creek will be an impact of the Proposed Project. Project impacts are shown in **Table 4.8-9**.

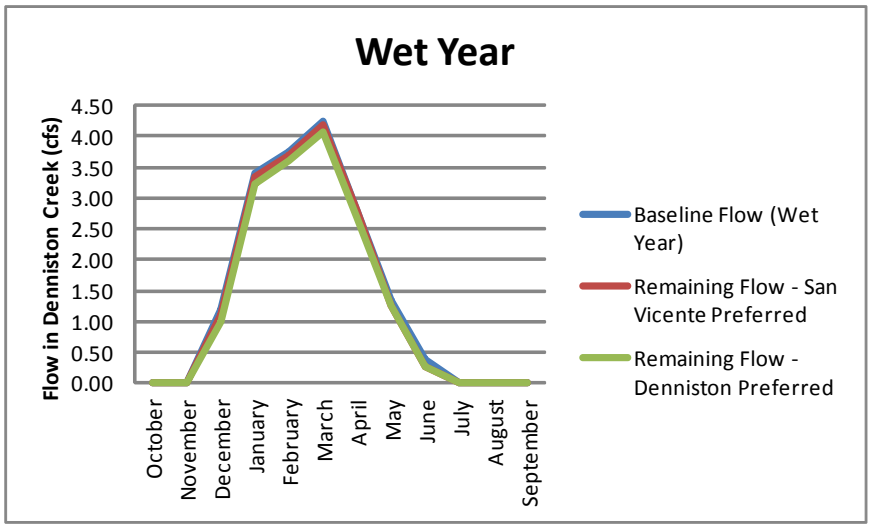
TABLE 4.8-9
DENNISTON CREEK IMPACTS: DIVERSIONS
AS COMPARED WITH THE CEQA BASELINE (1.89 CFS)

	San Vicente Preference (AFY)	Denniston Preference (AFY)
Dry Year	134.2	219.8
Normal Year	162.3	323.1
Wet Year	265.7	475.1

Resulting flows in Denniston Creek as a result of implementation of the Proposed Project are shown by water year type and diversion scenario in **Figure 4.8-5**. As shown in the figure, the San Vicente preferred scenario has little impact to Denniston Creek above the CEQA baseline flows. The Denniston preferred scenario has very low impacts to Denniston Creek in a wet or







Resulting Flows in Denniston Creek after Implementation of the Proposed Project

SOURCE: AES, 2013

Figure 4.8-5
Resulting Flows in Denniston Creek

normal year. In a dry year, there are slightly greater impacts to peak flow during the winter months. However, the diversions during the dry season proposed under this scenario indicate no change in creek flow above the baseline condition.

Through voluntary cooperative agreements between CCWD and the other water users on the stream (Cabrillo Farms and West Coast Farms), CCWD has agreed to divert water only if and when the senior water right holders have sufficient water available to divert under their licenses and statements of diversion. The project impacts to Denniston Creek would be a slight decrease in dam spillage in the winter and springs months (December through May).

Neither the San Vicente Preferred scenario nor the Denniston Preferred scenario would result in significant impacts to Denniston Creek hydrology in the downstream reaches. After implementation of **Mitigation Measure 4.8-2**, which would require CCWD to monitor surface water flows at two downstream monitoring points on San Vicente Creek year-round, and to limit its diversions of water from the creek to times when there are surface water flows at both monitoring points (see **Appendix I**), impacts to San Vicente Creek hydrology in downstream reaches would be less than significant. **Less Than Significant Impact with Mitigation.**

> **Mitigation Measure 4.8-2:** ~~The District shall control the diversion on San Vicente Creek such that the flow bypassed during diversions from June 1 through October 1 meets the current permit term requirement of a wetted channel at the southwesterly border of Torello Ranch.~~No water shall be diverted from San Vicente Creek under Permit 15882 unless there are surface water flows at both the Etheldore Bridge and California Street points of compliance/monitoring locations (depicted on **Figure 4.8-1**). This measure applies year-round to CCWD's diversions from San Vicente Creek.
>
> At the Etheldore Bridge monitoring location, the existence of surface water flows may be established by either a flow gage or by monitoring groundwater levels in a piezometer (well) to be constructed a short distance from the San Vicente Creek channel. If the water level in the piezometer is at or above the channel thalweg elevation, or if there is surface water at this location, then the condition requiring surface-water flow at Etheldore Bridge will be considered as being met. If the water level in this piezometer is below the thalweg elevation and there is no surface water at this location, then this condition will be considered as not being met, and CCWD shall not divert any water from San Vicente Creek. If a piezometer is used and water levels in the stream and piezometer differ, the water levels in the stream shall govern.
>
> At the California Avenue monitoring location, surface water shall be visually observed at or near the existing stream gage. If surface water is observed at this gage, then the condition requiring surface water flow at California Avenue will be considered as being

met. If there is no surface water at this gage, then this condition will be considered as not being met, and CCWD shall not divert any water from San Vicente Creek.

IMPACT 4.8-3 The Proposed Project would not 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 level (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).

The Proposed Project, which seeks to divert water to the full extent authorized by Permit 15882, is separate from the District's continued use of local groundwater resources from within the Airport Subbasin Aquifer, which the District currently uses and will continue to use within the limits of the applicable Coastal Development Permit. However, groundwater supplies could be impacted by increased diversions of water from San Vicente Creek and Denniston Creek, which partially recharge the groundwater in the area. Although the District's use of groundwater within the limits of the Coastal Development Permit is not subject to discretionary approval under this EIR, it is discussed below to provide context for the Proposed Project.

As discussed above, San Vicente Creek is a gaining stream in its downstream reaches, which indicates there is a high water table and excess groundwater. The data suggest that reach of San Vicente Creek downstream of the POD "exchanges water readily with the underlying aquifer(s) and… infiltrates a negligible amount to the underlying aquifer." The measurement period includes two consecutive dry years in which water would have been expected to be infiltrating from San Vicente Creek into the aquifer (Balance, 2014; **Appendix H**). As discussed in **Impact 4.8-2**, the Proposed Project may result in impacts to downstream reaches of San Vicente Creek; however, these impacts would be reduced to less-than-significant levels with implementation of **Mitigation Measures 4.8-2** and **4.8-3**. These mitigation measures will ensure that surface flow is present in San Vicente Creek for the District to divert water from the San Vicente POD, which will prevent significant impacts to groundwater recharge from San Vicente Creek.

Denniston Creek, from which all water that infiltrates to groundwater enters the Airport Terrace subarea, would have minimal impacts as a result of diversions under the Proposed Project (discussed in **Impact 4.8-2** above). Additionally, dredging Denniston Reservoir would increase its capacity, which in turn would allow more water to be detained and would increase recharge into the Airport Subbasin. In addition, the 180 AFY that are estimated to enter the Airport Aquifer from Denniston Creek infiltrate into the aquifer above the POD for the Proposed Project, meaning that the Proposed Project operations are unlikely to diminish the amount of groundwater availability (Balance, 2014; **Appendix H**). Therefore, impacts of the Proposed Project on groundwater recharge from Denniston Creek are less-than-significant.

During wet and normal years, the Airport Aquifer recharges quickly and completely from the first precipitation events of the winter. During dry years and multi-year droughts, precipitation is limited and surface water may become a more important source of recharge. Balance Hydrologics (2014) found that the Proposed Project cannot operate below 0.5 cfs (or approximately 225 gpm) combined for both San Vicente and Denniston creeks. This operational threshold of the Denniston WTP would offset the impacts of the Proposed Project during a dry year.

Development of the Proposed Project would not increase the amount of impervious surfaces on the project site which would prevent infiltration of water into the soil, potentially affecting groundwater recharge. Development of the Proposed Project would create a more reliable and safer point of diversion on San Vicente Creek, which would ensure the farmers are able to continue irrigation of their fields in the future, thereby augmenting groundwater recharge to the basin.

Under the Proposed Project, CCWD's dependency on groundwater and the overall impact on recharge to the aquifer would be maintained at approximately today's levels. Under the Proposed Project, groundwater may be used conjunctively with water pumped from Denniston and San Vicente Creeks under the diversion scenarios presented above, but would be offset by the additional storage capacity and infiltration time provided by expansion and maintenance of the reservoirs.

Implementation of the Proposed Project would not result in a new deficit in aquifer volume, would not impede groundwater recharge in the area, and would not degrade groundwater quality. **Less Than Significant Impact.**

IMPACT 4.8.4 The Proposed Project could 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; or substantially increase the rate or amount of runoff in a manner which would result in flooding on or off-site.

Development of the Proposed Project would alter the existing drainage pattern of the project site only during construction. Alteration of the existing drainage patterns could result in an increased volume and rate of runoff to drainages; this in turn, could result in increased loading of sediment and pollutants to San Vicente and Denniston Creeks. However, construction of the diversion facilities, pump station, new booster pump station, and Bridgeport Pipeline would occur on land already developed, and the 6,100 feet of piping would be placed underground, allowing for continued infiltration of surface water into the underlying aquifer once construction is

completed. Additionally, **Mitigation Measure 4.8-1** will ensure that erosion during construction will not impact local water sources. Therefore, impacts to the project site's drainage patterns are less than significant. **Less than Significant Impact.**

IMPACT 4.8-5 Development of the Proposed Project could 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 that would impede or redirect flood flows; or 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.

The Proposed Project does not include the construction of any permanent housing. The pump station, diversion facility, and new booster pump station would be built above ground, but the 6,100 feet of piping for the San Vicente diversion and the 3,460 feet of pipeline along Bridgeport Drive would be placed underground. As shown in **Figure 4.8-2,** the northwest and southeast portions of the project site are located in an area designated that is inundated by 100-year flooding on the FEMA FIRM map. However, there are no structures proposed for development within this area. The diversion structure, pump station, and all pipelines are proposed to be built in an area that is determined to be outside the 100 and 500-year floodplains. Additionally, the areas designed for sand disposal are also within the area determined to be outside the 100- to 500-year floodplain. Finally, there are no water bodies or unstable soil types within or adjacent to the project site that could lead to inundation from by seiche, tsunami, or mudflow. **No Impact.**

Cumulative Impacts

IMPACT 4.8-6 The Proposed Project in combination with future growth and development within the County and project vicinity would not result in cumulative impacts to hydrology and water quality.

The Proposed Project and other potential projects in the vicinity of the project site would be required to comply with the general NPDES permit of the SWRCB, which is intended to reduce the potential for cumulative impacts to water quality during construction. All of these projects that would discharge stormwater runoff would be required to comply with NPDES discharge permits from the RWQCB and would be subject to subsequent environmental review. Therefore, impacts on cumulative construction related water quality effects would be less than significant.

4.9 NOISE

4.9.1 INTRODUCTION

This section addresses the potential noise and groundborne vibration impacts associated with the implementation and operation of the Proposed Project. Following an overview of the existing setting in **Section 4.9.2** and the relevant federal, state, and local regulations in **Section 4.9.3**, project-related impacts and recommended mitigation measures are presented in **Section 4.9.4**.

4.9.2 ENVIRONMENTAL SETTING

Acoustical Background and Terminology

Noise is often described as unwanted sound. Sound is defined for the purposes of this analysis as any pressure variation in air that the human ear can detect. Pressure variations occurring frequently enough (at least 20 times per second) for the human ear to detect are called sounds. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the accepted hearing threshold (20 micropascals of pressure), as a point of reference, and defines it as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in dB levels correspond closely to human perception of relative loudness (Caltrans, 2009).

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum (20 hertz to 20,000 Hz). As a result, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz to better represent the human ear's sensitivity to mid-range frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard method of frequency de-emphasis and is typically applied to community noise measurements. In practice, the level of a sound source is measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. All of the noise levels reported herein are A-weighted unless otherwise stated. **Table 4.9-1** shows commonly used noise descriptors and terms.

TABLE 4.9-1
DEFINITION OF ACOUSTICAL TERMS

Terms	Definitions
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, which is 20 micropascals (20 micronnewtons per square meter)
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level (dBA)	Sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network, which de-emphasizes 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 (Leq)	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after adding 5 decibels to measurements taken in the evening (7 to 10 pm) and 10 decibels to measurements taken between 10 pm and 7am.
Day/Night Noise Level (Ldn)	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 pm and 7:00 am.
Lmax, Lmin	The maximum and minimum A-weighted noise level during the measurement period.
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: Caltrans, 2009.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. **Table 4.9-2** shows examples of noise sources that correspond to various sound levels. The noise levels presented in **Table 4.9-2** are representative of measured noise at a given instant. These levels rarely persist consistently over a long period of time and community noise levels vary continuously due to the contributing sound sources of the ambient noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources such as aircraft flyovers, moving vehicles, sirens, etc., which are typically readily identifiable to an individual. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to characterize a community noise environment and evaluate cumulative noise impacts.

TABLE 4.9-2
TYPICAL A-WEIGHTED SOUND LEVELS

Activities	Noise Level in Decibels
Limit of Hearing	0
Normal Breathing	10
Soft Whisper	30
Library	40
Refrigerator	50
Rainfall	50
Washing Machine	50-75
Normal Conversation	60
Hair Dryer	60-95
Alarm Clock	65-80
Power Mower	65-95
Dumpster Pickup (at 50 feet)	80
Garbage Disposal	80-95
Noisy Restaurant	85
Train Approaching (Engines)	85-90
Tractor	90
Shouting in Ear	110
Loud Rock Concert	120
Stock Car Race	130
Jet Engine at Takeoff	150

Source: Caltrans, 2009

Nighttime ambient noise levels are typically lower than daytime ambient noise levels. For this reason, and because of the potential for sleep disturbance, people tend to be more sensitive to increased noise levels at night than during the day, and increases in nighttime noise have a far greater impact on the community noise environment than increases in daytime noise.

