

District website link to EIR:

<http://valleywater.org/LowerPenitenciaReportsandDocuments.aspx>

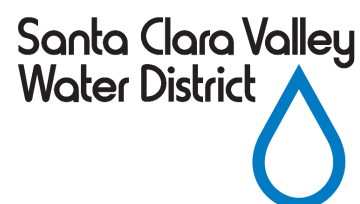
Lower Penitencia Creek Improvements Project

Final Environmental Impact Report

State Clearinghouse No. 2015062026

VOLUME 2: MAIN BODY

October 2017



SANTA CLARA VALLEY WATER DISTRICT

**Lower Penitencia Creek Improvements Project
Milpitas, California**

Final Environmental Impact Report

Volume 2 – Main Body

State Clearinghouse No. 2015062026

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EXECUTIVE SUMMARY

Introduction

The Santa Clara Valley Water District (District) prepared this Draft Environmental Impact Report (DEIR) to provide the public, responsible agencies, and trustee agencies with information about the environmental effects of the proposed Lower Penitencia Creek Improvements Project (proposed project). This DEIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (California Code of Regulations [CCR] Title 14, Section 15000 et seq.).

Project Objectives

The proposed project is necessary to avoid flooding in the project area during the projected future 1-percent (or 100-year) flow. The proposed project would meet the following objectives:

- Convey the Lower Berryessa Creek 1-percent design flow that is delivered to Lower Penitencia Creek;
- Meet required water surface elevations at the confluences of Lower Penitencia Creek with Coyote Creek and Berryessa Creek;
- Minimize the need for seasonal removal of sediment and non-woody vegetation;
- Maintain existing FEMA accreditation of the east levee located between California Circle and Berryessa Creek; and
- Ensure the project improvements meet FEMA certification requirements.

