Water Quality Assessment Report

U.S. 101/Prado Road Interchange Connection Project

U.S. 101/Prado Road Interchange Connection Project, San Luis Obispo County

U.S. 101 and Prado Road

05-San Luis Obispo-101-26.5-27.3

1H640K

November 2021

Caltrans

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STATE OF CALIFORNIA
Department of Transportation

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EXECUTIVE SUMMARY

The purpose of the Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act and the California Environmental Quality Act, and provide information, to the extent possible, for the National Pollution Discharge Elimination System (NDPES) permitting.

This WQAR includes a discussion of the proposed Project, the physical setting of the Project area, and the regulatory framework with respect to water quality. It also includes data on surface water and groundwater resources within the Project area and their water quality health, describes water quality impairments and beneficial uses, identifies potential water quality impacts/benefits associated with the proposed Project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

The U.S. 101/Prado Road Interchange Connection Project is proposed by the City of San Luis Obispo. The purpose of the Project is to improve overall circulation and accessibility in the Project area for all transportation modes. The site's receiving water is Prefumo Creek, which connects to San Luis Obispo Creek and then to the Pacific Ocean at Avila Beach. Both Prefumo Creek and San Luis Obispo Creek (below Osos Street) are listed as impaired water bodies in the 2014-2016 Section 303(d) of the Clean Water Act (CWA). In addition, both receiving water bodies are identified as sediment-sensitive waterbodies.

Portions of the Project lie within the City of San Luis Obispo Municipal Separate Storm Sewer Systems Phase II area. The area is also subject to the Central Coast Regional Water Quality Control Board Resolution No. R3-2013-0032 Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region. In addition, the portions of the Project falling within Caltrans owned right-of-way will follow the post construction runoff control requirements under the Caltrans NPDES Permit (Order 2012-0011 DWQ). Finally, the Project is subject to the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

A potential for short-term changes in water quality during the construction phase of the proposed Project exists. However, these impacts will be minimized through the implementation of a site-specific Stormwater Pollution Prevention Plan and Best Management Practice measures. In addition, potential long-term impacts to the aquatic environment during and after construction would be avoided and minimized by meeting post-construction requirements set forth by the NPDES general permits, as well as complying with Federal, State, and Regional water quality protection regulations.

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1. INTRODUCTION

1.1 Project Description

The City of San Luis Obispo, in cooperation with the California Department of Transportation (Caltrans), proposes to extend Prado Road over U.S. Route 101 (U.S. 101) to connect with Dalidio Drive and reconstruct the existing U.S. 101 northbound ramp on and off-ramp connections to Prado Road to provide congestion relief, operational efficiency and multimodal connectivity. The interchange is located in the City of San Luis Obispo on U.S. 101 post mile (PM) 26.8. The project limits extend from PM 26.5 to PM 27.3 (see Figure 1-1, Project Location).

The purpose of the project is to improve overall circulation and accessibility in the project area for all transportation modes. There is a need to provide better community connectivity between the existing and planned neighborhoods east and west of the U.S. 101 freeway and resolve forecasted operational deficiencies on State and City facilities. This connectivity need extends to all transportation modes.

Goals and objectives of the project include:

- To improve overall operations of U.S. 101 and adjacent interchanges;
- To improve safety and mobility for bicyclists and pedestrians;
- To improve transit performance and enhance transit opportunities; and
- Consistency with local, regional, and State planning.

Four preliminary build alternatives, Alternatives A1, A3, A4, and A7 have been identified by the Project Development Team (PDT) as viable and to be further studied in the Project Approval/Environmental Document (PA/ED) phase. A preliminary project build alternative, Alternative A2, was also identified as viable by the PDT but was rejected by the PDT and will not be carried into PA/ED. Each of the viable build alternatives includes a partial interchange with the proposed Prado Road overcrossing constructed over U.S. 101 and new U.S. 101 - northbound off-ramp to and on-ramp from Prado Road. Alternatives A1 and A4 also include two intersection control options, traffic signal control (A1 and A4) or roundabout control (A1R and A4R) at the future intersection of Froom Ranch Road/Dalidio Drive and Prado Road. The roundabout control option for Alternative A3 would be the same as provided for Alternative A1. Finally, a roundabout-only option at the Prado Road/Elks Lane/U.S. 101 northbound ramps is considered with Alternative A7.

U.S. 101 through the study area is currently a 4-lane divided freeway with auxiliary lanes provided between Madonna Road and Marsh Street. The Ultimate Concept Facility (beyond 2035) for U.S. 101 within the study area is identified as a freeway with capacity of up to 6 lanes though there is no funding currently identified for providing a 6-lane freeway section. Though not funded, each viable build alternative will accommodate the Ultimate Concept Facility through the proposed Prado Road overcrossing.

The area surrounding the project includes commercial uses northwest of the intersection of Prado Road and U.S. 101, commercial and residential uses northeast of said intersection, the City-

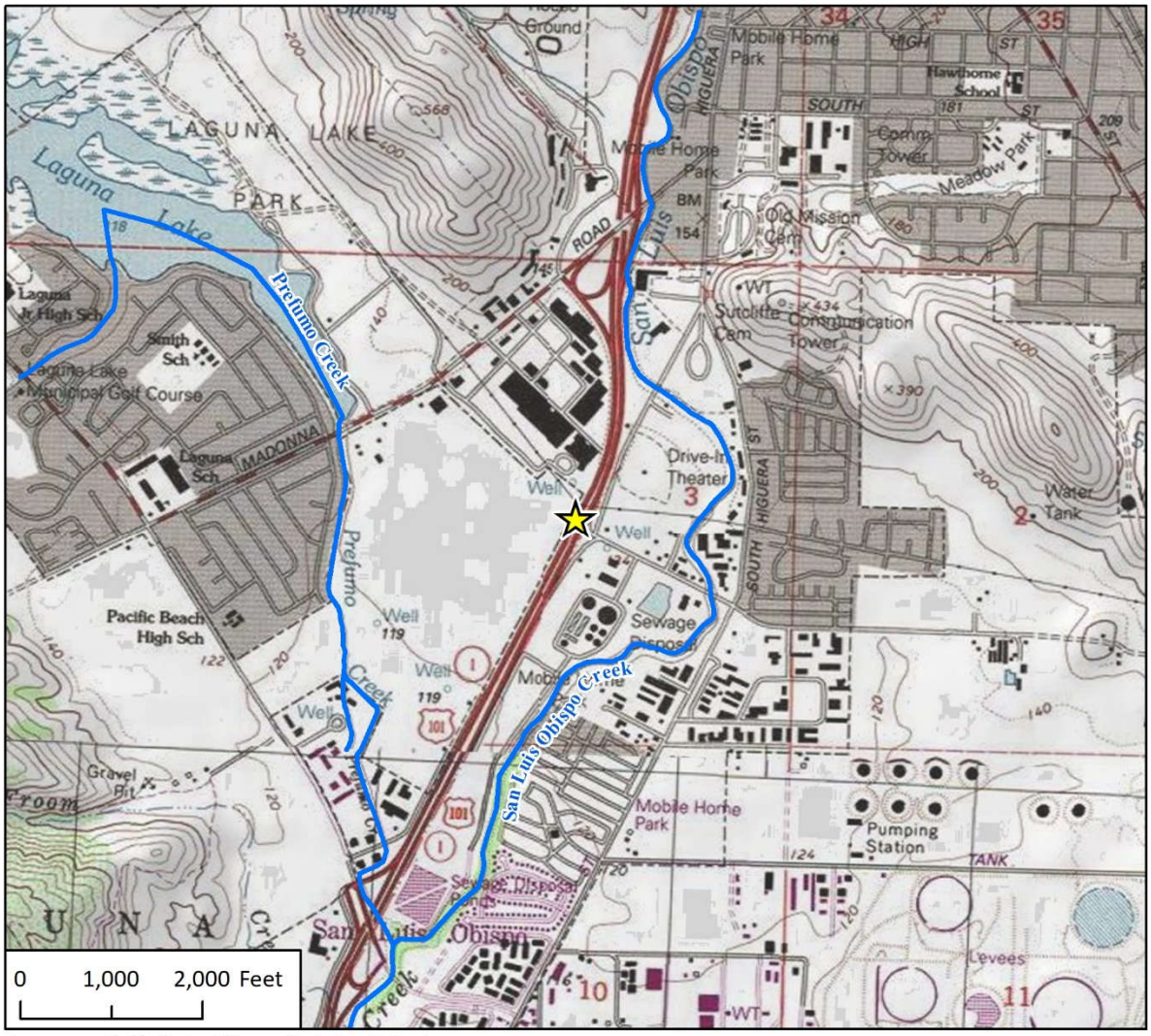
owned corporation yard and City Water Resource Recovery Facility (WRRF) southeast of the intersection, and the San Luis Ranch property west of U.S. 101. The San Luis Ranch property is currently in the initial phases of development, with approved commercial, residential, recreational, and agricultural land uses under the San Luis Ranch Specific Plan, adopted by the City in 2017 (City of San Luis Obispo 2017). On the eastern end of the Prado Road alignment the project abuts the western limits of the San Luis Obispo Creek Bridge Widening Project, which has independent utility from the proposed project and is currently being reviewed by the City of San Luis Obispo. The proposed action does not contemplate any improvements to or activity within the riparian area associated with San Luis Obispo Creek at the location of the San Luis Obispo Creek Bridge Widening Project.