Effects of Noise on People

The effects of noise on people can be divided into three categories:

1) Subjective effects of annoyance, nuisance, dissatisfaction;
2) Interference with activities such as speech, sleep, and learning; and
3) Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial

plants can experience noise in the third category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Generally, most noise is generated by transportation systems, primarily motor vehicles, aircraft, and railroads. Poor urban planning may also give rise to noise pollution, since juxtaposing industrial and residential land uses, for example, often adversely affects the residential acoustic environment. Prominent sources of indoor noise are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems. An important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment (or ambient noise) to which one has adapted. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans, 2009):

- Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA;
- Outside such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise;
- It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA;
- A change in level of 5 dBA is a readily perceptible increase in noise level; and
- A 10-dBA change is recognized as twice as loud as the original source.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. Noise levels are measured on a logarithmic scale, instead of a linear scale. On a logarithmic scale, the sum of two noise sources of equal loudness is 3 dBA greater than the noise generated by only one of the noise sources (e.g., a noise source of 60 dBA plus another noise source of 60 dBA generate a composite noise level of 63 dBA). To apply this formula to a specific noise source, in areas where existing levels are dominated by traffic, a doubling in traffic volume will increase ambient noise levels by 3 dBA. Similarly, a doubling in heavy equipment use, such as the use of two pieces of equipment where one formerly was used, would also increase ambient noise levels by 3 dBA. A 3 dBA increase is the smallest change in noise level detectable to the average person. A change in ambient sound of 5 dBA can begin to create concern. A change in sound of 7 to 10 dBA typically elicits extreme concern and/or anger.

Noise Attenuation

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 dBA to 7.5 dBA per doubling of distance from the source, depending upon environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles (a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dBA per doubling distance from the source (also dependent upon environmental conditions) (Caltrans, 2009). Noise from large construction sites (with heavy equipment moving earth and trucks entering and exiting the site daily) would have characteristics of both "point" and "line" sources, so attenuation would generally range between 4.5 and 7.5 dBA per doubling of distance.

Vibration

The effects of groundborne vibrations typically cause only a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically an annoyance only indoors, where the associated effects of a building shaking can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may consist of the rattling of windows or dishes on shelves.

Peak particle velocity (PPV) is often used to measure vibration. PPV is the maximum instantaneous peak (inches per second) of the vibration signal. Scientific studies have shown that human responses to vibration vary by the source of vibration, which is either continuous or transient. Continuous sources of vibration include construction, while transient sources include truck movements. Generally, the thresholds of perception and annoyance are higher for transient sources than for continuous sources. Structural damage can occur when PPV values are 0.5 inches per second or greater. Annoyance can occur at levels as low as 0.1 inches per second and become strongly perceptible at approximately 0.9 inches per second (Caltrans, 2004).

Existing Noise and Vibration Levels and Sources

The area surrounding the project site is characterized by rural residential, agriculture, open space, and recreational facilities (equestrian and hiking). The nearest roads to the property are Highway 1 (Cabrillo Highway) and Bridgeport Drive. Traffic on these roadways is a major source of noise in the vicinity of the Proposed Project. Another major source of noise in the vicinity is the Half Moon Bay Airport located directly west of the project site across Highway 1. The noise environment at and in the immediate vicinity of the project site is also influenced by agricultural activities at the adjacent farms. Due to the relatively rural nature of the project site

and vicinity, the ambient noise level is estimated to be 45 Leq, dBA. There are no known existing sources of vibrations in the vicinity of the Proposed Project, except some moderate to light traffic on Bridgeport Drive.

Sensitive Noise Receptors

Noise sensitive land uses are generally defined as land uses with the potential to be adversely affected by the presence of noise. Examples of noise sensitive land uses include residential housing, schools, health care facilities, and outdoor activity areas. The project vicinity is characterized by low-density residential and agricultural uses. The nearest sensitive noise receptor to the northern project area (San Vicente point of diversion [POD]) is a residence located approximately 380 feet west of the property. There is also a riding stable located approximately 30 feet west of the San Vicente POD and pipeline route.

Within the vicinity of the southern project site (Bridgeport Pipeline location), there are numerous residences within 30 to 40 feet of the roadway where the pipeline will be installed. The nearest public school, Farallone View Elementary School, is located in the community of Montara Beach approximately 1.1 miles northwest of the project site. There are no hospitals in the vicinity of the project site.

4.9.3 REGULATORY SETTING

Federal

Federal regulations establish noise limits for medium and heavy trucks (defined as a vehicle weighing more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters (approximately 50 feet) from the vehicle pathway centerline. Federal regulations governing truck manufacturing implement these controls.

Local

San Mateo County General Plan

The project site is located in an unincorporated area of San Mateo County and is therefore subject to the regulations of the County. The following goals and policies are from the Noise Element contained within the San Mateo County General Plan (1986).

16.12 Regulate Distribution of Land Uses

- Regulate the distribution of land uses to attain noise compatibility. Measures may include preference toward: (1) noise sensitive land uses within quiet areas, removed from Noise Impact Areas, and (2) noise generating land uses separate from noise

sensitive land uses. Guidelines for land use and noise exposure compatibility are shown in **Table 4.9-3**, below.

TABLE 4.9-3
EXTERIOR NOISE LEVEL STANDARDS
(LEVELS NOT TO BE EXCEEDED MORE THAN 30 MINUTES IN ANY HOUR)

Land Use	Noise Level (dBA) by CNEL			
	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-Family, Duplex, Mobile Homes	50-60	55-70	70-75	Above 75
Multi-Family Homes	50-65	60-70	70-75	Above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-70	70-80	Above 80
Transient Lodging – Motels, Hotels	50-65	60-70	70-80	Above 75
Auditoriums, Consert Halls, Amphitheaters	-	50-70	-	Above 70
Sports Arena, Outdoor Spectator Sports	-	50-75	-	Above 75
Playgrounds, Neighborhood Parks	50-70	-	67-75	Above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	-	70-80	Above 90
Office Buildings, Business and Professional Commercial	50-70	67-77	Above 75	-
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	Above 75	-
Industrial and Wineries	75			

[a] *Normally Acceptable*: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
[b] *Conditionally Acceptable*: New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
[c] *Normally Unacceptable*: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
[d] *Clearly unacceptable*: New construction nor development should generally not be undertaken.
Source: Caltrans, 2009

16.12 Regulate Noise Levels

- Regulate noise levels emanating from noise generating land uses through measures which establish maximum land use compatibility and nuisance thresholds.

16.14 Noise Barriers Noise Control

- Promote measures which incorporate use of noise barriers into the design of new development, particularly within Noise Impact Areas. Noise barriers may include earth berms, walls, fencing, or landscaping.

4.16 Promote Transportation Related Noise Reduction

- Promote measures which reduce transportation related noise, particularly aircraft and vehicle noise, to enhance the quality of life within San Mateo County.

San Mateo County Code of Ordinance

The following goals and policies for regulation of unnecessary and excessive noise within the County of San Mateo are contained within the San Mateo County Code of Ordinance.

Exterior Noise Standards (Section 4.88.330)

It is unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on the property owned, leased, occupied, or otherwise controlled by such persons which causes the exterior noise level when measured at any single or multiple family residence, school, hospital, church, public library, situated in either the incorporated or unincorporated area to exceed the noise level standards (**Table 4.9-4**).

TABLE 4.9-4
NOISE LEVEL STANDARDS (DBA) FOR SINGLE OR MULTIPLE FAMILY RESIDENCE, SCHOOL, HOSPITAL, CHURCH, OR PUBLIC LIBRARY PROPERTIES

Category	Cumulative Numbers of Minutes in a one hour time period	Daytime 7 A.M. – 10 P.M.	Nighttime 10 P.M. – 7 A.M.
1	30	55	50
2	15	60	55
3	5	65	60
4	1	70	65
5	0	75	70

Source: San Mateo County, 2009a

Exemptions (Section 4.88.360)

The following activities are exempt from Chapter 4.88 of the San Mateo County Ordinance Code:

- Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 6:00 P.M. and 7:00 A.M. weekdays, 5:00 P.M. and 9:00 A.M. on Saturdays or at any time on Sundays, Thanksgiving, and Christmas.

4.9.4 IMPACT ANALYSIS

Methodology

Noise from construction activities were estimated using Caltrans Guidelines. Project-related construction noise level was compared to the County's Construction Ordinance provided **Section 4.9.3** to determine if noise impact due to construction of the Proposed Project are significant.

Increases in the ambient noise level due to stationary sources, such as noise generated by the proposed pump at the diversion on San Vicente Creek, were estimated using known noise levels and comparing those noise levels to the applicable County significance thresholds.

Vibration noise levels for construction and operation of the Proposed Project were determined using Caltrans guidelines (Caltrans, 2004). Those vibration noise levels were then compared to significance thresholds.

Thresholds of Significance

The following criteria are established by CEQA Guidelines and have been used in this section to evaluate potential environmental impacts of the Proposed Project on sensitive noise receptors. Such an impact is considered significant if it would:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive groundborne vibration noise levels;
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Cause 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, expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Impacts and Mitigation Measures

Construction Impacts

IMPACT 4.9-1. Construction activities associated with Proposed Project have the potential to intermittently and temporarily generate noise levels significantly greater than existing ambient levels in the Proposed Project vicinity.

Construction of the San Vicente POD and installation of the water pipeline would involve heavy equipment usage such as backhoes, compaction equipment, trenchers, delivery trucks, and dump trucks. Activities associated with construction would be intermittent and temporary and add to the existing noise environment and therefore, would have the potential to raise the ambient noise levels in the vicinity of sensitive receptors. **Table 4.9-5** shows typical noise level for common construction equipment.

TABLE 4.9-5
TYPICAL MAXIMUM NOISE FROM CONSTRUCTION EQUIPMENT

Equipment Description	Predicted Lmax at 50 ft (dBA, Lmax)
Backhoe	80
Concrete Mixer Truck	85
Concrete Pump Truck	82
Dozer	85
Dump Truck	84
Flat Bed Truck	84
Front End Loader	80
All Other Equipment > 5 HP	85

Source: Caltrans, 2009

In the northern section of the project site, the nearest sensitive receptors are 380 feet west (residence) and 30 feet west (equestrian facility) of where construction activities would occur. As indicated in **Table 4.9-5**, the noisiest activities associated with construction would average 85 dBA, Leq at 50 feet from the construction equipment. This would result in sound levels of approximately 67 dBA, Leq at the nearest residential receptor and 89 dBA, Leq at the equestrian facility, which are greater than the County's residential noise threshold of 55 Leq, dBA. This is considered a potentially significant short-term impact.

In the southern portion of the project site (along Bridgeport Drive), there are numerous sensitive receptors less than 50 feet from where construction would occur. This is a potentially significant short-term impact. Construction of the Bridgeport Pipeline would take approximately one week; within that week, the active construction area will move down the length of the road, so that no one sensitive receptor is fully impacted for the entire duration of construction.

County Ordinance Section 4.88.360 exempts construction noise if construction activities do not occur between 6:00 pm. and 7:00 am weekdays, 5:00 pm and 9:00 am on Saturdays or at any time on Sundays, Thanksgiving, and Christmas. Best management practices (BMPs) are identified below and would be implemented to further reduce construction-related noise. Therefore, with implementation of **Mitigation Measure 4.9.1**, noise impacts due to construction of the Proposed Project are **Less than Significant with Mitigation.**

> **Mitigation Measure 4.9-1:** Construction activities shall be limited to the hours of 7:00 am to 6:00 pm Monday through Friday and 9:00 am to 5:00 pm Saturday. Construction activities shall not be conducted on Sundays or holidays.
>
> In addition, the contractor shall implement the following BMPs to further reduce noise impact due to construction:
>
> - Stationary equipment and staging areas shall be located as far as practical from noise-sensitive receptors.
> - All construction vehicles or equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and acoustical shields or shrouds, in accordance with manufacturers' recommendations.
> - To the extent feasible, existing barrier features (structures) shall be used to block sound transmission between noise sources and noise sensitive land uses.
> - The general contractors for all construction and demolition activities shall provide a contact number for citizen complaints and a methodology for dealing with such complaints such as designating a noise disturbance coordinator. This noise disturbance coordinator shall receive all public complaints about construction-related noise and vibration, shall be responsible for determining the cause of the complaint, and shall implement any feasible measures to be taken to alleviate the problem. All complaints and resolution of complaints shall be reported to the County weekly.

IMPACT 4.9-2. Construction activities associated with the Proposed Project have the potential to intermittently and temporarily generate vibrations.

Construction activities associated with the Proposed Project, such as trenching, compacting, and heavy truck movements, may produce detectable levels of vibration at nearby sensitive land uses. Ground vibrations due to construction activities very rarely reach the levels that can damage structures, but they can reach levels perceptible in buildings close to the site of construction activities.

The California Transportation Department (Caltrans) has published vibration levels caused by representative construction equipment (**Table 4.9-6**). Based upon these values, vibration due to the operation of equipment such as heavy trucks and bulldozers associated with the project could be perceived by residents in homes located within about 25 feet of the construction site. Structural damage due to construction-related vibration is unlikely outside 25 feet from the construction site.

TABLE 4.9-6
VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Peak Particle Velocity at 25 feet (inches/second)
Large bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003

[1] PPVpredicted = PPVref *(Dref/Dsource)^1.4.
Source: Caltrans, 2004

The use of heavy equipment that would produce the highest vibration levels would be intermittent, and would be limited to daytime hours. The nearest vibration receptors at the northern San Vicente POD project site are a residence 380 feet from the site of construction and an equestrian facility 30 feet from the construction site. Along the Bridgeport Pipeline site, the nearest vibration receptors are 30 to 40 feet from the construction site. At both project sites, vibration from construction activities would not exceed 0.1 inches per second PPV (the annoyance level for vibration as discussed in **Section 4.9.2**) at the nearest sensitive receptors; therefore, impacts are **Less than Significant**.