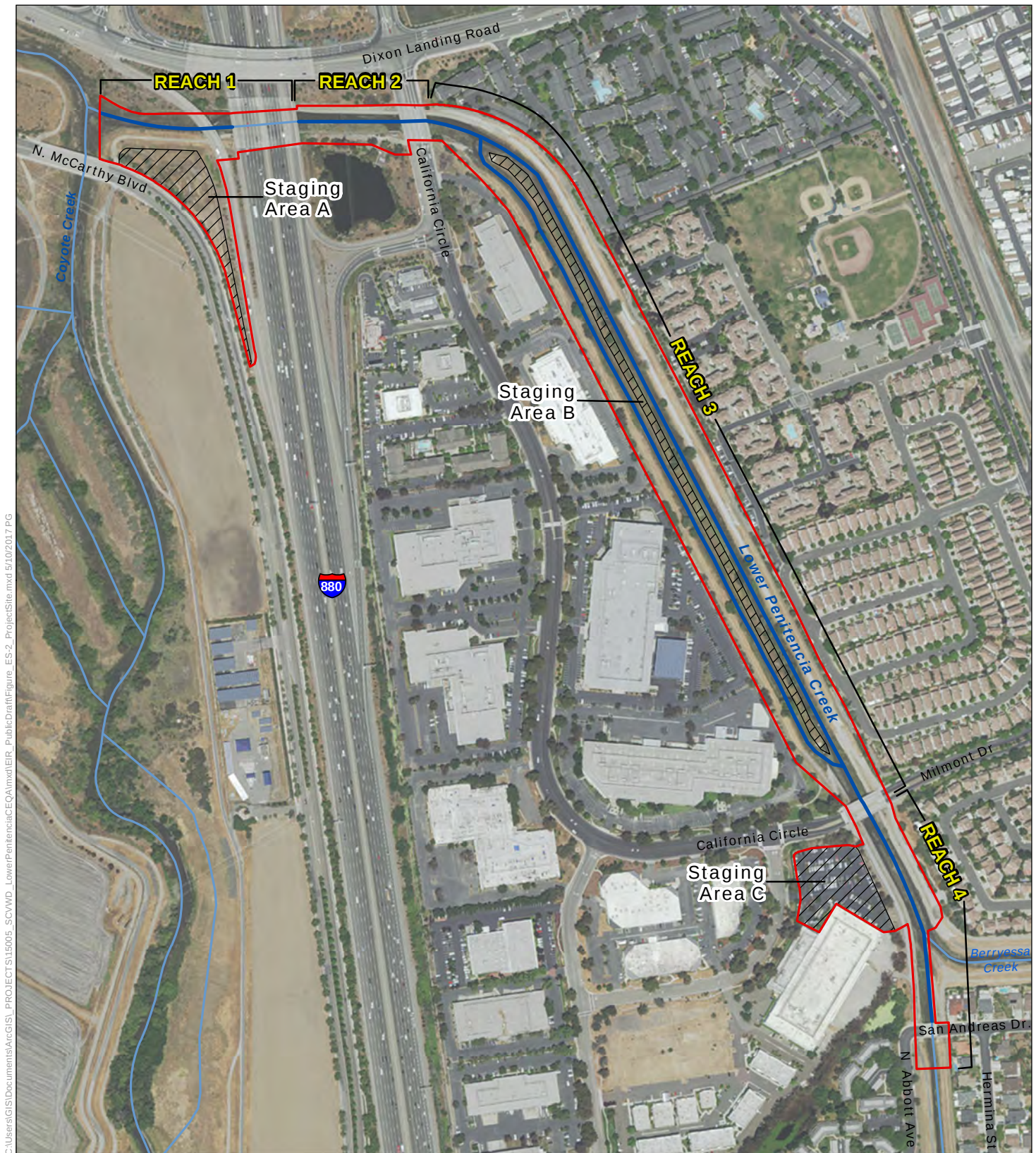
Project Location

The proposed project is located on Lower Penitencia Creek within a developed area in the City of Milpitas. **Figure ES-1 and Figure ES-2** show the project location. The proposed project area extends from just upstream of the confluence with Berryessa Creek downstream to the confluence with Coyote Creek. The land surrounding the proposed project is a mix of residential and office park/commercial land uses.

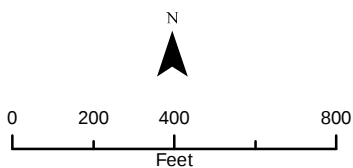
C:\Users\GIS\Documents\ArcGIS\PROJECTS\15005 - SCVWD - LowerPenitenciaCreek\mxd\Figure 2-1. Project Location.mxd PG 10/7/2016



**Figure ES-1
Project Location**



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- Project Boundary
- Staging Area

**Figure ES-2
Project Site**

Project Planning and Development

Lower Penitencia Creek Improvements Project is one of six elements evaluated in the *Lower Berryessa Creek Program Environmental Impact Report* (Program EIR). The District prepared this Program EIR in 2011, and evaluated the Lower Penitencia Creek Project reach at a programmatic level of detail.

At the time the Program EIR was prepared, future water surface elevations and flow rates during the 1% flow (i.e., the streamflow rate with a 1-percent estimated likelihood to be equaled or exceeded in any given year) on Lower Penitencia Creek Project could only be estimated at a general level of detail. Upstream improvement projects (i.e., the District's Lower Berryessa Creek and Lower Calera Creek Flood Protection Improvements Project and the USACE's Upper Berryessa Creek Flood Risk Management Project) are currently under construction and will increase the future 1% flow of Lower Penitencia Creek. Now that the detailed designs of the upstream projects are known, the future 1% flow and resulting water surface elevations can be estimated with precision. The proposed project would accommodate the increased future 1% flow without overtopping of the Lower Penitencia Creek banks.

The District developed and analyzed various conceptual design alternatives to achieve the project objectives. These conceptual design alternatives included different combinations of infrastructure upgrades, which were refined through the District's Natural Flood Protection (NFP) evaluation process to develop four potentially feasible design alternatives:

- Design Alternative 1: widen the California Circle crossing, construct floodwalls, raise a levee, and construct wetland bench in Reach 2;
- Design Alternative 2A: widen the California Circle and Milmont Drive crossings, construct floodwalls, relocate and raise the Reach 1 levee, and construct wetland benches in Reaches 1 and 2;
- Design Alternative 4: widen the California Circle and Milmont Drive crossings, construct floodwalls, relocate and raise the Reach 1 levee, and construct wetland benches in Reaches 1 and 3; and
- Design Alternative 6: widen the California Circle crossing, construct floodwalls, raise the Reach 1 levee, remove the central berm in Reach 3, and line the channel with concrete.