There are no existing permanent Maintenance Stockpile Facilities located within or near this Project's limits. There are existing permanent storm water treatment best management practices (BMPs) located within or near this Project's limits:

- There is a bio-filtration strip treatment BMP on the northbound shoulder of U.S. 101 from PM 26.0 to PM 26.7.
- There is a bio-filtration strip treatment BMP on the southbound shoulder of U.S. 101 from PM 26.6 to PM 27.1.

At this time, the Preliminary Environmental Analysis Report (PEAR) identifies that potential impacts to jurisdictional features may occur if the project cannot be designed to fully avoid San Luis Obispo Creek, or if other wetlands are present and cannot be avoided. Impacts to jurisdictional features resulting from project related activities could require a Nationwide Permit from the United States Army Corps of Engineers pursuant to Section 404 of the Clean Water Act and a Water Quality Certification from the Regional Water Quality Control Board pursuant to Section 401 of the Clean Water Act. In addition, the area of disturbance is expected to be over one acre which will necessitate a Stormwater Pollution Prevention Plan (SWPPP), and require enrollment under the Statewide Construction General Permit. Permits and approvals will be confirmed during the Project Approval/Environmental Document (PA/ED) phase.

Parts of this Project are located within the City of San Luis Obispo MS4 Phase 2 area. The area is also subject to the Central Coast Regional Water Quality Control Board (RWQCB) Resolution No. R3-2013-0032 "Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast Region." Those parts of the Project within Caltrans owned right-of-way will follow the post construction runoff control requirements under the new Caltrans NPDES Permit (Order 2012-0011 DWQ).



Imagery provided by National Geographic Society, Esri and its licensors © 2021. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled. Additional data provided by the National Hydrograpy Dataset, 2017.

Project Location

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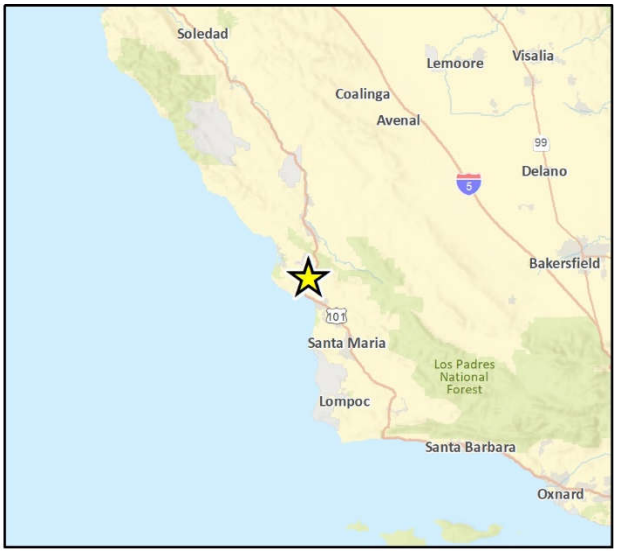

Figure 1-1. Project Location

1.1.1 No Project Alternative

Under the No-Build Alternative, no changes would be made in the Project area.

1.2 Approach to Water Quality Assessment

The purpose of the Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to provide information, to the extent possible, for National Pollution Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed Project, the physical setting of the Project area, and the regulatory framework with respect to water quality; it also provides data on surface water and groundwater resources within the Project area and the water quality of these waters, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed Project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

2. REGULATORY SETTING

2.1 Federal Laws and Requirements

Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a NPDES permit. Known today as the CWA, Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request. See below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and Municipal Separate Storm Sewer Systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

USACE issues two types of 404 permits: Standard and General permits. For General permits there are two types: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are also two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (EPA) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable

alternative (LEDPA), to the proposed discharge that would have less effects on waters of the U.S., and not have any other adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures have been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

2.2 State Laws and Requirements

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollution Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. The Department's MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit, currently under revision, contains three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs to the maximum extent practicable (MEP), and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed Project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ) (CGP), adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites which result in a disturbed soil area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the CGP. Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop SWPPPs; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.3 Regional and Local Requirements

City of San Luis Obispo

The City addresses biological resources, hydrology, and water quality issues through implementation of adopted General Plan policies and programs. These policies are found in the Land Use, and Conservation and Open Space Elements (COSE). The City also addresses these issues through its Waterway Management Plan.

The City's COSE of the General Plan includes policies that address biological resources and water quality. The following COSE policies define the local regulatory setting in the Project vicinity:

Policy 7.7.9. Creek Setbacks. As further described in the Zoning Regulations, the City will maintain creek setbacks to include: an appropriate separation from the physical top of the bank, the appropriate floodway as identified in the Flood Management Policy, native riparian

plants or wildlife habitat and space for paths called for by any City-adopted plan. In addition, creek setbacks should be consistent with the following:

A The following items should be no closer to the wetland or creek than the setback line: buildings, streets, driveways, parking lots, above-ground utilities, and outdoor commercial storage or work areas.

B Development approvals should respect the separation from creek banks and protection of floodways and natural features identified in part A above, whether or not the setback line has been established.

C Features which normally would be outside the creek setback may be permitted to encroach where there is no practical alternative, to allow reasonable development of a parcel, consistent with the Conservation and Open Space Element.

D Existing bridges may be replaced or widened, consistent with policies in this Element. Removal of any existing bridge or restoration of a channel to more natural conditions will provide for wildlife corridors, traffic circulation, access, utilities, and reasonable use of adjacent properties.

Policy 10.2.1. Water Quality. The City will employ the best available practices for pollution avoidance and control and will encourage others to do likewise. "Best available practices" means behavior and technologies that result in the highest water quality, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies.

The City's Land Use Element of the General Plan contains the following policies which define the local regulatory setting related to biological resources and water quality within the Project vicinity:

Policy 10.2.2. Ahwahnee Water Principles. In planning for its water operations, programs and services, the City will be guided by the Ahwahnee Water Principles and will encourage individuals, organizations, and other agencies to follow these policies:

A Community design should be compact, mixed use, walkable and transit-oriented so that automobile-generated urban runoff pollutants are minimized and the open lands that absorb water are preserved to the maximum extent possible.

B Natural resources such as wetlands, flood plains, recharge zones, riparian areas, open space, and native habitats should be identified, preserved and restored as valued assets for flood protection, water quality improvement, groundwater recharge, habitat, and overall long-term water resource sustainability.

C Water holding areas such as creekbeds, recessed athletic fields, ponds, cisterns, and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape.

D All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater.

E Permeable surfaces should be used for hardscape. Impervious surfaces such as driveways, streets, and parking lots should be minimized so that land is available to absorb storm water, reduce polluted urban runoff, recharge groundwater and reduce flooding.

F Dual plumbing that allows grey water from showers, sinks and washers to be reused for landscape irrigation should be included in the infrastructure of new development, consistent with State guidelines.