Operational Impacts

IMPACT 4.9-3. Operation of the Proposed Project has the potential to generate noise levels above existing ambient levels in the Proposed Project vicinity.

The proposed Booster Pump Station would consist of three electric pumps located adjacent to the existing Denniston pump station. The Booster Pump Station is located 0.34 miles away from the nearest sensitive receptor (a residence at the end of Bridgeport Drive) and would not be audible at that distance. Operation of this project component will have a less-than-significant impact to sensitive noise receptors.

The ongoing dredging that would occur from Denniston Reservoir and the disposal in the two

dredge material disposal areas would produce noise. The reservoir is located 0.34 miles away from the nearest sensitive receptor, and any heavy equipment used for dredging would not be audible at that distance. The dredge disposal areas are located up the canyon, approximately 0.85 miles northeast of the nearest residence located at the end of Bridgeport Drive. At this distance, the equipment used for the disposal of dredge materials would not be audible. This is a less-than-significant impact.

The pump station at the San Vicente POD would consist of one electric pump located near the new permanent diversion structure (refer to **Figure 3-3**). The pump would be located approximately 380 feet from the nearest residence and 30 feet from the equestrian facility; however, the pump would be adjacent to the open space east of the new permanent diversion. The remote placement of the San Vicente pump and the seasonality of operation would greatly reduce pump noise at the nearest sensitive noise receptors; therefore noise from the pump would present only minimal noise impacts affecting wildlife and visitors to the adjacent open space. Implementation of **Mitigation Measure 4.9-2** would further reduce noise from the pump to below the County's noise threshold of 55 CNEL, dBA. Impacts associated with noise from the pump are **Less than Significant with Mitigation**.

> **Mitigation Measure 4.9-2:** Noise generated by the electric pump located at the new San Vicente POD shall be equipped with a noise-reducing shielding, so that noise generated by the pump does not to exceed the County's noise threshold of 55 CNEL, dbA at a distance of 50 feet.

SECTION 5.0

CEQA REQUIRED SECTIONS

5.0 CEQA-REQUIRED SECTIONS

California Environmental Quality Act (CEQA)-required discussions are included in this section, including the following:

- Indirect and Growth-Inducing Impacts of the Proposed Project;
- Cumulative Impacts of the Proposed Project;
- Significant and Unavoidable Impacts of the Proposed Project (i.e., residually significant impacts); and
- Irreversible Changes.

5.1 INDIRECT AND GROWTH-INDUCING IMPACTS

CEQA *Guidelines* Section 15126.2 [d] requires that an Environmental Impact Report (EIR) evaluate the growth-inducing impacts of a proposed project. A growth-inducing impact is defined by the CEQA *Guidelines* as an impact that fosters economic or population growth, or the construction of additional housing, either directly or indirectly. Direct growth inducement would result, for example, if a project involved the construction of new housing. Indirect growth inducement would result if a project established substantial new permanent employment opportunities (e.g., new commercial, industrial, or governmental enterprises) or if it would remove obstacles to population growth (e.g., expansion of a waste water treatment plant that could allow more construction in the service area).

Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans provide development patterns and growth policies that guide orderly urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer services, and solid waste services. A project that would induce "disorderly" growth (i.e., conflict with the local land use plans) could directly or indirectly cause additional adverse environmental impacts and other public services impacts. An example of this would be the re-designation of property planned for agricultural uses to urban uses, possibly resulting in the development of services and facilities that encourage the transition of additional land in the vicinity to more intense urban uses. Another example would be the extension of urban services to a non-urban site, thereby encouraging conversion of non-urban lands to urban lands.

5.1.1 GROWTH INDUCEMENT POTENTIAL OF PROPOSED PROJECT

Growth can be induced in several ways, such as eliminating obstacles to growth and stimulating economic activity within the region. Based on the significance thresholds contained in CEQA *Guidelines*, a project is considered to be directly or indirectly growth-inducing if it:

- Fosters economic or population growth or additional housing;
- Removes obstacles to growth (e.g., through development of physical infrastructure, roadways, and utilities); or
- Taxes community services or facilities to such an extent that new services or facilities would be necessary.

The following discussion examines whether the Proposed Project would induce growth beyond that envisioned in the General Plans and Local Coastal Programs (LCP) of San Mateo County (County) and the City of Half Moon Bay (City), the documents which govern this area today.

The California Coastal Act of 1977 established the California Coastal Zone to preserve and protect coastal resources. In San Mateo County, the Coastal Zone stretches for approximately 55 miles along the coast from San Francisco County to Santa Cruz County. It includes approximately 88,000 acres of land area. The Coastal Act required the County and the City to prepare LCP's to guide existing and future development within the Coastal Zone. The LCP is a planning tool used by local governments in order to 1) protect and expand public access to the ocean and recreational activities; 2) protect, enhance, and restore environmentally sensitive habitat; 3) protect agricultural lands and commercial fisheries; and 4) limit new housing and development in order to avoid urban sprawl. The County LCP was first adopted in 1980, with the latest revisions adopted in 2012. The City's LCP was adopted in 1981 and amended in 1993.

The Proposed Project would not be growth inducing because the County and the City impose strict limits on growth through their LCP's and the City's Measure D growth limitation initiative. The County LCP allows 40 new residential units per year in the coastal unincorporated area served partially by the District and partially by Montara Water and Sanitary District (MWSD). The City's Measure D restricts new residential development to keep the annual increase in the City's population below 1 percent.

In addition to these County and City growth restrictions, Special Conditions 4.A and 4.B of the District's 2003 El Granada Pipeline Coastal Development Permit (CDP) (CDP A-2-SMC-99-063) limit the District to serving only those connections allowed by the 1984 CDP for the Crystal Springs Phase 1 project. Completion of the Proposed Project would not affect these conditions and would therefore not remove any impediment to growth or allow development beyond that already permitted.

Land uses under the General Plan immediately surrounding the project site consist of agricultural and public recreational, as well as medium-density residential surrounding the Bridgeport Pipeline project site (San Mateo County, 1986). The Proposed Project would not induce growth by changing the land use designation of the property, nor would it result in impacts to the surrounding agricultural land uses. Most of the undeveloped land surrounding the project site is part of the National Park Service's (NPS) Golden Gate National Recreation Area (GGNRA) or is agricultural land subject to a conservation easement and is therefore permanently protected from development.

The project site is located in an area with existing public utilities and services (i.e., electricity, police, and fire protection), and would not result in the need for increased levels of public service. Public utilities and services to the project site and area are currently provided by Pacific Gas and Electric (PG&E), the County of San Mateo Sheriff's Department, and the Coastside Fire Protection District. The Proposed Project would not appreciably modify CCWD's distribution system. Instead, the Proposed Project would allow for a greater reliance on local supplies and on surface water rather than groundwater or imported water. The Bridgeport Pipeline and proposed Booster Pump Station would not increase the capacity of the system but would facilitate integration of the local supplies into the existing distribution system.

Thus, although the Proposed Project would enable the CCWD to provide more reliable local water service to its customers, it would not result in additional development of residential and/or commercial properties not already fully accounted for in the City and County LCP and General Plan, nor would it result in permanent degradation of the rural character of the vicinity. As discussed in **Sections 4.3** and **4.8**, the Proposed Project would not impact sensitive resources such as the coastline or the marsh areas. For these reasons, the Proposed Project would not result in any of the following repercussions: 1) remove (or create) obstacles to growth; 2) cause a strain on existing community services provided in the region; 3) impede economic growth; or 4) cause a need for additional housing. Therefore, no indirect or growth inducing impacts would occur as a result of the Proposed Project.

5.2 CUMULATIVE IMPACT ANALYSIS

Cumulative impacts refer to the effects of two or more projects that, when combined, are considerable or compound other environmental effects. A cumulative impacts analysis must consider the combined impacts of past, present, and reasonably foreseeable future projects. When assessing a cumulative impact, an EIR must identify if the project makes a "cumulatively considerable" contribution to any cumulative impacts. A project's contribution may be cumulatively considerable even if the project's individual impact is considered less than significant. CEQA *Guidelines* Section 15130(b) requires that the EIR's discussion of cumulative

impacts reflect the severity of the impacts and their likelihood of occurrence. The CEQA *Guidelines* state that the cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-only impacts and should be guided by the standards of practicality and reasonableness. Pursuant to CEQA *Guidelines* Section 15130(b), this Draft EIR uses projections contained in the San Mateo County General Plan (1986), the County LCP and related planning documents, the City's LCP, the City's General Plan, and in prior environmental documents that have been adopted or certified, which described or evaluated regional or area-wide conditions contributing to cumulative impacts.

5.2.1 CUMULATIVE CONTEXT

CEQA requires that the cumulative analysis define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for geographic limitations. For the purposes of this EIR, the cumulative setting is defined primarily as the CCWD's 14 square-mile service area, including the Airport Aquifer and the adjacent MWSD, with consideration of the broader development trends impacting the greater San Mateo County coastal region. As discussed in **Section 4.8**, the Proposed Project would not affect the Airport Aquifer, which is shared by the CCWD and the MWSD, and would not modify the current division of water in this aquifer between the two districts. Therefore, the Proposed Project would not result in cumulative effects to either water district. The cumulative analysis is based on the long-term development levels projected in the General Plan, the LCP, as well as reasonably foreseeable potential development projects in the vicinity of the project site. Reasonably foreseeable development projects considered within this EIR, including brief descriptions of each, consist of the following:

- **Big Wave Wellness Center and Office Park Project** – This project would involve construction of community development that provides housing and employment opportunities for low-income developmentally disabled (DD) adults at the Wellness Center, as well as an Office Park that would be occupied by private firms with their own workers (not necessarily DD adults) located on Airport Street, northwest of the Princeton/Pillar Point Harbor area in unincorporated County of San Mateo (San Mateo County, 2009b). The Draft and Final EIR for this project was certified in a Letter of Decision released by the San Mateo County Board of Supervisors on April 1, 2011.
- **Pilarcitos Quarry Expansion Project** – This project involves the long-term expansion of the Pilarcitos Quarry, located in unincorporated San Mateo County, east of the City of Half Moon Bay along State Route 92. The Final EIR was released in December 2011 (San Mateo County, 2011) and was certified on January 9, 2013. Any indirect growth or cumulative effect from this project would have to be consistent with the LCP and would already be part of the limited number of hook ups that are already approved for the

CCWD under the LCP and would not be impacted by this shift in source of water for the District.

- **Denniston Project** – This project is located at the existing Denniston Water Treatment Plant (WTP), just north and adjacent to the Proposed Project. It involves the retrofit of the current WTP to enable the processing of poorer quality water garnered from Denniston Creek via Denniston Reservoir. This project has already been completed.

5.2.2 CUMULATIVELY CONSIDERABLE IMPACTS

CEQA *Guidelines* Section 15130(a) provides the following direction with respect to the cumulative impact analysis and the determination of significant effects:

1. A cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.
2. When the combined cumulative impact associated with the project's incremental effect is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed further.
3. An EIR may determine that a project's contribution to a significant cumulative effect will be rendered less than cumulative considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

The following is a list of cumulative impacts related to the Proposed Project by environmental topic as described in **Section 4.0**. Refer to **Section 4.0** for a detailed discussion of the nature and scope of impacts associated with the Proposed Project.

Aesthetics and Visual Resources

As discussed in **Section 4.1**, Aesthetics and Visual Resources, the Proposed Project would not result in significant impacts to the aesthetic quality of the project site and surrounding properties. Any disturbance of vegetation resulting from construction of the project shall be mitigated for (refer to **Section 4.3**, Biological Resources for more information on vegetation replacement measures). The proposed diversion structure and pipeline would be screened from view by riparian vegetation, and no other new surfaces are proposed. There would be no cumulatively considerable impacts to aesthetics and visual resources as a result of the Proposed Project and other projects in the vicinity.

Air Quality

As discussed in **Section 4.2**, Air Quality, the Proposed Project would not contribute significant air pollution to the project site or the project vicinity. The temporary increase of air pollutants during construction is negligible, even when considered in combination with development surrounding the project site. Additionally, the measures outlined in **Section 4.2**, Air Quality would offset any temporary impacts to air quality in the vicinity of the project site. Because the Proposed Project would not have an independently significant effect on air quality in the region, the Bay Area Air Quality Management District (BAAQMD) requires that a determination of cumulative impacts be based on an evaluation of the consistency of the Proposed Project with the local general plan and of the general plan with the regional air quality management district (AQMD). If a project is proposed in a city or county with a general plan that is consistent with the AQMD, and the project is consistent with that general plan, the project would not have a significant cumulative impact.

Biological Resources

The cumulatively considerable effects on biological resources of developments in the project vicinity are dependent on the degree to which significant vegetation and wildlife resources are protected or mitigated as part of individual developments. Environmental review of specific development projects in the vicinity of the Proposed Project would generally ensure the identification and protection of important biological and wetland resources. However, if an individual project cannot fully mitigate or offset significant impacts associated with biological resources, significant cumulative impacts on biological and wetland resources could also result. The Proposed Project, in combination with cumulative developments surrounding the project site, could significantly impact biological resources in the region, including vegetation communities, special-status species, and downstream resources in Denniston and San Vicente Creeks.

The project site provides potential habitat for one special status plant species, eight special status wildlife species, and migratory bird species and other birds of prey. These species could potentially be impacted by the Proposed Project. In accordance with Section 7 of the FESA, a Biological Assessment will be prepared and submitted to the USFWS and NMFS to initiate FESA consultation for impacts to federally listed species due to likelihood for the need to obtain a 404 permit from the USACE. Additionally, measures proposed in **Section 4.3**, Biological Resources, would ensure project-related impacts are appropriately minimized, avoided, and/or mitigated. With the implementation of appropriate measures to avoid, minimize, and/or mitigate potential impacts to biological resources, these impacts would be less than cumulatively considerable.