Based on the NFP evaluation process, District staff initially determined that Design Alternative 2A would best meet the project objectives. As part of the design process, the District modeled the 1-percent flow that would occur under "interim" and "ultimate" conditions. The interim condition is defined as the future flow that would result after construction of the District's Lower Berryessa Creek Flood Protection Project and the USACE's Upper Berryessa Flood Risk Management Project had been completed. These two projects are currently under construction and will be completed in 2018, at which time the 1-percent (or 100-year) interim flow at the confluence of Lower Penitencia Creek with Coyote Creek will increase from 4,830 cubic feet per second (cfs) to 6,900 cfs. The ultimate condition is the future flow that would result after the channel improvements to Upper Berryessa Creek upstream of I-680 are completed. The 1 percent ultimate flow is 8,720 cfs, which is 26 percent greater than the interim flow. Construction of channel improvements to Upper Berryessa Creek upstream of I-680 are not expected to occur for at least 10 years or longer. Due to the uncertainty as to when the ultimate flow condition would be achieved, Alternative 2A was

refined such that the proposed project would convey the 1-percent interim flows of 6,900 cfs without overtopping of the Lower Penitencia Creek banks.

For all of the project design alternatives, interim flows could be conveyed without modifying the existing bridges at California Circle and Milmont Drive. Thus, modifications of those two bridges, which were originally considered as part of Design Alternative 2A, are not proposed as part of the proposed project or project alternatives (described further in Chapter 5, *Alternatives*). As described above, throughout the initial planning phase, the District refined Alternative 2A to develop the proposed project. Proposed project elements are described in more detail in the following sections.

Proposed Project

The proposed project would include various improvements along the four reaches included in the project area, including: sheetpile floodwalls, earthen fill, a wetland bench, a relocated and raised levee, bridge headwalls, sediment removal, maintenance road improvements, and revegetation. **Table ES–1** summarizes the project elements proposed for each reach.

Table ES–1. Proposed Project Elements

Reach or Bridge	Project Elements
Reach 1 Coyote Creek to I-880	Relocated and raised south bank levee with maintenance road on crest Wetland bench on south bank <u>Approximately 50 feet of sheetpile floodwall to the north of channel</u>
Reach 2 I-880 to California Circle	Sheetpile floodwall on top of existing south/west bank levee <u>Approximately 25 feet of sheetpile floodwall on top of existing north/east bank levee near I-880</u> Removal of about 70 cy of sediment from the concrete-lined channel) Relocated access ramp to City's pump station Maintenance road improvements
Reach 3 California Circle to Milmont Drive	Sheetpile floodwalls on top of existing west and east bank levees Earthen fill to floodwall to allow the existing Penitencia Creek Trail to cross over the new floodwall Removal of about 1,500 cy of accumulated sediment from low-flow channel Maintenance road improvements
Reach 4 Milmont Drive to San Andreas Drive	Sheetpile floodwalls on top of existing west bank levee Raising of existing east bank levee by up to 6 ft Removal of about 730 cy of sediment from the concrete-lined channel Maintenance road improvements
San Andreas Drive Bridge	Headwalls on the downstream and upstream faces of San Andreas Drive bridge

Project Construction

Construction Activities

Construction activities and processes would differ based on the type of improvement. Construction of floodwalls would generally entail shallow excavation and fill to create a working platform for installation of sheetpiles. A specialized piece of equipment called a Giken silent piler would be used to install the sheetpile walls. Construction of the wetland bench would involve excavation in the existing south bank of Reach 1 to lower the ground surface elevation to below mean high tide level. Excavated soil would either be used to create the replacement levee in Reach 1 and raise Reach 4 east bank levee or disposed of at an offsite location. Construction of the new south bank levee in Reach 1 would entail removal of the existing levee down to grade level and preparation of the ground surface to receive new fill.

In-channel work would occur between mid-June and mid-October when channel flow is lowest. Dewatering would be temporary and would be necessary throughout the project area. In total, about 5,100 linear feet of channel would be dewatered. During in-channel work, water would be diverted into pipes and routed around the work areas by a temporary cofferdam. Diverted water would be returned to the creek downstream of the project area. At the end of each dry-period construction season, disturbed areas would be hydroseeded to provide erosion protection and prevent eroded sediment being washed into the creek.

Construction Staging Areas and Access

Construction would generally occur within existing District right-of-way (ROW) and easements along the channel. Three staging areas adjacent to the project site may be used during project construction for staging of equipment and construction materials.

I-880, Dixon Landing Road, and California Circle would be the primary construction access routes to the project area.

Construction Workers and On-haul and Off-haul Estimates

The proposed project would require up to 40 construction workers on site, although less than 20 workers would likely be on site on a typical workday. It is expected that all excavated soil would be reused on site, and approximately ~~3,430~~^{3,500} cubic yards (cy) of ~~fill~~^{concrete} would be delivered and placed on site. About 2,300 cy of sediment would be removed from the low-flow channel for disposal off-site.