G Community design should maximize the use of recycled water for appropriate applications including outdoor irrigation, toilet flushing, and commercial and industrial processes. Purple pipe should be installed in all new construction and remodeled buildings in anticipation of the future availability of recycled water.

H Urban water conservation technologies such as low-flow toilets, efficient clothes washers, and more efficient water-using industrial equipment should be incorporated in all new construction and retrofitted in remodeled buildings.

I Ground water treatment and brackish water desalination should be pursued when necessary to maximize locally available, drought-proof water supplies.

Policy 10.3.2. Maintain water quality.

The City will do the following in to maintain a high level of water quality, and will encourage individuals, organizations, and other agencies to do likewise:

A Design and operate its water supply, treatment, and distribution system to prevent adverse effects on water quality (potential point source of pollutants such as chlorine).

B Design and operate its wastewater collection and treatment system to prevent adverse effects on water quality (potential point source of pollutants such as untreated sewage and chlorine).

C Design, construct, and maintain its facilities such as parks, buildings and grounds, storm water facilities and parking to prevent adverse effects on water quality (potential point sources for pollutants such as petroleum and non-point sources of runoff contaminated with fertilizers, pesticides, litter, and vehicle residues).

D Regulate the design, construction, and operation of private facilities over which the City has permit authority to ensure they will not have adverse effects on water quality (potential point sources for, as examples, sediment from construction and chemicals used in operations, and non-point sources for contaminated runoff).

E Participate with other agencies, in particular the California Regional Water Quality Control Board, in watershed planning and management.

F In locations subject to flooding, not allow activities, such as outdoor storage, that would be substantial sources of chemical or biological contamination during a flood, even though buildings associated with the activities would meet flood-protection standards.

G Establish standards for non-point source water pollution in cooperation with the Regional Water Quality Control Board.

H Establish a program of baseline water quality testing for City creeks.

I Identify and protect groundwater recharge areas to maintain suitable groundwater levels and to protect groundwater quality for existing and potential municipal water sources.

Policy 1.8.6. Wildlife Habitat. The City shall ensure that continuous wildlife habitat – including corridors free of human disruption - are preserved, and, where necessary, created.

Policy 2.3.7. Natural Features. The City shall require residential developments to preserve and incorporate as amenities natural site features, such as land forms, views, creeks, wetlands, wildlife habitats, wildlife corridors, and plants.

Policy 6.6. Creeks Wetlands, and Flooding Policies. San Luis Obispo's aquatic ecosystems consist of creeks, Laguna Lake, floodplains, marshes, wetlands, serpentine seeps, and springs. These aquatic ecosystems provide habitat, recreation, water purification, groundwater recharge, and soil production as well as natural flood protection by reducing the force of floodwaters as they spread and decelerate over floodplains. Creeks, which are the most obvious of these systems because they flow under and through the City, provide wildlife habitat, backyard retreats, and viewing and hiking pleasures, in addition to carrying storm water runoff. When some creeks overflow during major storms, they flood wide areas beyond their channels (Figure 8). San Luis Obispo wants to avoid injury or substantial property losses from flooding, while keeping or improving the creeks' natural character, scenic appearance, recreational value, and fish and wildlife habitat.

Policy 6.6.1. Creek and Wetlands Management Objectives. The City shall manage its lake, creeks, wetlands, floodplains, and associated wetlands to achieve the multiple objectives of:

A Maintaining and restoring natural conditions, and fish and wildlife habitat;

B Preventing loss of life and minimizing property damage from flooding;

C Providing recreational opportunities which are compatible with fish and wildlife habitat, flood protection and use of adjacent private properties; and

D Recognizing and distinguishing between those sections of creeks and Laguna Lake which are in previously urbanized areas, such as the downtown core and sections which are in largely natural areas. Those sections already heavily impacted by urban development and activity may be appropriate for multiple use whereas creeks and lakeshore in a more natural state shall be managed for maximized ecological value.

Policy 6.6.2. Citywide Network. The City shall include the lake, creeks, and wetlands as part of a citywide and regional network of open space, parks, and – where appropriate – trails, all fostering understanding, enjoyment, and protection of the natural landscape and wildlife.

Policy 6.6.3. Amenities and Access. New public or private developments adjacent to the lake, creeks and wetlands must respect the natural environment and incorporate the natural features as project amenities, provided doing so does not diminish natural values. Developments along creeks should include public access across the development site to the creek and along the

creek, provided that wildlife habitat, public safety, and reasonable privacy and security of the development can be maintained, consistent with the Conservation and Open Space Element.

Policy 6.6.5. Runoff Reduction and Groundwater Recharge. The City shall require the use of methods to facilitate rainwater percolation for roof areas and outdoor hardscaped areas where practical to reduce surface water runoff and aid in groundwater recharge.

Policy 6.6.6. Development Requirements. The City shall require project designs that minimize drainage concentrations and impervious coverage. Floodplain areas should be avoided and, where feasible, any channelization shall be designed to provide the appearance of a natural water course.

Policy 6.6.7. Discharge of Urban Pollutants. The City shall require appropriate runoff control measure as part of future development proposals to minimize discharge of urban pollutants (such as oil and grease) into area drainages.

Policy 6.6.8. Erosion Control Measures. The City shall require adequate provision of erosion control measures as part of new development to minimize sedimentation of streams and drainage channels.

Policy 6.7.3. Creekside Care and Notification. In maintaining creek channels to accommodate flood waters, the City shall notify owners of creeks and adjacent properties in advance of work and use care in any needed removal of vegetation.

3. AFFECTED ENVIRONMENT

3.1 Introduction

This chapter discusses existing conditions in the Project vicinity, including current water quality issues associated with Project-related receiving waters.

3.2 General Setting

The approximate center of the Project site occurs at latitude 35°15'25.83"N and longitude 120°40'29.39"W (WGS-84 datum) (see Figure 1-1, Project Location). The Project site is depicted on the San Luis Obispo, California USGS 7.5-minute topographic quadrangle. The Public Land Survey System depicts the Project site within the Mt. Diablo Meridian, Township 31 South, Range 12 East, and Section 03.

3.2.1 Population and Land Use

The land on the west side of U.S. 101 is currently used as farmland with irrigated row crops, but is within the San Luis Ranch Specific Plan. The San Luis Ranch Specific Plan area is the site of an approved project that would develop single-family and multi-family residential development and commercial uses, but would maintain a portion of the existing agricultural area west of U.S. 101. A development project located on the west side of U.S. 101 known as the San Luis Ranch Specific Plan is currently seeking entitlement with the City. The land on the east side of U.S. 101 is developed with commercial and industrial uses, including the City of San Luis Obispo Public Works maintenance yard and Water Resource Recovery Facility, a drive-in movie theater and various other commercial and industrial buildings.

3.2.2 Topography

The coastal plateau ranges in elevation from sea level to about 500 feet above sea level and is bound by the Santa Lucia Range to the northeast. Topography at the Project site is flat with an elevation of approximately 130 feet above sea level.

3.2.3 Hydrology

Regional Hydrology

The Project site lies entirely within the Estero Bay Hydrologic Unit, the Point Buchon Hydrologic Area, and the San Luis Obispo Creek sub-area (sub-area number 310.24).

The Project is within the San Luis Obispo Creek watershed in the City of San Luis Obispo, California. The watershed collects water within approximately 84 square miles of land and drains into the Pacific Ocean at Avila Beach. The headwaters are located at Santa Lucia Range, the water flows onto a plateau, descends into San Luis Obispo City, then flows into the Pacific Ocean. This watershed is described as “flashy” due to the high relief and the impervious surfaces within the urban areas. As a result, water flows through the watershed quickly before it reaches the Pacific Ocean (The Land Conservancy of San Luis Obispo County 1996).