Cultural Resources

The Proposed Project, in combination with cumulative development surrounding the project site, would not significantly impact cultural resources in the region. No cultural, historical, or paleontological resources would be affected by the Proposed Project. In the event previously unidentified cultural resources are discovered in the course of construction of the Proposed Project, measures outlined in **Section 4.4**, Cultural Resources, would ensure no significant impacts would result. The extent of possible cultural resources that may occur at the sites of the other projects in the vicinity of the Proposed Project is unknown, and thus, it is not known whether any of these projects would result in significant impacts to cultural resources in the greater area. However, impact determinations would be made on a case-by-case basis for each project and implementation of appropriate mitigation measures would be the responsibility of the project proponents. In the event the other project's cultural resources impacts would be completely mitigated, the Proposed Project's impacts to cultural resources would be less than cumulatively considerable.

Geology and Soils

Construction of other projects in the vicinity is not anticipated to combine with the Proposed Project to cumulatively expose people, property, or infrastructure to such geologic hazards as earthquakes, ground shaking, liquefaction, landslides, unstable soils, expansion soils, and/or result in substantial soil erosion or the loss of topsoil. In general, geotechnical hazards are site-specific, resulting in little, if any, cumulative relationship between development of the Proposed Project and other projects in the vicinity. Therefore, the impacts resulting from each project site in the vicinity of the Proposed Project would be specific to that site and would not be common or contribute to impacts on other sites. In addition, development on each site would be subject to uniform site development and construction standards as dictated in the CEQA *Guidelines*, the San Mateo County General Plan, and the LCP that are designed to protect public safety. Impacts related to geology and soils resulting from the Proposed Project as described in **Section 4.5**, Geology and Soils, combined with other projects in the vicinity, would be less than cumulatively considerable.

Greenhouse Gas Emissions

As discussed above, cumulative air quality issues in the San Francisco Bay Area Air Basin (SFBAAB) are addressed through regional air quality control plans developed by the BAAQMD. These plans account for projected growth in the Bay Area, as embodied in the adopted General Plans of the various cities and counties that comprise the Bay Area. There is, therefore, no need to identify each and every specific "probable future project" that might contribute emissions within the air basin.

Construction

As discussed in **Section 4.6**, Greenhouse Gas Emissions, construction emissions are estimated at 141 metric tonnes (MT) of carbon dioxide equivalent (CO_2e). With the implementation of **Mitigation Measures 4.6-1a** and **4.6-1b**, greenhouse gas (GHG) emissions would be reduced by greater than 26 percent, resulting in project-related construction GHG emissions of 103 MT. Therefore, construction of the Proposed Project would not result in cumulative impacts to greenhouse gas emissions.

Operation

Operational emissions of associated with the maintenance and operation of the Proposed Project were estimated at just 3 MT per year, which is far less than the BAAQMD operational threshold of 1,100 MT per year. This amount would not contribute significantly to the cumulative regional CO_2e emissions and impacts associated with greenhouse gas emissions.

Hazardous Materials

Each of the other projects in the vicinity would require thorough analysis of potential threats to public safety, including those associated with transport/use/disposal of hazardous materials, accidental release of hazardous materials into the environment, hazards to sensitive receptors, listed hazardous material sites, aircraft-related hazards, emergency response, and wildland fire-related hazards. Because evaluations of hazardous materials are largely site-specific, this they would occur on a case-by-case basis for each individual project. Additionally, each specific project would be required to implement appropriate avoidance, minimization, and/or mitigation measures to reduce potential impacts as a result of hazardous materials. The Proposed Project, as discussed in **Section 4.7**, Hazardous Materials, would adhere to the avoidance and minimization measures proposed and would therefore not result in significant impacts to the environment. Impacts related to hazardous materials would be less than cumulatively considerable.

Hydrology and Water Quality

The Proposed Project, in combination with cumulative developments surrounding the project site, could significantly impact hydrology and water quality in the project vicinity. Mitigation measures outlined in **Section 4.8** would reduce impacts to hydrology and water quality at the project site, as well as downstream in the two creeks associated with the Proposed Project. The cumulative impacts associated with the Proposed Project's incremental effects are not significant in the cumulative environment because new applications to appropriate surface water in the watershed would be subject to CEQA review by the State Water Resources Control Board (SWRCB), and would only be granted if cumulative hydrologic impacts were less than cumulatively considerable.

As discussed in **Section 4.8**, the Proposed Project will not result in the direct pumping of groundwater and will not increase any groundwater pumping above the baseline. Recent data taken from San Vicente and Denniston Creeks show that the Airport Aquifer refills quickly and completely following the first rain events of the season, which will not be affected by the Proposed Project (Balance, 2014; **Appendix H**). San Vicente Creek is a gaining stream downstream of the project site, and does not contribute significant groundwater to the aquifer, while Denniston Creek contributes approximately 180 acre-feet (AF) per year to the aquifer, almost all of which infiltrates above the Denniston Dam and would be unaffected by the Proposed Project. Furthermore, the protection and enhancement of the diversion structures and reservoirs used by the farmer to divert for irrigation will allow increased infiltration of diverted water back into the aquifer via the unlined reservoirs. Implementation of the Proposed Project would not result in a new deficit in aquifer volume, would not impede groundwater recharge in the area, and would not degrade groundwater quality. Therefore, the Proposed Project's incremental impact to groundwater in the cumulative environment would be less than significant.

Additionally, other projects in the vicinity of the Proposed Project would also be subject to local, State and federal regulations regulating water quality and flood control. By complying with those regulations, through incorporation of best management practices (BMPs) to prevent increases in peak flows and treat post-construction runoff, cumulative hydrologic and water quality impacts would be less than cumulatively considerable.

Noise

Due to the fact noise is a relatively localized phenomenon, and reduces in magnitude the greater the distance between it and noise receptors, only projects in the near vicinity to the Proposed Project could be considered in a cumulative analysis of noise. The Proposed Project would not result in significant increases in ambient noise levels, nor would it introduce sensitive receptor to areas of increased noise levels. The nearest known development project to the Proposed Project is located across U.S. Highway 1, a major thoroughfare in the vicinity. The noise from the existing traffic is significantly greater than noise that would be generated by the Proposed Project; therefore, there would no basis for cumulative consideration of noise impacts in relation to other projects in the vicinity. Impacts due to noise generation by the Proposed Project would be less than cumulatively considerable.

5.3 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Any project-related and cumulative impacts that were identified as potentially significant have been reduced to a less-than-significant level by mitigation measures. Therefore, no significant

and unavoidable impacts would result from implementation of the Proposed Project if all recommended mitigation measures are adopted.

5.4 IRREVERSIBLE CHANGES

State CEQA *Guidelines* Section 15126.2(c) provides the following direction for the discussion of irreversible changes:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.*

The Proposed Project would result in an irreversible commitment of water resources, fossil fuels for construction equipment (e.g., fuel, oil, natural gas, and gasoline), and the consumption or destruction of other nonrenewable or slowly renewable resources (e.g., gravel, metals, and water).

The significance of the Proposed Project's environmental impacts is characterized in **Sections 4.1** through **4.9**, including both reversible and irreversible impacts. In general, implementation of the Proposed Project would not result in the conversion of land use nor change the existing character of the project site or vicinity. Approval of the petition for extension of time would lead to the construction of the project components listed in **Section 3.2**. Construction of the new diversion facility and pipeline would involve the utilization of building materials and energy, some of which are nonrenewable. Impacts to San Vicente and Denniston Creeks are offset through the mitigation measures outlined in **Section 4.3**, Biological Resources and **Section 4.8**, Hydrology and Water Quality.

SECTION 6.0

ALTERNATIVES

6.0 ALTERNATIVES

6.1 INTRODUCTION

This section reviews the alternatives to the Proposed Project that were considered during the preparation of this Draft Environmental Impact Report (EIR). The purpose of the alternative analysis, according to CEQA *Guidelines* Section 15126.6(a), is to describe a range of reasonable alternative projects that could feasibly attain most of the objectives of the Proposed Project and to evaluate the comparative merits of the alternatives. CEQA *Guidelines* Section 15126.6(b) requires consideration of alternatives that could reduce impacts to less-than-significant levels or eliminate any significant adverse environmental effects of the Proposed Project, including alternatives that may be more costly or could otherwise impede the Proposed Project's objectives. The range of alternatives evaluated in an EIR is governed by a "rule of reason," which requires the evaluation of alternatives "necessary to permit a reasoned choice." Alternatives considered must include those that offer substantial environmental advantages over the Proposed Project and may be feasibly accomplished in a successful manner considering economic, environmental, social, technological, and legal factors.

In accordance with the CEQA *Guidelines*, the alternatives considered in this Draft EIR include those that: 1) could accomplish most of the basic objectives of the project, and 2) could avoid or substantially lessen one or more of the significant effects of the project. To provide the appropriate context for this alternatives analysis, the project objectives and key significant effects are summarized below in **Section 6.2**. Alternatives initially considered but eliminated from further consideration due to their inability to achieve the project objectives and/or to reduce environmental impacts associated with the Proposed Project are described in **Section 6.3**. Alternatives determined to achieve the selection criteria are discussed in **Section 6.4**. This discussion evaluates the capacity of selected project alternatives to accomplish the basic objectives of the project and provides a comparison of the potential environmental impacts expected to occur for each issue area. These comparisons are used in **Section 6.5** to determine the Environmentally Superior Alternative.

6.2 OVERVIEW OF THE PROPOSED PROJECT

6.2.1 PROJECT OBJECTIVES

CCWD has identified the following objectives for the Proposed Project:

- Obtain an extension of time to complete infrastructure improvements and divert water for beneficial use under Water Right Permit 15882;
- Improve the overall reliability of the CCWD water supply system;

- Increase usage of local water supplies to reduce dependence on imported water;
- Complete the construction of infrastructure originally proposed to enable full utilization of water under the existing permit;
- Make efficient use of infrastructure investments to facilitate long-term goals for water management in the region; and
- Restore and maintain capacity of Denniston Reservoir through improved dredging maintenance.

6.2.2 DESCRIPTION OF THE PROPOSED PROJECT

The Proposed Project includes the following project components, as described in **Section 3.2**:

1) Water Right Permit 15882 – petition for extension of time;
2) New Diversion Structure and Pump Station – San Vicente Creek;
3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
4) Denniston Water Treatment Plant (WTP) – expand capacity up to 1,500 gallons per minute (gpm);
5) New Booster Pump Station;
6) New Pipelines – along Bridgeport Drive (3,460 feet); and
7) Expanded sediment removal from the Denniston Reservoir.

The installation of the permanent diversion structure and pump station San Vicente Creek will replace the semi-permanent structure currently in use, and the new 6,100-foot-long underground pipeline will convey San Vicente Creek water from the permanent diversion to the Denniston Reservoir pump station. From there, existing pipelines will convey the water to the Denniston Creek WTP for treatment, which would be increased in capacity up to 1,500 gpm under the Proposed Project. The proposed booster pump station will be located adjacent to the existing Denniston Creek Pump Station to transfer treated water from the Denniston Tank into the distribution system throughout the CCWD service area, which will be supplemented by 3,460 feet of upgraded pipelines along Bridgeport Drive. The current dredging maintenance regime at Denniston Reservoir would also be expanded to enable higher quality of water diverted from Denniston Creek to the Denniston WTP.

6.2.3 KEY IMPACTS OF THE PROPOSED PROJECT

The impacts of the project components that make up the Proposed Project are evaluated in **Section 4.0** of this Draft EIR, summarized in **Table 2-1**, and in **Section 6.4.2**. Construction of the Proposed Project could result in potential short-term impacts associated with excavation of the pipeline routes, installation of the diversion structures, expansion of the capacity of Denniston water treatment plant (WTP), construction of the new Booster Pump Station,

installation of a new pipeline along Bridgeport Drive, and the dredging of Denniston Reservoir and the subsequent disposal of dredged materials. Full utilization of the existing water right would significantly reduce reliance on imported water and reduce the need for groundwater, but may impact resources reliant on surface water flows in Denniston and San Vicente Creeks.

6.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

In addition to the alternatives evaluated in **Section 6.4** below, off-site alternatives and a Denniston Reservoir Restoration alternative were considered for their potential to reduce environmental impacts of the Proposed Project. These alternatives were preliminarily considered but eventually excluded from full comparative analysis within this EIR because they were determined to be infeasible, unable to meet the objectives of the Proposed Project, and/or were not likely to reduce significant environmental impacts of the Proposed Project when viewed in conjunction with the shared points of diversion (POD) which both CCWD and the senior water rights holder utilize jointly. Alternatives considered, but rejected, are briefly discussed below.

6.3.1 DENNISTON RESERVOIR OFF-STREAM ALTERNATIVES

The National Parks Service (NPS), in a comment letter on the Notice of Preparation dated November 22, 2011, requested an analysis of the possibility of "an off-channel reservoir as an alternative to rehabilitation of Denniston Reservoir." Two interpretations of the off-stream alternative were considered: 1) converting Denniston Reservoir to an off-stream storage pond and re-contouring Denniston Creek to follow its original stream channel, allowing water to bypass the reservoir; and 2) building a second off-stream reservoir to supplement the existing Denniston Reservoir in lieu of the expanded dredging program. Each of these alternatives would likely significantly convert agricultural land in order to build the off-stream reservoir, and would not allow for the permitted beneficial use of water from the Denniston Creek POD, which the agricultural diverter and CCWD share.

Furthermore, these off-stream alternatives would not prevent the other water right user from diverting from this location under their existing riparian rights (#S009375 and #S009376), thus it could not guarantee effectively creating an off stream alternative. Even if CCWD were to abandon the on-stream Denniston Reservoir as it is currently permitted, the other water right users would be under no obligation to do so. While building an off-stream reservoir could allow CCWD to meet its project objectives, it would eliminate CCWD's routine dredging maintenance and support of the jointly used POD shared with the senior water rights holder at Denniston Reservoir; this could lead to additional impacts downstream. Without the maintenance and support provided by CCWD, it is uncertain whether the other water users would be capable of

maintaining the original POD. Therefore, moving CCWD's POD to a different location would not be a beneficial alternative when considering the currently permitted and established use of water from this POD.

Denniston Reservoir and the associated dam function to trap sediment which would otherwise remain in Denniston Creek or travel downstream to Half Moon Bay Harbor. If the reservoir were abandoned by the agricultural diverters due to factors such as the lack of maintenance by CCWD, then significant downstream impacts would be likely to occur. Because the harbor has been altered so extensively from its original state, the increased sediment load that would be transported from Denniston Creek would be trapped in the harbor, reducing water quality, wildlife habitat values, and navigability within the harbor. Addressing this impact would result in extensive costs and environmental impacts as activities such as dredging of the harbor would likely ensue. This scenario would also allow for a greater amount of fine sediment deposition in the reaches below the reservoir and would create flood control and maintenance issues in the downstream portions of Denniston Creek.

Due to the location of the Denniston WTP, the terms of the existing water right Permit 15882, the existing riparian rights held by senior diverters (#S009375 and #S009376), and the topography of the area surrounding the project site, an alternate location for the construction of water diversion and pipeline facilities would be infeasible. CCWD maintains the water right permit for diversion of water from San Vicente and Denniston Creeks, thereby creating a situation where the current location of project components (both existing and proposed) is essential to achieve the goals and objectives of the Proposed Project.

6.4 ALTERNATIVES EVALUATED IN THIS DRAFT EIR

Because Permit 15882 has been approved and water is currently being, and will continue to be, diverted from Denniston Creek, each of the following was considered as an operating alternative for the Proposed Project.

6.4.1 ALTERNATIVE A – LOWER (1,200 GPM) DENNISTON WTP CAPACITY

Description

Under Alternative A, the project components would be similar to the Proposed Project, except that the capacity of the Denniston WTP would be expanded to only 1,200 gallons per minute (gpm). The project components of Alternative A would include:

1) Water Right Permit 15882 – petition for extension of time;
2) New Diversion Structure and Pump Station – San Vicente Creek;

3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
4) Denniston WTP – expand capacity up to 1,200 gpm;
5) New Booster Pump Station;
6) New Pipelines – along Bridgeport Drive (3,460 feet); and
7) Expanded sediment removal from the Denniston Reservoir.

As discussed in **Section 3.3.2**, the maximum rate at which water may be diverted under the existing permit is 4.0 cubic feet per second (cfs), with a maximum of 2.0 cfs being diverted from each creek. Although CCWD's Denniston Creek diversions have come close to meeting this maximum diversion rate several times in the past, the entire permitted 2.0 cfs diversion rate has never been fully utilized. San Vicente was intermittently used in the mid 1980's but has not been used on a permanent basis to date. Similar to the Proposed Project, this alternative would ensure the permanent availability of authorized water through construction and maintenance of infrastructure. However, under Alternative A, the Denniston WTP would be expanded to only 1,200 gpm (2.67 cfs) capacity.

Ability to Meet Project Objectives

Together, the extension of time, installation of necessary infrastructure, and capacity to divert water from both streams would allow the District to make beneficial use of water pursuant to Water Right Permit 15882 through implementation of Alternative A. The permanent diversion structure on San Vicente Creek and the full linkage to the rest of the CCWD distribution system through upgrades to the Bridgeport Pipeline would make this a viable option. The diversion of water at a rate up to the 1,200 gpm plant capacity (2.67 cfs) following the installation of the necessary infrastructure linking San Vicente Creek to the Denniston pumping station, would partially meet CCWD's objective to reduce dependency on outside water sources and to provide adequate local water supply in the event outside water sources are cut off, such as during an earthquake or other natural disaster.

Summary of Environmental Impacts

Environmental impacts related to the project components that are the same as the Proposed Project (construction of the diversion facility, installation of the pipelines, construction of the pump stations, expansion of the Denniston WTP, and expanded maintenance practices at Denniston Reservoir) are detailed in **Section 4.0** and summarized in **Table 2-1**. The impacts of those components of Alternative A would likely be similar to the Proposed Project. Diverting up to the expanded plant capacity of 1,200 gpm (equivalent to 2.67 cfs) when sufficient water is available would cause the changes in creek flows under Alternative A, shown in **Tables 6-1** and **6-2**. Similar to the analysis presented in **Section 4.8**, changes in creek flows that could result from Alternative A have been analyzed under the two scenarios, San Vicente Preferred

(**Table 6-1**) and Denniston Preferred (**Table 6-2**), which represent the maximum range of impacts that could arise in each creek from implementation of Alternative A.

TABLE 6-1
PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER ALTERNATIVE A, SAN VICENTE PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.45	0.00	0.39	0.39	0.00
January	1.18	0.43	0.75	0.86	0.86	0.00
February	1.49	0.00	1.49	1.09	1.09	0.00
March	1.75	0.22	1.53	1.16	1.16	0.00
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
Total (AFY)	**353**	**129**	**224**	**354**	**355**	**0**
Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.63	0.00	0.44	0.44	0.00
December	1.62	0.48	1.14	1.14	1.14	0.00
January	2.08	0.12	1.96	1.34	1.34	0.00
February	2.82	0.00	2.82	1.92	1.92	0.00
March	2.93	0.00	2.93	1.65	1.65	0.00
April	1.61	0.31	1.29	0.97	0.97	0.00
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
Total (AFY)	**758**	**154**	**604**	**584**	**584**	**0**

Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.28	1.66	1.34	1.34	0.00
January	4.03	0.00	4.03	3.01	2.00	1.01
February	4.28	0.00	4.28	3.11	2.00	1.11
March	4.79	0.00	4.79	3.24	2.00	1.24
April	3.29	0.00	3.29	1.95	1.95	0.00
May	1.90	0.32	1.58	1.01	1.01	0.00
June	1.05	0.59	0.46	0.86	0.86	0.00
July	0.71	0.70	0.01	0.81	0.81	0.00
August	0.52	0.52	0.00	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
Total (AFY)	**1,433**	**236**	**1,197**	**1050**	**850**	**200**

[1] The "Alternative A Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

TABLE 6-2
PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER ALTERNATIVE A, DENNISTON PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)	Baseline Flow (cfs)	Alternative A Diversions (cfs)[1]	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.79	0.39	0.86	0.67	0.19
February	1.49	0.69	0.81	1.09	0.67	0.42
March	1.75	0.71	1.04	1.16	0.67	0.49
April	0.41	0.41	0.00	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
Total (AFY)	**353**	**220**	**133**	**354**	**289**	**65**

Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) [1]	Resulting Creek Flows (cfs)	Baseline Flow (cfs)	Alternative A Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.63	0.00	0.44	0.44	0.00
December	1.62	0.95	0.67	1.14	0.67	0.47
January	2.08	0.79	1.29	1.34	0.67	0.67
February	2.82	0.69	2.13	1.92	0.67	1.25
March	2.93	0.71	2.22	1.65	0.67	0.98
April	1.61	0.61	0.99	0.97	0.67	0.30
May	0.64	0.64	0.00	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
Total (AFY)	**758**	**323**	**435**	**584**	**365**	**0**
Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative A Diversions (cfs) [1]	Resulting Creek Flows (cfs)	Baseline Flow (cfs)	Alternative A Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.95	0.99	1.34	0.67	0.67
January	4.03	0.79	3.24	3.01	0.67	2.34
February	4.28	0.69	3.60	3.11	0.67	2.44
March	4.79	0.71	4.08	3.24	0.67	2.57
April	3.29	0.61	2.67	1.95	0.67	1.28
May	1.90	0.66	1.24	1.01	0.67	0.34
June	1.05	0.78	0.27	0.86	0.67	0.19
July	0.71	0.71	0.00	0.81	0.80	0.01
August	0.52	0.52	0.00	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
Total (AFY)	**1,433**	**475**	**958**	**1,050**	**465**	**0**

[1] The "Alternative A Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

Biological Resources

Impacts to in-stream biological resources within the two creeks under Alternative A have the potential to be significant due to reduced water availability during base flow periods and

potential impacts to special status species and their habitats. However, measures proposed in **Section 4.3**, Biological Resources, would ensure project-related impacts are appropriately minimized, avoided, and/or mitigated.

Stream flow has the potential to be reduced downstream from the PODs in both creeks. Though the amount of water diverted under Alternative A would be less than under the Proposed Project, impacts would be similar and less than significant as both creeks will continue to receive natural run-off downstream of the diversions, groundwater discharges from the water table downstream of the diversions, and year-round coastal fog that provides a source of water to the riparian vegetation downstream of the diversions. Therefore, impacts to biological resources on San Vicente and Denniston Creek as a result of decreased water availability would be less than significant.

Under Alternative A, potential impacts to anadromous fish would be similar to those under the Proposed Project. This is because the likely causes for lack of spawning in Denniston and San Vicente Creek are Half Moon Bay Harbor, existing barriers and obstacles, and lack of suitable habitat; and not water flows. Further, based on the findings discussed in **Section 4.3**, Biological Resources, anadromous fish do not occur in San Vicente Creek or Denniston Creek.

As discussed in **Section 4.3**, dredging activities proposed under Alternative A, which are similar to those under the Proposed Project, would improve habitat conditions for some biological and public trust resources in the immediate vicinity of Denniston Reservoir and would prevent impacts downstream from increased siltation in the harbor. The project site is located within critical habitat for the California red-legged frog (CRLF). Dredging activities associated with maintaining Denniston Reservoir at a larger size and which is proposed under this Alternative would provide more edge effect for CRLF and therefore be beneficial to CRLF habitat.

With the implementation of appropriate measures to avoid, minimize, and/or mitigate potential impacts to biological resources, potential impacts under Alternative A would be less than significant.

Hydrology and Water Quality

Under Alternative A, the District would expand the capacity of the Denniston WTP to 1,200 gpm and then be able to divert and process up to 2.67 cfs total from both streams. This would result in impacts to surface waters under Alternative A as compared with the No Project/Baseline, but would likely result in lesser impacts when compared to the Proposed Project.

Under Alternative A, potential impacts to groundwater in the vicinity of the project site would be less than significant. As noted in **Section 4.8**, there is limited storage in the fracture granitics below the creeks near the diversion structures. However, San Vicente and Denniston Creeks

supply groundwater recharge for the downstream Airport Sub-basin along with the two 49-acre foot (AF) reservoirs maintained by the farmer on San Vicente Creek. Because CCWD would divert water under Alternative A at a lesser rate than under the Proposed Project, total diversions would be less and therefore potential impacts to groundwater recharge would be lower than under the Proposed Project.

Other Impacts

Short-term construction impacts resulting from Alternative A associated with aesthetics, air quality, greenhouse gases (GHG), cultural resources, hazard and hazardous materials, and noise would be the same as the Proposed Project. Long-term impacts to geology and soils would be the same as the Proposed Project.

6.4.2 ALTERNATIVE B – CURRENT (1,000 GPM) DENNISTON WTP CAPACITY

Description

Under Alternative B, the project components would be similar to those for the Proposed Project, except that the District would not expand its Denniston WTP capacity, but would instead divert only up to the current capacity of 1,000 gpm (equivalent to 2.23 cfs). The project components of Alternative B would include:

1) Water Right Permit 15882 – petition for extension of time;
2) New Diversion Structure and Pump Station – San Vicente Creek;
3) New and Upgraded Pipeline – between San Vicente Creek and Denniston Reservoir pump station (6,100 feet);
4) New Booster Pump Station;
5) New Pipelines – along Bridgeport Drive (3,460 feet); and
6) Expanded sediment removal from the Denniston Reservoir.

Similar to the Proposed Project, this alternative would ensure the permanent availability of authorized water through construction and maintenance of infrastructure. However, Alternative B would not expand the Denniston WTP and would run the plant at 1,000 gpm (2.23 cfs). While this would improve the District's ability to utilize local water sources, it would not allow for the maximum beneficial use of water under Permit 15882.

Ability to Meet Project Objectives

Alternative B would still allow for water to be diverted under Water Right Permit 15882 and piped to the Denniston WTP, though the amount would be less than proposed under the Proposed Project and Alternative A. The reduced amount of water available for use would still allow CCWD to meet the project objective to reduce dependence on outside water sources and

provide adequate local water supply in the event outside water sources were cut off, such as during an earthquake or other natural disaster, although to a lesser extent than the Proposed Project or Alternative A.

Summary of Environmental Impacts

Environmental impacts related to the project components that are the same as for the Proposed Project and Alternative A (construction of the diversion facility, installation of the pipelines, construction of the pump stations, and expanded maintenance practices at Denniston Reservoir) are detailed in **Section 4.0** and summarized in **Table 2-1**. The impacts of those components of Alternative B would likely be similar to the Proposed Project. Diverting up to the current plant capacity of 1,000 gpm (equivalent to 2.23 cfs) under Alternative B when that much water is available would cause the changes in creek flows shown in **Tables 6-3** and **6-4**. Similar to the analysis presented in **Section 4.8**, changes in creek flows that could result from Alternative B have been analyzed under the two scenarios, San Vicente Preferred (**Table 6-3**) and Denniston Preferred (**Table 6-4**), which represent the maximum range of impacts that could arise in each creek from implementation of Alternative B.