Local Hydrology

Precipitation and Climate

San Luis Obispo County is divided into three geographic or climate regions: coastal plateau, Upper Salinas River Valley, and east county plain. The Project site lies within the coastal plateau region, the region immediately inland from the Pacific Ocean and typically 5 to 10 miles wide. The coastal plateau exhibits a more moderate Mediterranean climate with summer fog and mild temperatures due to its proximity to the Pacific Ocean. Furthermore, the City of San Luis Obispo has developed a Drainage Design Manual (DDM). DDM Figure 4A is included in this report as Figure 3-1 and illustrates the average annual precipitation (in millimeters). This Project falls in an area that typically receives 8.5 to 9.5 inches of rain per year. Precipitation intensity data for this region is shown in Figure 3-2.

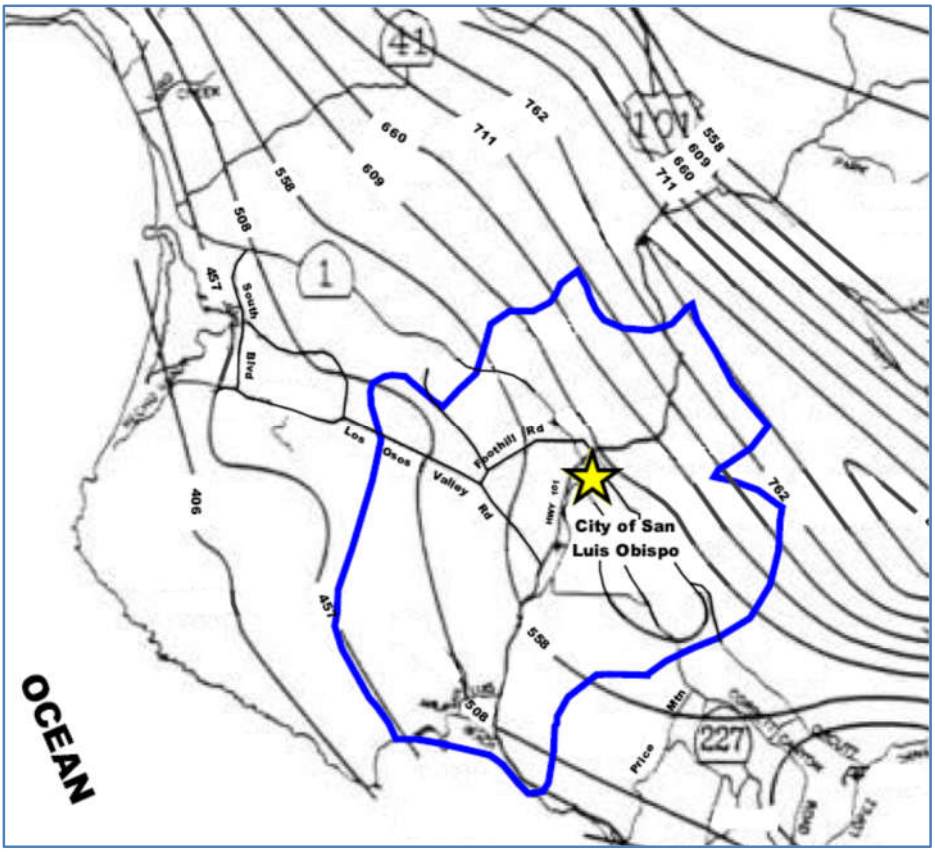

Figure 3-1. Average Annual Precipitation (mm) City of San Luis Obispo DDM Figure 4A

Rainfall - Intensity Data (mm/hr), Areas With 550 mm to 700 mm Annual Rainfall

Recurrence	Duration							
Interval (years)	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	10 hrs
2	53	46	30	19	14	12	9.1	7.1
5	74	64	43	27	19	17	13	10
10	91	76	53	33	23	21	16	12
25	102	89	61	38	28	25	20	15
50	117	99	66	43	33	29	23	18
100	127	109	74	47	35	31	25	19

Figure 3-2. Intensity Data Table 4-6 from City of San Luis Obispo DDM 4A

Surface Streams

No surface waters are within the proposed Project area. However, San Luis Obispo Creek and Prefumo Creek are within 1 mile of the Project area. San Luis Creek flows along the western portion of the Project site. In a few areas, San Luis Creek runs approximately 50 feet or less from the Project site. Surface flows from the Project site generally flow in a westerly direction, towards Prefumo Creek which is approximately 0.25 miles west of the Project site. An evaluation of the entire site will be conducted to determine if potentially jurisdictional features may be present within the project site, and if so, a formal jurisdictional delineation of the project site will be completed.

The confluence of Prefumo Creek and San Luis Obispo Creek is approximately 0.75 mile south-southwest of the Project area. San Luis Obispo Creek makes a sharp bend directly adjacent to the Project site (see Figure 3-3, Project Vicinity). Banks are steep and are described as near vertical in certain locations. To the east of the bend, broken concrete slab debris is exposed at the surface and the creek lies below. These exposed cement slabs are evidence that the river may be downcutting adjacent to the Project site (City and County of San Luis Obispo 2003).

Flood Plains

Due to the proximity of the two waterways (Prefumo Creek and San Luis Obispo Creek), the Project is in the 100-year floodplain, and partially within the 500-year floodplain. Floodplain mapping for this area is depicted in Figure 3-4, as well as on publicly available FEMA floodplain maps and in the City's DDM Figure 3-2c. A Location Hydraulic Study will be prepared to evaluate base floodplain encroachments. If the Location Hydraulic Study concludes that the proposed project would result in a significant encroachment (as defined by 23 CFR 650.105), a Floodplain Evaluation Report would be required.