TABLE 6-3
PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER ALTERNATIVE B, SAN VICENTE PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.44	0.00	0.39	0.39	0.00
January	1.18	0.16	1.02	0.86	0.86	0.00
February	1.49	0.00	1.49	1.09	1.09	0.00
March	1.75	0.00	1.75	1.16	1.16	0.00
April	0.41	0.34	0.07	0.50	0.50	0.00
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
Total (AFY)	**353**	**95**	**258**	**354**	**354**	**0**

Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.04	1.58	1.14	1.14	0.00
January	2.08	0.00	2.08	1.34	1.34	0.00
February	2.82	0.00	2.82	1.92	1.92	0.00
March	2.93	0.00	2.93	1.65	1.65	0.00
April	1.61	0.00	1.61	0.97	0.97	0.00
May	0.64	0.34	0.30	0.55	0.55	0.00
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
Total (AFY)	**758**	**84**	**674**	**584**	**584**	**0**
Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.00	1.94	1.34	1.34	0.00
January	4.03	0.00	4.03	3.01	2.00	1.01
February	4.28	0.00	4.28	3.11	2.00	1.11
March	4.79	0.00	4.79	3.24	2.00	1.24
April	3.29	0.00	3.29	1.95	1.95	0.00
May	1.90	0.00	1.90	1.01	1.01	0.00
June	1.05	0.15	0.90	0.86	0.86	0.00
July	0.71	0.26	0.45	0.81	0.81	0.00
August	0.52	0.47	0.05	0.65	0.65	0.00
September	0.48	0.48	0.00	0.58	0.58	0.00
Total (AFY)	**1,433**	**146**	**1,287**	**1,050**	**850**	**200**

[1] The "Alternative B Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

TABLE 6-4
PROPOSED DIVERSIONS (ABOVE EXISTING CCWD DIVERSIONS) UNDER ALTERNATIVE B, DENNISTON PREFERRED

Dry Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.25	0.25	0.00	0.42	0.42	0.00
November	0.40	0.40	0.00	0.29	0.29	0.00
December	0.44	0.45	0.00	0.39	0.39	0.00
January	1.18	0.79	0.39	0.86	0.23	0.63
February	1.49	0.69	0.81	1.09	0.23	0.86
March	1.75	0.71	1.04	1.16	0.23	0.93
April	0.41	0.41	0.00	0.50	0.47	0.03
May	0.00	0.00	0.00	0.30	0.30	0.00
June	0.00	0.00	0.00	0.34	0.34	0.00
July	0.00	0.00	0.00	0.29	0.29	0.00
August	0.00	0.00	0.00	0.18	0.18	0.00
September	0.00	0.00	0.00	0.14	0.14	0.00
Total (AFY)	**353**	**220**	**133**	**354.0**	**208.9**	**0.0**
Normal Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.32	0.32	0.00	0.45	0.45	0.00
November	0.64	0.64	0.00	0.44	0.44	0.00
December	1.62	0.95	0.67	1.14	0.23	0.91
January	2.08	0.79	1.29	1.34	0.23	1.11
February	2.82	0.69	2.13	1.92	0.23	1.69
March	2.93	0.71	2.22	1.65	0.23	1.42
April	1.61	0.61	0.99	0.97	0.23	0.74
May	0.64	0.64	0.00	0.55	0.25	0.31
June	0.09	0.09	0.00	0.45	0.45	0.00
July	0.00	0.00	0.00	0.39	0.39	0.00
August	0.00	0.00	0.00	0.28	0.28	0.00
September	0.00	0.00	0.00	0.23	0.23	0.00
Total (AFY)	**758**	**323**	**435**	**584.0**	**216.2**	**0.0**

Wet Year						
	Denniston Creek			San Vicente Creek		
	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)	CEQA Baseline Flow (cfs)	Alternative B Diversions (cfs) [1]	Resulting Creek Flows (cfs)
October	0.33	0.33	0.00	0.50	0.50	0.00
November	0.75	0.75	0.00	0.59	0.59	0.00
December	1.94	0.95	0.99	1.34	0.23	1.11
January	4.03	0.79	3.24	3.01	0.23	2.78
February	4.28	0.69	3.60	3.11	0.23	2.88
March	4.79	0.71	4.08	3.24	0.23	3.01
April	3.29	0.61	2.67	1.95	0.23	1.72
May	1.90	0.66	1.24	1.01	0.23	0.78
June	1.05	0.78	0.27	0.86	0.23	0.63
July	0.71	0.71	0.00	0.81	0.36	0.45
August	0.52	0.52	0.00	0.65	0.60	0.05
September	0.48	0.48	0.00	0.58	0.58	0.00
Total (AFY)	**1,433**	**475**	**958**	**1050.0**	**252.4**	**0.0**

[1] The "Alternative B Diversions" are anything above the District's existing diversions that were reported to the SWRCB. Monthly diversion data for Denniston Creek is shown in **Table 4.8-5**, while existing diversions on San Vicente Creek are 0.00 cfs, as shown in **Table 4.8-4**.

Biological Resources

Alternative B is similar to Alternative A and the Proposed Project because CCWD would divert water from both San Vicente and Denniston Creeks. Similar to Alternative A and the Proposed Project, impacts to in-stream biological resources within the two creeks under Alternative B have the potential to be significant due to reduced water availability during base flow periods and impacts to special status species and their habitats. However, measures proposed in **Section 4.3** would ensure project-related impacts would be appropriately minimized, avoided, and/or mitigated.

Stream flow would be reduced downstream from the POD in both creeks under Alternative B. However, under Alternative B, CCWD would divert less water (up to 1,000 gpm or 2.23 cfs), and therefore the impacts to riparian vegetation and fisheries resources within both creeks under Alternative B would be less than under Alternative A or the Proposed Project.

Dredging activities proposed under Alternative B, which are similar to Alternative A and the Proposed Project, would improve habitat conditions for some biological and public trust resources in the immediate vicinity of Denniston Reservoir and would prevent impacts downstream from increased siltation in the harbor. Similar to Alternative A and the Proposed Project, dredging activities associated with maintaining Denniston Reservoir at a larger size

under Alternative B would provide more edge effects for CRLF and therefore be beneficial to CRLF habitat.

With the implementation of appropriate measures to avoid, minimize, and/or mitigate potential impacts to biological resources, potential impacts under Alternative B would be less than significant.

Hydrology and Water Quality

Under Alternative B, the District would divert up to a total of 2.23 cfs from both streams, which would result in impacts above the No Project/Baseline Alternative, but would likely result in lesser impacts when compared to the Proposed Project.

Under Alternative B, potential impacts to groundwater in the vicinity of the project site would be less than significant. As noted in **Section 4.8**, there is limited storage in the fracture granitics below the creeks near the diversion structures. However, both San Vicente and Denniston Creeks supply groundwater recharge for the downstream Airport Sub-basin along with the two 49 AF reservoirs maintained by the farmer on San Vicente Creek. Because CCWD would divert less water under Alternative B than for the Proposed Project, potential impacts to groundwater recharge would be reduced when compared with the Proposed Project.

Other Impacts

Short-term construction impacts resulting from Alternative B associated with aesthetics, air quality, GHG emissions, cultural resources, hazard and hazardous materials, and noise would be similar to those under the Proposed Project. Long-term impacts to geology and soils would be the same as for the Proposed Project.

6.4.3 ALTERNATIVE C – NO PROJECT/BASELINE ALTERNATIVE

Description

As required by CEQA *Guidelines* Section 15126.6(e), the No Project Alternative is evaluated here. The evaluation of the No Project Alternative allows decision-makers to compare the impacts of the Proposed Project against not proceeding with the Proposed Project. According to the CEQA *Guidelines* Section 15126.6(e)(2), the No Project Alternative shall discuss what would reasonably be expected to occur in the foreseeable future if the project were not approved.

For this EIR, the No Project Alternative is referred to as the “No Project/Baseline Alternative,” because existing operational activities that occur as part of the environmental baseline would continue to take place under Permit 15882. Under the No Project/Baseline Alternative,

infrastructure and operations currently implemented would continue to take place, which include the existing diversions of up to 1.89 cfs from Denniston Creek, but no new infrastructure would be constructed.

Although Permit 15882 authorizes the diversion of up to 2 cfs from Denniston Creek and 2 cfs from San Vicente Creek, under this alternative, the District would only divert up to 1.89 cfs from Denniston Creek, the maximum rate of diversion that has historically occurred. The Denniston WTP would continue to treat groundwater pumped from the Airport Aquifer wells and surface water from Denniston Creek, at varying rates based on flow rates and availability.

Under Alternative C, the project components discussed in **Section 3.2** would not be implemented; however, current water use would continue as allowed under water right Permit 15882. The proposed infrastructure intended to facilitate full beneficial use of currently-approved diversions, including the permanent diversion structure, pump station, and pipeline, would not be constructed at San Vicente Creek. Instead, the existing POD composed of sandbags would remain in place and continue to be used by the farmer who installed it. In addition, the Bridgeport Pipeline improvement, Denniston WTP capacity increase, and proposed Booster Pump Station would not be constructed. CCWD would continue to receive surface water from the Denniston Creek diversion while being supplemented by groundwater from the Denniston wells. Without the required infrastructure proposed under the Proposed Project and Alternatives A and B, CCWD would not receive surface water from San Vicente Creek. In addition to the proposed infrastructure not being constructed under Alternative C, the proposed expanded maintenance and dredging activities at Denniston Reservoir would not be implemented.

Ability to Meet Project Objectives

Alternative C would not accomplish the basic objectives of the Proposed Project: to fully utilize local sources of water and reduce reliance on imported water, and to put local water to full beneficial use under water right Permit 15882. The inability to utilize San Vicente Creek would force potentially greater reliance on the water resources of nearby wells, thereby increasing impacts to groundwater in the Airport Aquifer. This would likely reduce the amount of local water available for development as up to one half of the current water right would be not be used. CCWD would remain significantly dependent on imported water sources, and would be unable to provide adequate potable water to its customers in the event imported water supplies were cut off, such as during a major earthquake.

Summary of Environmental Impacts

The No Project/Baseline Alternative would eliminate the short-term impacts related to construction activities, which include temporary impacts to air quality, noise, traffic, and the use

of hazardous materials at the construction site. No diversions would occur from San Vicente Creek, so there would be no impacts to the hydrology of San Vicente Creek. No additional diversions would occur from Denniston Creek above the baseline 1.89 cfs, so no additional impacts to hydrology would occur under Alternative C.

Biological Resources

The No Project Alternative could result in potential long-term impacts relating to biological and public trust resources in Denniston Reservoir, Denniston Creek, and San Vicente Creek.

Without the increased dredging maintenance at Denniston Reservoir, siltation would continue and the capacity of the reservoir would diminish. This could potentially reduce riparian habitat values upstream on Denniston Creek, as well as reduce suitable habitat for CRLF in the vicinity of Denniston Reservoir. This reduction in dredging maintenance could also mean a reduction in the amount of water diverted over time from Denniston Creek. The maximum amount of allowable water could still be obtained from Denniston Creek with the extension of the current dredging; however, this sole dependence on one creek instead of two could result in greater impacts to Denniston Creek. Long-term impacts to sensitive species within San Vicente Creek could occur if the current temporary diversion, primarily relied on by the adjacent farm, remains in place and unimproved. The current diversion structure is in such poor condition that it is subject to washing out during rain events, causing debris and sediment to be flushed downstream towards the Fitzgerald Marine Reserve and the Pacific Ocean.

Other Impacts

The long-term reliance on imported water would likely increase GHG emissions as the energy used to pump water from Crystal Springs Reservoir would continue to be needed. If local water were to be used in place of imported water, further dependence on groundwater from the same airport aquifer would likely be used to replace the water available under the existing permit from San Vicente Creek, which would not be integrated into the CCWD water supply under Alternative C.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA *Guidelines* Section 15126.6(d) requires an evaluation of alternatives to the proposed project.

The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in

addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.

Consistent with this CEQA requirement, a summary matrix has been prepared which qualitatively compares the effectiveness of each of the alternatives in reducing environmental impacts. This matrix, presented in **Table 6-5** identifies whether each impact area of the project alternatives would have greater, lesser, or similar impacts compared with the Proposed Project.

TABLE 6-5
ENVIRONMENTAL IMPACT COMPARISON BETWEEN THE PROPOSED PROJECT AND ALTERNATIVES

Issue Area	Project Alternatives		
	Alternative A Lower (1,200 gpm) Denniston WTP Capacity	**Alternative B Current (1,000 gpm) Denniston WTP Capacity**	**Alternative C No Project/Baseline Alternative**
Aesthetics	Similar	Similar	Lesser
Air Quality	Similar	Similar	Lesser
Agricultural and Forestry Resources	Similar	Similar	Similar
Biological Resources	Similar	Lesser	Similar
Cultural Resources	Similar	Similar	Lesser
Geology and Soils	Similar	Similar	Lesser
Greenhouse Gas Emissions	Similar	Similar	Greater
Hazards and Hazardous Materials	Similar	Similar	Lesser
Hydrology and Water Quality	Lesser	Lesser	Lesser
Land Use	Similar	Similar	Similar
Noise and Vibration	Similar	Similar	Lesser
Population and Housing	Similar	Similar	Similar
Public Services, Utilities, and Recreation	Similar	Similar	Lesser
Transportation and Circulation	Similar	Similar	Lesser

Generally, the environmentally superior alternative is the alternative that would cause the least damage to the biological and physical environment. Because implementation of the No

Project/Baseline Alternative (Alternative C) would result in fewer adverse environmental effects than would occur under the other alternatives (Alternative A and Alternative B), the No Project/Baseline Alternative (Alternative C) would be considered the environmentally superior alternative. However, the No Project/Baseline Alternative would not achieve any of the project objectives.

If the No Project Alternative is the environmentally superior alternative, CEQA *Guidelines* Section 1526.6(e)(2) requires identification of an environmentally superior alternative among the other alternatives considered in the EIR.