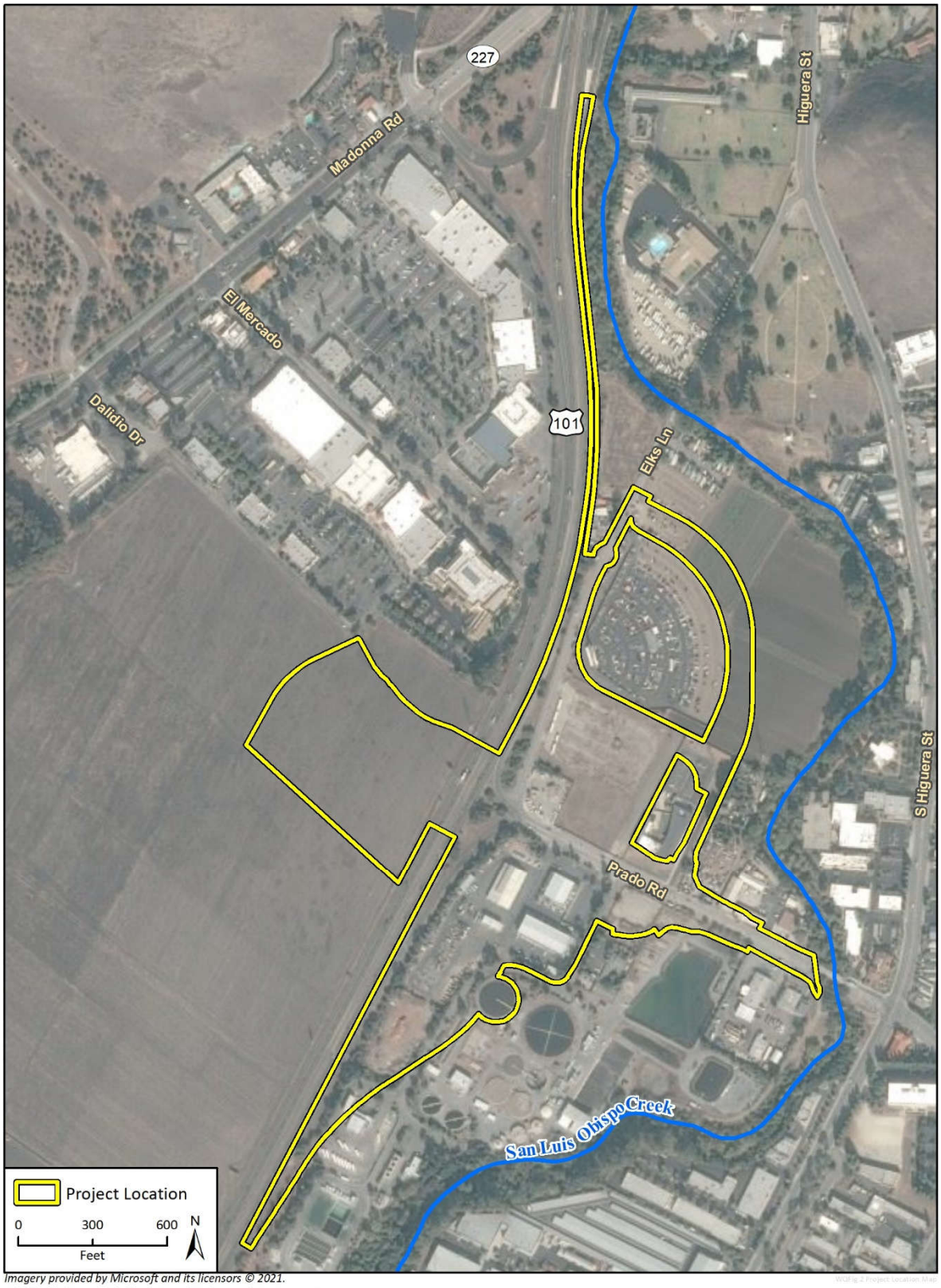

Figure 3-3. Project Vicinity

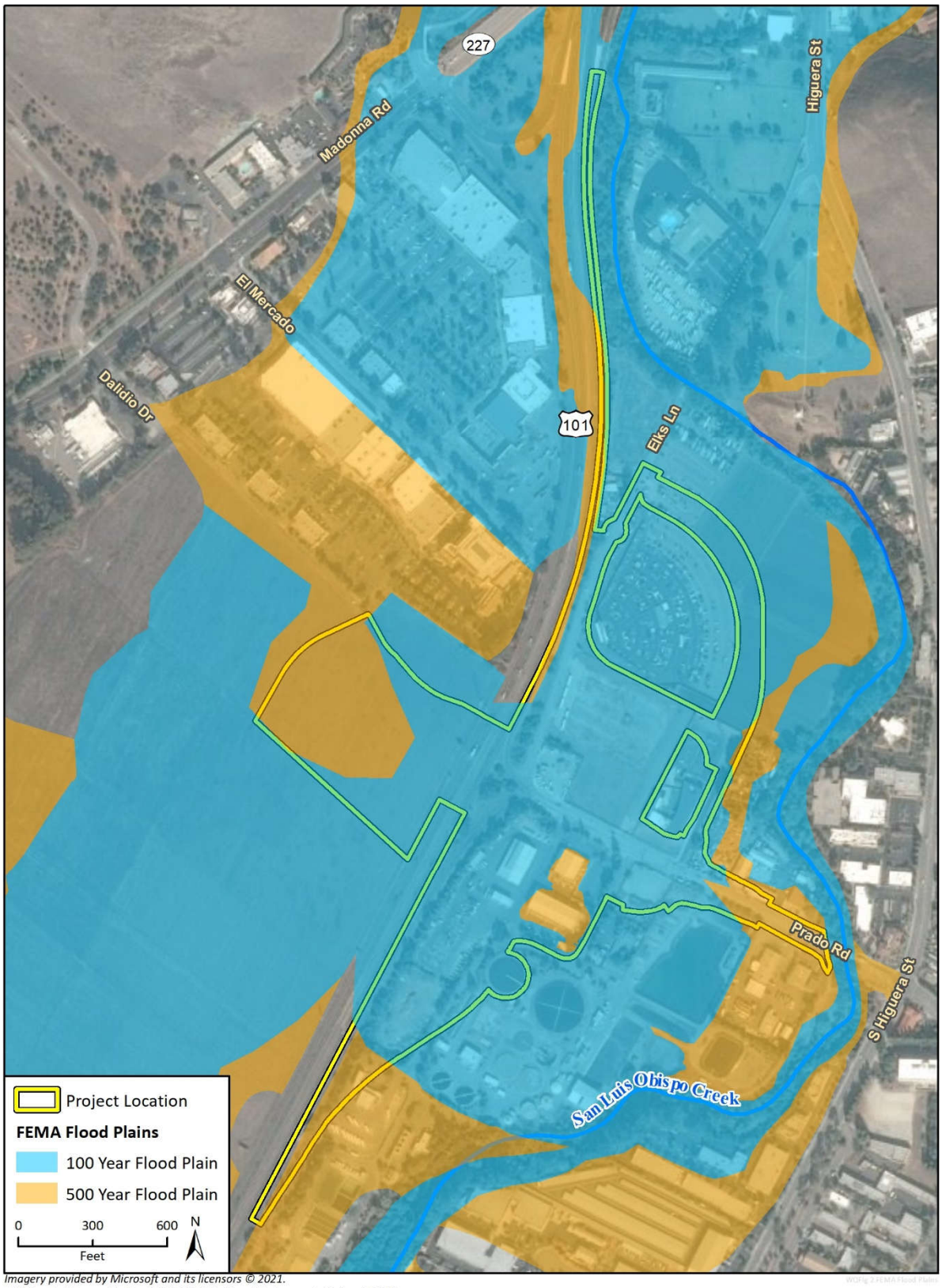

Figure 3-4. FEMA 100-Year and 500-Year Flood Plain

Municipal Supply

The San Luis Obispo County Flood Control and Water Conservation District (District) supplies water for San Luis Obispo County. It was created in 1945 by the State Legislature. Under the District's jurisdiction, many different water service agencies (public and private) manage the available water. The District has a contract with the State of California for imported water from the State Water Project (San Luis Obispo County, Public Works Department 2005).

Approximately 75 percent of the County's water needs are met with the groundwater supply and 25 percent are met with reservoirs. Salinas Reservoir, Lopez Reservoir, and Whale Rock Reservoir supply most of the water demand in San Luis Obispo County. One water supply well is located within the northern portion of the Project area, between Elks Lane and U.S. 101 northbound.

Groundwater Hydrology

The San Luis Obispo Valley Groundwater Basin (basin) includes approximately 21.6 square miles. The San Luis Valley Sub-Basin (sub-basin) is approximately 8,000 acres and lies under unincorporated County and the City of San Luis Obispo. According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the depth to water table is greater than 2 meters (6.6 feet) around the Project site.

San Luis Obispo Creek and tributaries, precipitation percolation, and residential/agricultural return flow are the primary recharge inputs for the sub-basin. Groundwater utilizers include: public water system servicing various private residences, agricultural growers, residential properties, industrial uses; the City of San Luis Obispo; California State Polytechnic University; San Luis Coastal Unified School District; and Chevron.

The water availability limitations in the sub-basin include physical boundaries, water quality problems, and high demand (San Luis Obispo County 2014). The Project will likely not impact long-term water quality or quantity; therefore, it will not impact groundwater quality or quantity.

3.2.4 Geology/Soils

Soil Erosion Potential

According to information obtained from the NRCS Web Soil Survey, the Hydrologic Soil Groups (HSGs) on-site consist primarily of Group C "Salinas silty clay loam," which underlies most of the Project area including the location of the proposed overcrossing, Prado Road and areas to the southwest, and "Cropley clay" which underlies the Project's northwest area.

The Caltrans Water Quality Planning Tool (WQPT) was used to estimate the erosion potential of the site. The erosion factor within the Project area is 0.24, which is characterized as a low erosion potential (Caltrans 2018).

3.2.5 Biological Communities

Aquatic Habitat

Aquatic habitats in the Project area include perennial streams, seasonal drainages, and riverine communities. All aquatic habitats in the Project location drain into San Luis Obispo Creek. There is no aquatic habitat suitable for anadromous or marine species within or immediately adjacent to the Project area. Storm water drained from the Project area has the potential to transport pollutants to aquatic habitats within the Project area.

Special Status Species

One species, South-central California Coast Distinct Population Segment steelhead (*Oncorhynchus mykiss*), was identified under National Marine Fisheries Service (NMFS) jurisdiction in the San Luis Obispo quadrangle (35120-C6). This species was dismissed from further consideration due to the absence of suitable aquatic habitat for anadromous species in the Project area. Therefore, the Project area does not provide suitable habitat for any NMFS jurisdictional species.