When comparing the remaining development alternatives, the Proposed Project is the environmentally superior alternative. Under the Proposed Project, all impacts would be reduced to less-than-significant levels after mitigation. While some impacts under Alternative A or Alternative B may be lower when compared to the Proposed Project, these alternatives are less able to meet the project objectives of improving the overall reliability of the CCWD water supply system and increasing the usage of local water supplies.

SECTION 7.0

REPORT PREPARATION AND PERSONS/ORGANIZATIONS CONSULTED

7.0 REPORT PREPARATION AND PERSONS/ORGANIZATIONS CONSULTED

7.1 COASTSIDE COUNTY WATER DISTRICT

David R. Dickson, District Manager
Joe Guistino, Superintendent of Operations

7.2 EIR CONSULTANTS

ANALYTICAL ENVIRONMENTAL SERVICES

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BALANCE HYDROLOGICS (HYDROLOGICAL AND GROUNDWATER MODELING)

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SECTION 8.0

REFERENCES

8.0 REFERENCES

Analytical Environmental Services (AES), 2011. Initial Study for the Denniston/San Vicente Water Supply Project. Prepared by AES for Coastside County Water District. October 19, 2011.

AES, 2013. Biological Resources Report for the Denniston/San Vicente Water Supply Project. Prepared by AES for Coastside County Water District. December 4, 2013.

Arizona-Sonora Desert Museum, 2006-2009. Animal Fact Sheet: Pallid Bat. Tucson, Arizona. Available at: http://www.desertmuseum.org/kids/bats/Pallid%20bat.php. Accessed on November 17, 2011.

Balance Hydrologics, Inc., 2002. San Mateo County Mid-Coast Aquifers: Literature and Data Review. Prepared for the San Mateo County Board of Supervisors. April 2002.

Balance Hydrologics, Inc., 2005. Drilling and Testing of Montara Water and Sanitary District's Well 2004-4, APN 036-180-030, San Mateo County, California. Prepared for the Montara Water and Sanitary District. Available online at: http://www.balancehydro.com/pdf/202075well2004-4rptFinal.pdf. Accessed on November 6, 2013.

Balance Hydrologics, Inc., 2010. Midcoast Groundwater Study Phase III, San Mateo County, California. Prepared for County of San Mateo Planning and Building Department. Available online at: http://www.balancehydro.com/pdf/209093MidcstGWPhIII6-9-10.pdf. Accessed on November 6, 2013.

Balance Hydrologics, Inc., 2012. Bases for Hydrologic Analysis of Montara-type Watersheds. San Vicente and Denniston Creeks, Moss Beach and Princeton Areas, Coastside San Mateo County, CA. Prepared for Analytical Environmental Services and Coastside County Water District. July 2012, revised August 2014.

Balance Hydrologics, Inc., 2013. Estimated long-term unimpaired flow for San Vicente and Denniston Creek, Coastal San Mateo County, California. Prepared for Coastside County Water District. November 2013.

Balance Hydrologics, Inc., 2014. Technical Memorandum: Review of new and historical groundwater and surface water data pertaining to the Airport Aquifer, San Mateo County, California. June 3, 2014.

Balance Hydrologics, Inc., 2015. Technical Memorandum: Response to MWSD Comments on CCWD Draft EIR; Recommendations for Points of Compliance for San Vicente Creek Live Stream Requirements. January 29, 2015.

Bay Area Air Quality Management District (BAAQMD), 2010. California Environmental Quality Act Air Quality Guidelines. May 2010. Available online at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed on November 7, 2013.

BAAQMD, 2012. Attainment Status of San Francisco Bay Area Air Basin. Available online at: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm. Accessed on November 6, 2013.

California Air Resources Control Board (CARB), 2007a. Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions in California Recommended For Board Consideration. October 2007. Available online at: www.arb.ca.gov/cc/ccea/meetings/ea_final_report.pdf. Accessed on November 6, 2013.

CARB, 2007b. User's Guide for EMFAC2007 version 2.30: Calculating emission inventories for vehicles in California. Available online at: www.arb.ca.gov/msei/onroad/downloads/.../user_guide_emfac2007.pdf. Accessed on November 7, 2013.

CARB, 2008. Climate Change Scoping Plan. Available online at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm. Accessed on November 6, 2013.

California Coastal Commission (CCC), 2008. Nonpoint Source Watershed Assessment: James Fitzgerald Marine Reserve Critical Coastal Area. December 2008.

California Department of Fish and Wildlife (CDFW), 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. State of California, California Natural Resources Agency. Department of Fish and Game. November 24, 2009.

CDFW, 2013. RareFind 3 Version 3.1.0, California Natural Diversity Data Base. Fresno, California. Dated November 5, 2013. Accessed on November 25, 2013.

California Department of Forestry and Fire Protection (CalFire), 2007. Fire Hazard Severity Zones. Available online at:

http://www.fire.ca.gov/fire_prevention/fhsz_maps_sanmateo.php. Accessed on November 7, 2013.

California Department of Transportation (Caltrans), 2004. Transportation- and Construction-Induced Vibration Guidance Manual. June 2004. Available online at: http://www.dot.ca.gov/hq/env/noise/pub/vibrationmanFINAL.pdf. Accessed on November 6, 2013.

Caltrans, 2007. California Scenic Highway Mapping System. December 2007. Available online at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm.

Caltrans, 2009. Technical Noise Supplement, 2009. Available online at: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed on November 6, 2013.

California Department of Water Resources (DWR), 2010. 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report- Statewide. Available online at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed on November 6, 2013.

California Geological Survey (CGS), 2008. Probabilistic Seismic Hazards Mapping Ground Motion Page. Available online at: http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html. Accessed on August 2, 2011.

CGS, 2010. An Explanatory Text to Accompany the Fault Activity Map of California. J.G. Parrish, C.W. Jennings, and W.A. Bryant. Available online at: www.consrv.ca.gov/cgs/cgs_history/documents/fam_phamplet.pdf. Accessed on November 6, 2013.

CaliforniaHerps.com, 2011. Information About California Frogs, Snakes, Lizards, Turtles, and Salamanders. Available at: www.californiaherps.com. Accessed on November 17, 2011.

California Native Plant Society (CNPS), 2013. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society. Sacramento, CA. Available at: http://www.rareplants.cnps.org/. Accessed on November 6, 2013.

Climate Action Team (CAT), 2007. Climate Action Team Proposed Early Actions To Mitigate Climate Change in California. April 2007. Available online at:

http://www.climatechange.ca.gov/climate_action_team/reports/2007-04-20_CAT_REPORT.PDF. Accessed on November 25, 2013.

Coastside County Water District (CCWD), 2010. Preliminary Engineering Report: Transmission Line Flow Capability from Denniston Tank to Carter Hill Tanks. Prepared by CCWD District Engineer James Teter. July 1, 2010.

CCWD, 2012. Phone interview with David Dickson, General Manager, Coastside County Water District. July 31, 2012.

Environmental Data Resources, Inc. (EDR), 2012. EDR Report for CCWD Denniston / San Vicente. Inquiry Number: 3280408.2s. March 19, 2012.

Erler & Kalinowski, Inc. (EKI), 2013. Memorandum RE: Laboratory Results of Denniston Reservoir Dredge Spoils Sampling Denniston Creek Valley, San Mateo County, California (EKI B10014.01). April 29, 2013. To David Dickson (Coastside County Water District). From Jeffrey Tarantino, P.E. and Michelle King, Ph.D. (EKI).

Federal Emergency Management Agency (FEMA), 2012. Flood Insurance Study: San Mateo County, California and Incorporated Areas. Flood Insurance Study Number 06081CV001A. Revised October 16, 2012. Available online at: https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1. Accessed on November 6, 2013.

Frahm, T., 2011. Agricultural Water Use San Vicente/Denniston Creeks: Agricultural Water Use for Cabrillo Farms.

Harris, 2000. Originally Written By: California Wildlife Habitat Relationships Systems. California Department of Fish and Game. California Interagency Wildlife Task Group. January 2000.

Hoover, Mildred Brooke, Hero Eugene Rensch, Ethel Grace Rensch and William N. Abeloe. 1990. Historic Spots in California. Revised by Douglas E. Kyle. Stanford University Press, Stanford, California.

Intergovernmental Panel on Climate Change (IPCC), 2007. Fourth Assessment Report: Climate Change 2007. Available online at: http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html. Accessed on November 6, 2013.

M. Jennings, M. Hayes, CDFG, 1994. Amphibian and Reptiles Species of Special Concern in California.

Kleinfelder, 2008. San Mateo County Midcoast Groundwater Study, Phase II, San Mateo County, California. Available online at: http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/28/13/1366398299San%20Mateo%20MidCoast%20Groundwater%20Study%20Report%20SJO8R430%20Compiled_reduced.pdf. Accessed on July 25, 2012.

Moratto, M.J. 1984. *California Archaeology*. Second printing 2004. Reprinted with permission of the author by Coyote Press, Salinas, California.

Moyle, P.B., 2002. Inland Fishes of California. Revised and Expanded Edition. University of California Press, Berkley, California.

National Marine Fisheries Service (NMFS), 2013. Species: Steelhead Trout *(Oncorhynchus mykiss)*. NOAA Office of Protected Fisheries. Updated March 13, 2013. Available at: http://www.nmfs.noaa.gov/pr/species/fish/steelheadtrout.htm. Accessed on November 6, 2013.

Natural Resource Conservation Service (NRCS), 2013. Custom Soil Survey Report for San Mateo County, California. WebSoil Survey available online at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Accessed August 1, 2011 and July 3, 2013.

NatureServe, 2011. NatureServe Explorer: An Online Encyclopedia of Life [Web Application]. Version 7.1. February 2009. Last updated July 2011. NatureServe, Arlington, Virginia. Available at: http://www.natureserve.org/explorer. Accessed on November 11, 2011.

San Francisco RWQCB, 2013. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). June 29, 2013. Available online at: http://www.waterboards.ca.gov/rwqcb2/basin_planning.shtml. Accessed on November 7, 2013.

San Mateo County, 1977. Regulation of the Removal and Trimming of Heritage Trees on Public and Private Property, (Excerpt from the San Mateo County Ordinance Code). Planning and Building Division, San Mateo County, California.

San Mateo County, 1986. General Plan. Department of Environmental Management, Planning and Building Division, San Mateo County, California. November 1986. Available online at: http://www.co.sanmateo.ca.us/planning/genplan/

San Mateo County, 1996. San Mateo County Comprehensive Airport Land Use Plan.

San Mateo County, 1998. Local Coastal Program. Environmental Services Agency. San Mateo County, California. June 1998. Available online at: http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/10073428lcp_1098.pdf.

San Mateo County, 2009a. Code of Ordinances. Available online at: http://library.municode.com/index.aspx?clientId=16029. Accessed July 12, 2013.

San Mateo County, 2009b. Big Wave Wellness Center and Office Park Project Draft EIR. October 2009.

San Mateo County, 2010. The Significant Tree Ordinance of San Mateo County (Part Three of Division VIII of the San Mateo County Ordinance Code).

San Mateo County, 2011. Pilarcitos Quarry Expansion Final EIR. December 2011. Available online at: http://www.co.sanmateo.ca.us/Attachments/planning/PDFs/Major_Projects/Pilarcitos%20Quarry%20Expansion%20DEIR/Pilarcitos%20Quarry%20FEIR.pdf. Accessed on June 18, 2014.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens, 2009. *A manual of California Vegetation; Second Edition*. California Native Plant Society, Sacramento, California.

South Coast Air Quality Management District (SCAQMD), 2008. Off-road Mobile Source Emissions Factors. Last updated: October 10, 2008. Available online at: http://www.aqmd.gov/cega/handbook/offroad/offroad.html. Accessed on November 7, 2013.

State Water Resources Control Board (SWRCB), 1977a. Statement of Water Diversion and Use No. 009375 (Riparian Claim, Pre-1914). State Water Resources Control Board, Division of Water Rights. July 7, 1977.

SWRCB, 1977b. Permit for Diversion and Use of Water. Permit 18121 (Application 25461). State Water Resources Control Bard, Division of Water Rights. August 17, 1977.

SWRCB, 1977c. Permit for Diversion and Use of Water. Permit 18122 (Application 25467). State Water Resources Control Board, Division of Water Rights. August 17, 1977.

SWRCB, 1977d. Permit for Diversion and Use of Water. Permit 18124 (Application 25469). State Water Resources Control Board, Division of Water Rights. August 17, 1977.

SWRCB, 1984a. License for Diversion and Use of Water, License 11983. State Water Resources Control Board, Division of Water Rights. July 18, 1984.

SWRCB, 1984b. License for Diversion and Use of Water, License 12384. State Water Resources Control Board, Division of Water Rights. July 19, 1984.

SWRCB, 2002a. Supplemental Statement of Water Diversion and Use No. 009376 (Riparian Claim). State Water Resources Control Board, Division of Water Rights. May 31, 2002.

SWRCB, 2002b. Supplemental Statement of Water Diversion and Use No. 009377 (Riparian Claim). State Water Resources Control Board, Division of Water Rights. May 31, 2002.

SWRCB, 2011. e-WRIMS Water Rights Database search for A025461. Database available online at: http://ciwqs.waterboards.ca.gov/ciwqs/ewrims/EWServlet?Redirect_Page=EWWaterRightPublicSearch.jsp&Purpose=getEWAppSearchPage. Accessed on November 7, 2013.

SWRCB, 2012. Progress Report by Permittee for 2012: Application Number: A025356, Permit Number: 017627. e-WRIMS Water Rights Database, Accessed on June 17, 2014.

TRC Essex, 2006. Denniston Reservoir Restoration Project; Draft Initial Findings Report. Available online at: http://www.coastsidewater.org/reports_and_studies/denniston-restoration-project/DraftDennistonInitialFindingsRpt121206.pdf. Accessed July 25, 2012

U.S. Army Corp of Engineers (USACE), 1987. Wetland Delineations Manual. January 1987. Available online at: http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf. Accessed on November 6, 2013.

U.S. Fish and Wildlife Service (USFWS), 2002. *Recovery Plan for the California Red-Legged Frog* (*Rana aurora draytonii*), U. S. Fish and Wildlife Service, Portland, OR.

USFWS, 2011. Federal Endangered and Threatened Species that Occur On or may be Affected by Projects on the "Montara, CA" USGS 7.5 Topographic Quadrangle.

Available at: http://www.fws.gov/sacramento/es/spp_list.htm. Updated on September 18, 2011. Accessed on November 25, 2013.

USFWS, 2015. National Wetlands Inventory. Available online at: http://www.fws.gov/wetlands/. Accessed January 21, 2015.

United States Geological Survey (USGS), 1984. USGS Professional Paper 1270: Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States. H.T. Shacklette and J.G. Boerngen.

USGS, 1994. Geologic Map of the Montara Mountain and San Mateo 7-½' Quadrangles, San Mateo County, California. Pampeyan, E.H. Available online at: pubs.usgs.gov/imap/2390/report.pdf. Accessed on November 6, 2013.

USGS, 2013a. The Modified Mercalli Intensity Scale. Available online at: http://earthquake.usgs.gov/learn/topics/mercalli.php. Accessed on November 6, 2013.

USGS, 2013b. Magnitude/Intensity Comparison. Available online at: http://earthquake.usgs.gov/learn/topics/mag_vs_int.php. Accessed on November 6, 2013.

University of California Museum of Paleontology (UCMP), 2013. Collections database for San Mateo County available online at http://ucmpdb.berkeley.edu/. Queried November 6, 2013.

West Yost Associates, 2010. 2010 Urban Water Management Plan for the Coastside County Water District. Available online at: http://www.coastsidewater.org/reports_and_studies/2010_UWMP/CCWD_2010_UWMP.pdf. Accessed on July 25, 2012.

Western Regional Climate Center (WRCC), 2013. Western Regional Climate Center database for Half Moon Bay, California. Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3714. Accessed on November 6, 2013.

WRA Environmental Consultants, 2005. San Mateo County Biological Impact Report (Denniston Reservoir Dredging Project).

Wollenberg, Charles. 2002. Berkeley, A City in History. Available online at: http://berkeleypubliclibrary.org/system/Chapter1.html. Accessed November 7, 2013.

SECTION 9.0

ACRONYMS

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AB	Assembly Bill
ABAG	Association of Bay Area Governments
AES	Analytical Environmental Services
af	acre feet
AFY	acre feet per year
ALUP	Airport Land Use Plan
amsl	above mean sea level
APZ	Approach Protection Zone
AQMD	Air Quality Management District
BAAQMD	Bay Area Air Quality Management District
BMP	best management practices
BP	before present
BRA	Biological Resources Assessment
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Program
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAPs	Criteria Air Pollutants
CARB	California Air Resources Board
CAT	Climate Action Team
CBC	California Building Standards Code
CCA	California Coastal Act
CCAA	Clean Air Act Amendments
CCR	California Code of Regulations
CCWD	Coastside County Water District
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHRIS	California Historical Resources Information System

CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	Carbon dioxide
CRHR	California Register of Historical Resources
CRLF	California Red-legged Frog
CSC	California species of concern
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel level
DD	developmentally disabled
DOD	Department of Defense
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Safety Zone
FIRMs	Flood Insurance Rate Maps
FUDS	formerly used defense site
GGNRA	Golden Gate National Recreation Area
GHG	greenhouse gas
gpm	gallons per minute
GPS	Global Positioning System
HMBP	Hazardous Materials Business Plans
Hz	Hertz
IPCC	Intergovernmental Panel on Climate Change
IRF	Intermediate Regional Flood
IS	Initial Study
ITP	Incidental Take Permit
km	kilometer
LCP	Local Coastal Program
Ldn	Day/Night Noise Level

Leq	Equivalent Noise Level
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MCV	Manual of California Vegetation
MG	million gallons
mg	milligram
MLD	most likely descendant
MMI	Modified Mercalli Intensity Scale
MMRP	Mitigation Monitoring and Reporting Plan
MSDS	Material Safety Data Sheet
MT	metric tonnes
MWSD	Montara Water and Sanitary District
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NO_X	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OSHA	Occupational Safety and Health Act
PG&E	Pacific Gas & Electric Company
PM	particulate matter
POD	Point of Diversion
PPV	Peak Particle Velocity
PRC	Public Resources Code
PRMHC	Pillar Ridge Manufactured Home Community
pws	planning watershed
RCRA	Resource Conservation and Recovery Act

REC	Recognized Environmental Conditions
RMP	Risk Management Plan
ROG	Reactive Organic Gases
RPZ	Runway Protection Zone
RRMP	Riparian Restoration and Monitoring Program
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SCAQMD	South Coast Air Quality Management District
SCS	sustainable community strategy
SDWA	Safe Drinking Water Act
SFBAAB	San Francisco Bay Area Air Basin
SFGS	San Francisco Garter Snake
SFPUC	San Francisco Public Utilities Commission
SFRWQCB	San Francisco Regional Water Quality Control Board
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SOPs	Standard Operating Procedures
SRA	State Responsibility Area
SWPPP	Storm Water Pollution Prevention Plan
SWRB	State Water Rights Board
SWRCB	State water Resource Control Board
TAC	Toxic Air Contaminant
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOZ	Traffic Overflight Zone
UBC	Uniform Building Code
UCMP	University of California Museum of Paleontology
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USFWS	U. S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
WPT	Western Pond Turtle
WSE	water surface elevation
WTP	Water Treatment Plant

APPENDIX I

2015 BALANCE HYDROLOGICS MEMORANDUM

MEMO

To: David Dickson, General Manager, Coastside County Water District

From: Barry Hecht, C.E.G., C. Hg., Eric Donaldson, P.G.

Date: January 29, 2015

Subject: Response to MWSD Comments on CCWD Draft EIR; Recommendations for Points of Compliance for San Vicente Creek Live Stream Requirements

On October 30, 2014, Montara Water & Sanitary District (MWSD) submitted comments on the Draft EIR prepared by the Coastside County Water District (CCWD) for the Denniston/San Vicente Water Project. These comments indicate that MWSD primarily is concerned that the groundwater-impacts analysis in CCWD's Draft EIR is based on data collected during a period when MWSD's pumping from the Airport Aquifer was at historic low levels, without consideration of long-term drought conditions, and that, during drought conditions, CCWD diversions from San Vicente Creek could reduce the creek's recharge of the Airport Aquifer. MWSD proposes two conditions for CCWD's water-right permit to address the potential impacts of CCWD's diversions on the Airport Aquifer: (1) bypass flow requirements; and (2) a mitigation monitoring plan.

CCWD can address MWSD's concerns by agreeing to water-right permit conditions under which CCWD would divert water from San Vicente Creek only during times when there are surface-water flows throughout the reach of San Vicente Creek adjacent to the Airport Aquifer. When these surface-water flows are present, this reach of San Vicente Creek is a "live stream," providing recharge to the Airport Aquifer.

When there are surface-water flows in San Vicente Creek at Etheldore Street and California Avenue, there will be flows throughout this reach of San Vicente Creek and it will be recharging the Airport aquifer. Under these conditions, San Vicente Creek will have recharged as much as possible. Also, water passing the California Avenue gage no longer has the ability to recharge the Airport aquifer. We therefore recommend that CCWD agree to permit conditions under which CCWD would be allowed to divert water from San Vicente Creek only when there are surface-water flows at both of these two locations. These two proposed Points of Compliance (POC) are shown on the attached Figure 1.

At Etheldore Street, the existence of surface-water flows can be established with a flow gage, or alternatively (to provide more protection for the instruments) by monitoring groundwater levels in a very shallow piezometer (well) to be constructed a short distance from the San Vicente Creek channel. If the water level in the piezometer is at or above the channel thalweg elevation, then the condition requiring surface-water flow at Etheldore Street will be considered as being met. If the water level in this piezometer is below the thalweg elevation, then this condition will be considered as not being met, and CCWD should not divert any water from San Vicente Creek.

If a piezometer is used, and if water levels in the stream and piezometer differ, then the levels in the stream should govern. CCWD should take water-level measurements from this piezometer on a year-round basis.

We also propose that CCWD measure surface-water flows in San Vicente at the California Street gage (or within a reasonable distance from it). If surface water is observed at this gage, then the condition requiring surface-water flow at California Avenue will be considered as being met. If there is no surface water at this gage, then this condition will be considered as not being met, and CCWD should not divert any water from San Vicente Creek. Although measurements at this location will be most important during the summer, CCWD may ensure that its diversions occur only during "live stream" conditions by taking measurements at this location whenever CCWD is considering diverting water from San Vicente Creek.

It may be necessary to move either monitoring site as trees fall around them, or as geomorphic or land-use changes affect the San Vicente Creek channel. Either site may be moved a reasonable distance upstream or downstream without affecting the overall conclusion that, when there is surface-water flow at both sites, San Vicente Creek is a "live stream" and is recharging as much as it can to the Airport Aquifer. Under such conditions, CCWD's diversions of water from San Vicente Creek will not affect groundwater conditions in the Airport Aquifer.

Because these permit conditions will ensure that CCWD diverts water from San Vicente Creek only when the creek is a "live stream" in the vicinity of the Airport Aquifer, no additional mitigation monitoring plan is necessary.

Enclosures:

Figure 1: Site Map, Proposed mitigation monitoring sites: San Vicente Creek at California Avenue (SVCA), and San Vicente Creek near Etherldore Street. Moss Beach, California.

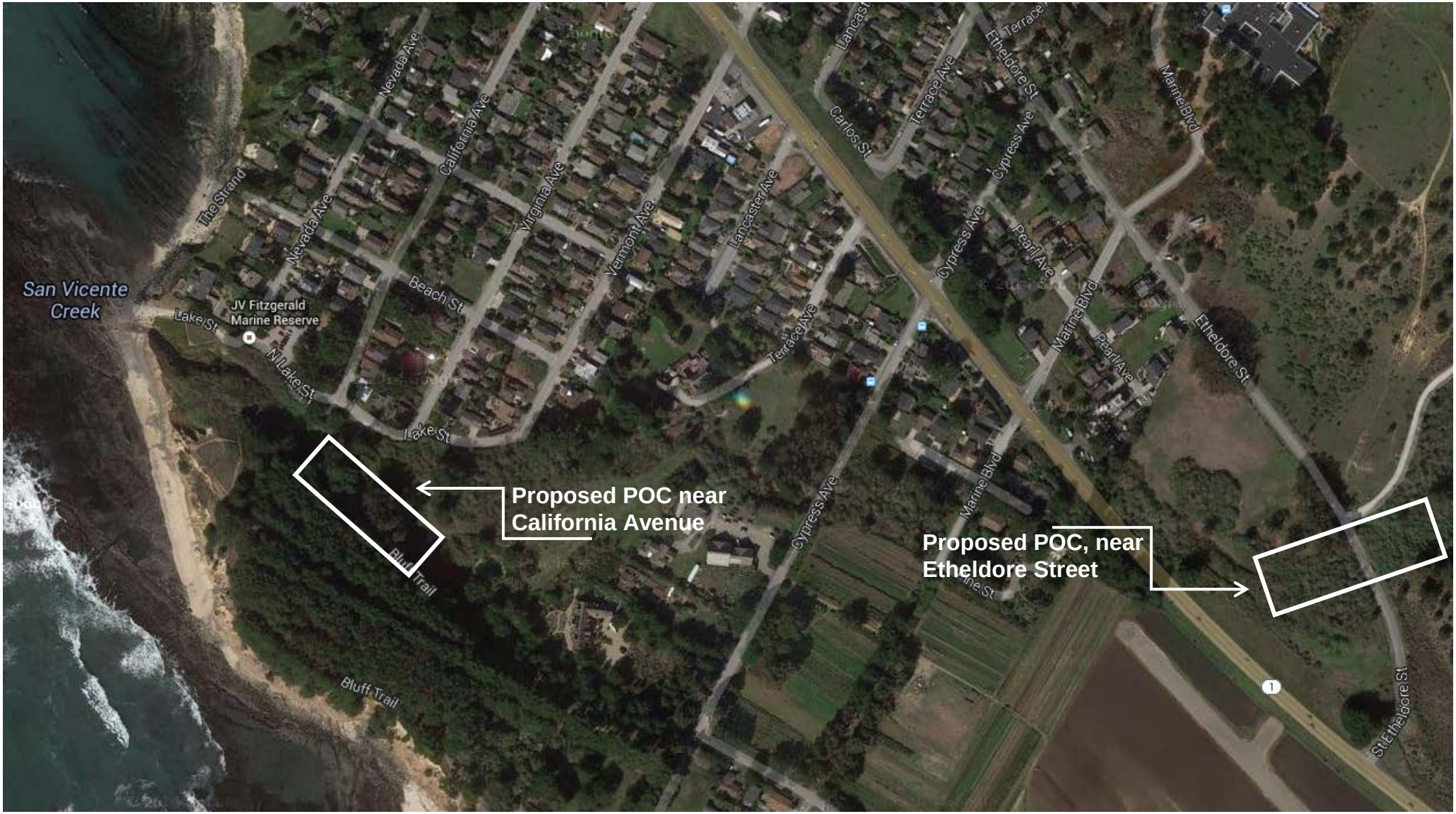

Image source: Google Maps

Balance Hydrologics, Inc.

Figure 1 **Site Map, Proposed mitigation monitoring sites: San Vicente Creek at California Avenue (SVCA), and San Vicente Creek near Etheldore Street. Moss Beach, California.**