3.3 Water Quality Objectives/Standards and Beneficial Uses

3.3.1 Surface Water Quality Objectives/Standards and Beneficial Uses

The protection of water quality within San Luis Obispo County is under the jurisdiction of the Central Coast Regional Water Quality Control Board (CCRWQCB). The CCRWQCB establishes requirements that prescribe the discharge limits and establish water quality objectives through the Water Quality Control Plan for the Central Coast Basin (Basin Plan (CCRWQCB September 2017). Water quality characteristics typically measured include pH, total dissolved solids, levels of herbicides and pesticides, sediment levels, vehicle-related oils, and chemicals such as chloride, sulfate, and nitrate. Water quality objectives are established based on the designated beneficial uses for a particular surface water or groundwater basin.

There are 20 categories of "beneficial uses" that are outlined in the Basin Plan (CCRWQCB September 2019). Each body of water in the State has a set of beneficial uses that may or may not include all 20 categories. For example, a reservoir may provide beneficial use as a municipal water supply, agricultural supply, wildlife habitat, and groundwater recharge at the same time. Different beneficial uses require different water quality control. Therefore, each beneficial use has a set of water quality objectives designed to protect that use. Table 3.1 contains a list of beneficial uses of Prefumo Creek and San Luis Obispo Creek.

Water quality objectives are the limits or levels of water quality constituents or the characteristics of a water body that are established for the reasonable protection of beneficial uses of water. Water quality objectives are numeric limits and narrative objectives designed to ensure that bodies of water in the state can support their designated beneficial uses. At concentrations equal to or greater than the numeric objectives, constituents (or pollutants) are considered to have impaired the beneficial uses of the state's water. In some cases, objectives are narrative (qualitative), rather than numerical. The CCRWQCB Basin Plan provides specific water quality objectives for potential releases of pollutants into County surface waters.

Importantly, each Beneficial Use is associated with a water quality objective in order to maintain the intended use of the waterbody.

Table 3.1
Beneficial Uses for Prefumo Creek and San Luis Obispo Creek

Creek	Abbreviation	Beneficial Use	Definition
Prefumo, San Luis Obispo	MUN	Municipal & Domestic Water Supply	Community, military, or individual water supply systems including, but not limited to, drinking water supply.
Prefumo, San Luis Obispo	AGR	Agricultural Supply	Farming or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for grazing.
Prefumo, San Luis Obispo	GWR	Ground Water Recharge	Natural or artificial recharge of ground water for purpose of future extraction or maintenance of water quality.
Prefumo, San Luis Obispo	REC1	Contact Water Recreation	Recreational activities involving body contact with water, where ingestion of water is reasonably possible. Example: swimming, fishing, and wading.
Prefumo, San Luis Obispo	REC2	Non-Contact Water Recreation	Recreational activities close to water, but not normally involving body contact with water. Example: picnicking, hiking, and boating.
Prefumo, San Luis Obispo	WILD	Wildlife Habitat	Terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, and wildlife.
Prefumo, San Luis Obispo	COLD	Cold Freshwater Habitat	Cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife.
Prefumo, San Luis Obispo	SPWN	Spawning, Reproduction, and/or Early Development	Support for high quality aquatic habitats suitable for reproduction and early development of fish.
Prefumo, San Luis Obispo	MIGR	Migration of Aquatic Organisms	Support for habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.
Prefumo, San Luis Obispo	RARE	Rare, Threatened, or Endangered Species	Habitats necessary for the survival of plant and animal species identified under state or federal law as rare, threatened, or endangered.
Prefumo	FRSH	Freshwater Replenishment	Natural or artificial maintenance of surface water quantity or quality (e.g. salinity).
Prefumo, San Luis Obispo	COMM	Commercial & Sport Fishing	Commercial or recreational collection of fish or other organisms including, but not limited to, uses of the organism for human consumption or bait.

Source: CCRWCCB 2019.

3.4 Existing Water Quality

This section discusses existing water quality conditions related to receiving waters adjacent to the Project.

3.4.1 Regional Water Quality

For undeveloped areas, surface waters entering the watercourse from undeveloped areas usually travel over vegetative cover, resulting in little erosion or sedimentation. Urbanized areas may contain pollutants on the ground surface that can be harmful to water quality and natural ecosystems. These include heavy metals, hydrocarbons, detergents, fertilizers, and pesticides that originate from vehicle use and commercial and residential land use activities. For the most part, these pollutants are associated with sediments that collect on roadways and are flushed into the creek systems either in dry weather flows, during construction, or by rainfall.

Construction activities can also create erosion and cause sediment to be transported off-site, as surface water runs through the construction site. Therefore, water quality depends primarily on the hydrologic characteristics of the drainage basin, the makeup of the soils in the watershed, and source of pollution in the watershed. The quality of stormwater varies in the region depending on climactic and land use conditions. Urban and industrial runoff generally contains more pollutants than rural runoff.

The Project site is currently partially in agricultural use including irrigated row crops. Irrigation and rainwater percolate through the soil or runoff discharge into Prefumo Creek. The runoff from the site is not currently treated and may carry contaminants such as pesticides or fertilizers, contributing to non-point source runoff including sediment, nutrients, and trace amounts of pesticides and herbicides. Runoff from the Project site enters Prefumo Creek, which drains into San Luis Obispo Creek and then to the Pacific Ocean. The current water quality statuses of Prefumo Creek and San Luis Obispo Creek are discussed below.

3.4.2 List of Impaired Waters

Section 303(d) of the federal Clean Water Act (CWA) requires states to identify waters that do not meet water quality standards after applying effluent limits for point sources (other than publicly owned treatment works) that are based on the best practicable control technology currently available. States are then required to prioritize waters/watersheds for total maximum daily loads (TMDL) development. A TMDL is a written plan that describes how an impaired water body will meet water quality standards. It contains the following:

- A measurable feature to describe attainment of the water quality standards;
- A description of required actions to remove the impairment; and
- An allocation of responsibility among dischargers to act in the form of actions or water quality conditions for which each discharger is responsible.

The CWA requires that states develop rankings for TMDLs. California ranks TMDLs as high, medium, or low priority, based on a number of factors. These factors include the severity of impairments and the importance of the specific beneficial uses identified for that water body. Regional Boards develop schedules that set the order for TMDL completion.

States are to compile this information in a list and submit the list to the US Environmental Protection Agency for review and approval. This list is known as the 303(d) list of impaired waters. The State Water Resources Control Board (SWRCB) and the Regional Water Quality

Control Boards (RWQCBs) monitor and assess water quality to prepare the Section 303(d) list and to develop TMDLs.

The site's receiving waters are Prefumo Creek, which drains into San Luis Obispo Creek and then to the Pacific Ocean at Avila Beach. Both Prefumo Creek and San Luis Obispo Creek (below Osos Street) are listed as Category 5 on the 2014-2016 California 303(d) List of water quality limited segments. The Category 5 listing describes a water segment where standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants being listed for this segment. Table 3.2 identifies the constituent pollutants for which Prefumo Creek and San Luis Obispo Creek (below Los Osos Street) are included on the Section 303(d) list.

Table 3.2
Prefumo and San Luis Obispo Creek TMDLs

Waterbody	Pollutant	Sources	First Year Listed	TMDL Requirement Date
Prefumo Creek	Fecal Coliform	Source Unknown	2010	2027
	Nitrate	Agriculture, Natural Sources	2006	2007
	Oxygen, Dissolved	Source Unknown	2014	2027
	Toxicity	Source Unknown	2014	2023
	Turbidity	Agriculture, Urban Runoff, Unknown nonpoint source	2010	2023
San Luis Obispo Creek (below Osos Street)	Benthic Community Effects	Source Unknown	2014	2027
	Chloride	Source Unknown	2010	2027
	Escherichia coli (E. coli)	Source Unknown	2014	2027
	Fecal Coliform	Collection System Failure, Domestic Pet Waste, Natural Sources, Transient encampments, Urban Runoff/Storm Sewers	2014	2005
	Nitrate	Agriculture, Municipal Point Sources, Natural Sources, Nonpoint Source, Other Urban Runoff	2014	2007
	Oxygen, Dissolved	Source Unknown	2014	2023
	Sodium	Source Unknown	2010	2027

Source: SWRCB, 2017

4. ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This section discusses potential short-term and long-term environmental impacts related to the receiving waters adjacent to the Project. With the implementation of BMPs, the proposed Project is not anticipated to adversely impact receiving waters. In addition, there are existing permanent treatment storm water treatment BMPs (TBMPs) located within or near this Project's limits:

- There is a bio-filtration strip TBMP on the northbound shoulder of U.S. 101 from PM 26.0 to PM 26.7 which may require modification with the Project. Initial calculations indicate that five of the six alternatives may require modification to, or replacement of this TBMP between PM 26.5 and PM 26.7 due to the reconstruction of the NB off-ramp. This would impact approximately 0.2 acre of the bio-filtration strip TBMP. Alternative A7 is the only alternative that avoids this area.
- There is a bio-filtration strip TBMP on the southbound shoulder of U.S. 101 from PM 26.6 to PM 27.1. At this time, the Project is not anticipated to impact this bio-filtration strip TBMP.

Design Pollution Prevention BMPs will also be incorporated into the Project where appropriate to minimize impacts to water quality by preventing downstream erosion and stabilizing disturbed soil area. These BMPs can provide water quality benefits including settling of solids and other pollutants and increasing detention time by incorporating and preserving vegetated surfaces.

The existing topography surrounding the Project is relatively flat with some shallow vegetated roadside swales. The proposed improvements include extending Prado Road over U.S. 101, which may require significant amounts of fill, placed at the approaches to the structure. All alternatives have the option of fill slopes (currently designed at 4:1) or retaining walls. The fill slopes are long extending about 80' from the roadway; a BMP strategy to implement may be constructing benches or terraces in the slopes to shorten slope lengths. Permanent erosion control, within the State right-of-way may include compost amended soils, compost sock/berms/blanket, hydroseed utilizing native plant seed, and rolled erosion control products on steeper slopes.

Depending on the Project alternative selected, the Project may increase velocity or volume of downstream flow. Some improvements to reduce the velocity or volume of downstream flow may include energy dissipation devices at the culvert outfalls, smooth drainage channel transitions, and reduce paved surface areas.

Under the Caltrans 2013 NPDES permit, for projects that create one or more acres of new impervious surfaces (NIS) permanent treatment BMPs or Alternative Compliance is required to treat 100% of the water quality volume (WQV). The NIS will be recalculated when the Project survey has been completed.

BMP strategies within City right-of-way will be developed per requirements within the City's Storm Water Management Plan and Municipal Code Chapter 12.08, Urban Storm Water Quality and Discharge Control. BMPs could include but are not limited to treatment facilities to remove

pollutants from storm water, and erosion and sediment control practices. Project specific BMPs and/or alternative compliance will be identified during subsequent project phases.

4.2 Potential Impacts to Water Quality

Potential impacts to water quality during construction includes sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and other construction related chemicals. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. In addition, chemicals, liquid products, and petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and thereby have the potential to be transported via storm runoff into receiving waters.

In 2003, Caltrans completed a comprehensive set of studies designed to characterize storm water runoff from transportation facilities throughout the State of California. These study results were published in a report titled Stormwater Monitoring & Data Management, Discharge Characterization Study Report. Table 4.1 presents the concentrations of typical pollutants found on State highways based on the monitoring conducted as part of Caltrans 2003 Statewide Discharge Characterization Study Report.

Table 4.1
Water Quality Data Summary Statistics for Highway Facilities

Constituent	Concentration
pH	7.1
Total Suspended Solids (TSS)	112.7 mg/L
Ammonia (NH3-N)	1.08 mg/L
Nitrate (NO3-N)	1.07 mg/L
Total Kjeldahl Nitrogen (TKN)	2.06 mg/L
Ortho-phosphate	0.11 mg/L
Dissolved Copper	14.9 µg/L
Dissolved Zinc	68.8 µg/L
Dissolved Lead	7.6 µg/L
Total Copper	33.5 µg/L
Total Zinc	187.1 µg/L
Total Lead	47.8 µg/L

Source: Caltrans, 2003. Discharge Characterization Study Report (CTSW-RT-03-065.51.42).
µg/L= micrograms per liter
Caltrans = California Department of Transportation
mg/L = milligrams per liter

In accordance with the CGP, a risk level evaluation was conducted for the Project. The R factor was determined from the United States Environmental Protection Agency “Rainfall Erosivity Factor Calculator” to be 71.48; the K and LS factors were determined from the Caltrans CGP GIS map; the K factor is 0.24 and LS factor is 1.25. The product of these values is 21.4. Because this value is between 15 and 75, the Project is classified as having a medium sediment risk.

The receiving water risk is classified as high because Prefumo Creek and San Luis Obispo Creek are both identified in the "Water Quality Control Plan for the Central Coast Basin" as having the beneficial uses set for Cold Freshwater Habitat, Spawning, Reproduction, and/or Early Development of Fish, and Migration of Aquatic Organisms.

The combined medium sediment risk and high receiving water risk results in the Project being classified as Risk Level 2 (see Appendix A).

4.2.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

Potential impacts on water quality could occur during construction activities including altered substrate loads, suspended particles, temperature, and oxygen within Prefumo Creek due to the drainage path from the Project site.

Design Pollution Prevention BMPs will be incorporated onsite to minimize impacts to receiving water quality. The BMPs can provide water quality benefits by preventing downstream erosion and stabilizing disturbed soil area (Caltrans 2018).

4.2.1.1 Substrate

Construction activities disturb soil and increase the potential for soil erosion. Short-term increases in substrate have the potential to occur during the construction phase of the proposed Project. However, potential impacts to the aquatic environment during construction would be avoided and minimized by implementation of the site- specific SWPPP Construction site BMP measures. In addition, the Caltrans Permit and Project Planning and Design Guide requires Caltrans-approved BMPs be implemented to the maximum extent practicable. Treatment BMPs may include filtration and infiltration devices, such as detention basins and biofiltration swales. Post-construction BMP implementation would reduce potential long-term impacts.

4.2.1.2 Currents, Circulation, or Drainage Patterns

Construction activities have the potential to impact local drainage characteristics due to grading activities, modifications to impervious areas, and other land altering activities. However, potential impacts to the aquatic environment during construction would be avoided and minimized by implementation of the site- specific SWPPP Construction site BMP measures. In addition, post-construction BMP implementation would reduce potential long-term impacts.

4.2.1.3 Suspended Particulates (Turbidity)

Short-term increases in turbidity have the potential to occur during the construction phase of the proposed Project. However, potential impacts to the aquatic environment during construction would be avoided and minimized by implementation of the site- specific SWPPP Construction site BMP measures. In addition, post-construction BMP implementation would reduce potential long-term impacts.

4.2.1.4 Oil, Grease, and Chemical Pollutants

Each of the build alternatives includes the use of construction equipment, which becomes a source of chemicals, liquid products, and petroleum products if the equipment leaks. Chemicals, liquid products, and petroleum products (e.g., paints, solvents, and fuels), and related waste may be spilled or leaked and have the potential to be transported via storm water runoff into receiving waters. However, potential impacts to the aquatic environment during construction would be avoided and minimized by implementation of the site- specific SWPPP Construction site BMP measures. In addition, post-construction BMP implementation would reduce potential long-term impacts.

4.2.1.5 Temperature, Oxygen, Depletion and Other Parameters

Short-term changes in temperature, dissolved oxygen, pH, and other parameters could occur during the construction phase of the proposed Project. However, potential impacts to the aquatic environment during construction would be avoided and minimized by implementation of the site-specific SWPPP Construction site BMP measures. In addition, post-construction BMP implementation would reduce potential long-term impacts.

4.2.1.6 Flood Control Functions

The Project site is within the FEMA designated 100-year and 500-year floodplain due to the proximity to San Luis Creek and Prefumo Creek (San Luis Obispo County, Bureau of Land Management 2018). A Hydraulic study is being prepared to address the potential impacts to the flood control functions.

4.2.1.7 Storm, Wave, and Erosion Buffers

There would be no potential for adverse effects related to storm, wave, and erosion buffers.

4.2.1.8 Erosion and Accretion Patterns

Short-term changes in erosion and accretion patterns could occur during the construction phase of the proposed Project. However, potential long-term impacts to the aquatic environment during construction would be avoided and minimized by implementation of the site- specific SWPPP Construction site BMP measures would reduce the long-term impacts on physical and chemical characteristics of the aquatic environment.

4.2.1.9 Aquifer Recharge/Groundwater

Dewatering activities for excavations below the water table could result in the discharge of unsuitable and untreated water if discharged directly to the environment. If temporary excavations require dewatering, the project would conduct dewatering operations in accordance with applicable permits and comply with Caltrans' Field Guide to Construction Site Dewatering (Dewatering Guide).

However, potential long-term impacts to aquifer recharge and groundwater quality would be minimized because of a net reduction in impervious area each for each the Project alternatives. In addition, post-construction BMP implementation would further reduce potential long-term

impacts to aquifer recharge and groundwater quality and quantity. As such, there are no anticipated impacts to aquifer recharge and groundwater quality.

4.2.1.10 Baseflow

Baseflow is the streamflow resulting from precipitation that infiltrates into the soil and eventually moves through the soil to the stream channel. This is also referred to as groundwater flow or dry-weather flow. Post-construction BMP implementation would reduce potential long-term impacts. The Caltrans Permit and Project Planning and Design Guide requires Caltrans-approved BMPs be implemented to the maximum extent practicable. Treatment BMPs may include filtration and infiltration devices, such as detention basins and biofiltration swales. As such, there are no anticipated impacts to Baseflow.

4.2.2 Short Term Impacts During Construction

4.2.2.1 Physical/Chemical Characteristics of the Aquatic Environment

Short-term changes in sedimentation, temperature, turbidity, pH, dissolved oxygen could occur during the construction phase of the proposed Project. In addition, oil, grease, fuel, and lubricants associated with construction equipment may be present. However, both potential short- and long-term impacts to the aquatic environment during construction would be avoided and minimized by implementation of the site-specific SWPPP and construction site BMP measures.

4.3 Alternative-Specific Impact Analysis

An impact analysis was conducted using a Project boundary that encompasses the footprints for each Project alternative. Each Project alternative includes two options: a “Fill Option” and a “Retaining Wall Option.” The Fill Option analyzes the alternative using 4:1 slope to existing ground on the outside of the proposed off- and on-ramps, and the Retaining Wall Option analyzes the alternatives instead providing a retaining wall adjacent to these ramps in place of fill.

The total disturbed soil area for the Project varies with each alternative. Table 4.2 shows the disturbed soil area (DSA) for each alternative (fill option shown) within the State’s right of way. Refer to ‘Attachments’ for exhibits illustrating these areas for each alternative. Table 4.3 shows the total DSA for each alternative within the Project limits (both within State and City right of way). The total disturbed soil area (DSA) includes all of the area within the Project’s right of way excluding the U.S. 101 mainline. The DSA was calculated using the proposed total construction area, including staging areas. There are no areas within the proposed Project area where the existing pavement is to be retained, so the DSA includes areas of soil to be exposed beneath the existing pavement to be removed.

Table 4.2 shows the post construction treatment area (PCTA) which is estimated to vary by alternative between 0.8 and 2.0 acres. The areas were estimated using the pre- and post-construction impervious areas within the proposed State right of way for each alternative. Refer to ‘Supplemental Attachments’ for exhibits illustrating these areas for each alternative. The PCTA will be recalculated when the Project survey has been completed.

Table 4.2: Total Disturbed Soil Area (DSA) and PCTA Calculations (STATE R/W)

	Alt A1 (acres)	Alt A1R (acres)	Alt A3 (acres)	Alt A4 (acres)	Alt A4R (acres)	Alt A7 (acres)
Disturbed Soil Area (DSA)	10.2	9.8	9.0	10.9	11.1	8.9
Pre-Project Impervious Area	5.0	4.5	4.1	6.3	6.5	4.1
Post-Project Impervious Area	3.7	3.9	3.5	4.5	4.6	3.7
Net New Impervious (NNI)	-1.3	-0.6	-0.6	-1.8	-1.9	-0.4
NNI to Post-Project Impervious Area	-35%	-15%	-17%	-40%	-41%	-11%
Replaced Impervious Surface (RIS)	1.9	2.1	1.7	2.8	3.0	2.4
Net New Impervious Surface (NIS)	0.6	1.5	1.1	1.0	1.1	2.0
Additional Treated Area (ATA) #1	0.2	0.2	0.2	0.2	0.2	0.0
Post Construction Treatment Area (PCTA)	0.8	1.7	1.3	1.2	1.3	2.0

Table 4.3: Project Total Disturbed Soil Area (DSA) (Both STATE and CITY R/W)

	Alt A1 (acres)	Alt A1R (acres)	Alt A3 (acres)	Alt A4 (acres)	Alt A4R (acres)	Alt A7 (acres)
Disturbed Soil Area (DSA)	16.2	15.9	15.7	16.1	16.9	15.1

Each of the Project alternative includes a partial interchange with the proposed Prado Road overcrossing constructed over U.S. 101 and new U.S. 101 northbound off-ramp to and on-ramp from Prado Road. There are fundamentally no differences among these alternatives related to potential short-term water quality impacts.

4.4 Cumulative Impacts

Construction, operational, and maintenance activities will cause pollutants of concern such as sediments, nutrients, bacterial indicators, pesticides, oil & grease and trash & debris to enter the receiving waters adjacent to the proposed Project where applicable.

Regional programs and BMPs such as TMDL programs and the MS4 Permit Program have been designed under an assumption that the Estero Bay Hydrologic Unit would continue its pattern of urbanization. The CCRWQCB considers the cumulative effects of proposed development. The Project alternatives would be required to comply with the regulations in effect at the time the grading permits are issued. Compliance with these regional programs and the CGP constitute compliance with programs intended to address cumulative water quality impacts. The Project will be required to develop a SWPPP and will be evaluated to determine appropriate BMPs to avoid impacts to surface water quality. Since the Project will include BMPs in accordance with the requirements of the NPDES Permit, post-construction pollutants of concern in runoff from these areas under all the Project alternatives is not anticipated to be substantial.

5. AVOIDANCE AND MINIMIZATION MEASURES

The following regulatory requirements would be implemented and would reduce or avoid impacts related to water quality:

WQ-1 The Project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, as amended by 2010-2014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002, or any subsequent permit. The Project shall comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction–related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include BMPs to control the pollutants, such as sediment control, catch basin inlet protection, temporary soil stabilization, construction materials management, and non-stormwater BMPs.

WQ-2 The Project will comply with the provisions of the NPDES Permit, Statewide Storm Water Permit, Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation Order No. 2012-0011-DWQ, NPDES No. CAS000003 (Caltrans Permit) or any subsequent permit.

WQ-3 The Project will comply with the provisions of Resolution R3-2013-0032 Adopted July 12, 2013, Approving Post-Construction Stormwater Management Requirements for Development Projects in the Central Coast.

WQ-4 The Project will comply with the provisions of State Water Resources Control Board Water Quality Order No. 2013-0001-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000004 Waste Discharge Requirements (WDRs) For Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) (General Permit).

WQ-5 Caltrans-approved Design Pollution Prevention BMPs will be implemented to the maximum extent practicable consistent with the requirements of the Caltrans Permit and Project Planning and Design Guide. Design Pollution Prevention BMPs include preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization and replanting of vegetation), asphalt concrete dikes, toe-of-fill ditches, and downdrains/overside drains.

WQ-6 Caltrans-approved Treatment BMPs will be implemented to the maximum extent practicable consistent with the requirements of the Caltrans Permit and Project Planning and Design Guide. Treatment BMPs may include filtration and infiltration devices, such as detention basins and biofiltration swales.

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