Construction Schedule

Project construction is anticipated to occur over 2 years, during 2018 and 2019. In-channel construction activities, as described above, would occur between June 15 and October 15 each year, while activities on the levee crests or outside the channel may occur outside the June 15 to October 15 dry season. Project construction would primarily occur on weekdays between the hours of 7:00 a.m. and 7:00 p.m. Less frequently, construction may also occur on weekend days between the hours of 7:00 a.m. and 7:00 p.m, which is allowed by the Milpitas Noise Abatement Ordinance. On rare occasions, construction may be necessary before 7:00 a.m. or after 7:00 p.m; construction during those hours would be very infrequent and would occur only with advance approval from the City of Milpitas. No construction activities would

occur on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

Project Operations

Following project construction and similar to current practice, routine maintenance activities would be conducted within the project area as needed. These activities include trash and debris removal, vegetation management (e.g., mowing the channel banks, removing vegetation along maintenance roads), maintenance road grading, management of wildlife conflicts, graffiti removal, and fence repair. These routine maintenance activities would continue to occur under the District's Stream Maintenance Program (SMP), an ongoing countywide program that provides maintenance standards and guides maintenance activities for the District to meet its designated flood protection mandates throughout Santa Clara County. In addition, the newly installed floodwalls and San Andreas Drive bridge headwalls would be visually inspected on a periodic basis (one to two times per year) and would be repaired as-needed. Once constructed, the proposed project would reduce the need for routine sediment removal in the channel.

Public Involvement Process

EIR Scoping

An NOP for the proposed project was prepared in accordance with State CEQA Guidelines Section 15082 and circulated to the State Clearinghouse on June 11, 2015. The scoping period continued for 30 days and concluded on July 10, 2015. During the scoping period, the District received comment letters from the California Department of Transportation and the San Francisco Bay Regional Water Quality Control Board. All of the comments contained in the scoping letters have been incorporated and/or addressed as appropriate in this EIR.

Draft EIR Public Comment Period

The District is ~~circulating this~~ circulated the DEIR for a 45-day public review and comment period.

Interested parties ~~are~~ were encouraged to submit written comments on ~~this~~ the DEIR. All comments ~~must be received~~ were due by 5:00 p.m. on July 3, 2017 and directed to:

Michael Coleman, Environmental Planner II
 Santa Clara Valley Water District
 5750 Almaden Expressway
 San Jose, CA 95115
 mcoleman@valleywater.org

Written comments on the DEIR received by the Distirict during the public review period ~~will be~~ were addressed in ~~the~~ this Final EIR (Volume 1, Response to Comments on the Draft EIR).

Areas of Known Controversy and Issues to Be Resolved

State CEQA Guidelines Section 15123(b) requires that an Executive Summary identify "areas of controversy known to a lead agency including issues raised by agencies and the public."

The following issues were raised by agencies in response to the EIR NOP and may be considered controversial:

- Possible flooding effects due to sea-level rise in the vicinity of the I-880/Dixon Landing Road interchange;
- Construction-period impacts on I-880 and other highways (e.g., vehicle queues on ramps);
- Accurate description of project components not evaluated in the Lower Berryessa Program EIR; and
- Potential effects on the I-880 creek crossing.

Each issue is addressed in this EIR.

Significant Impacts

This section presents the significant impacts that were identified in the DEIR. This is not a comprehensive discussion of impacts of the proposed project; the reader is directed to Table ES-2 (Summary of Impacts and Mitigation Measures) which is presented at the end of this chapter for additional information. Environmental resource topics with the potential for significant environmental impacts are as follows:

- Air Quality
- Biological Resources
- Geology, Soils, and Seismicity
- Hazards and Hazardous Materials
- Noise and Vibration
- Traffic and Transportation

Sections 3.2 through 3.14 of this DEIR address each of these environmental resource topics and the environmental consequences of the proposed project in more detail.

Significant and Unavoidable Impacts

The following impacts have been identified as significant and unavoidable:

- Impact NOI-1: Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in the applicable standards of other agencies
- Impact NOI-2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
- Impact NOI-4: A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The project would also make a cumulatively considerable contribution to significant cumulative noise impacts during project construction.

Alternatives Considered

The District considered the following alternatives to the proposed project:

- No Project Alternative
- Alternative 1: Reach 1 Raised Levee, Floodwalls, and Ongoing Sediment Removal
- Alternative 2: Reach 1 Raised Setback Levee, Reaches 1 and 3 Wetland Benches, and Floodwalls
- Alternative 3: Reach 1 Raised Levee, Reach 3 Concrete Channel Lining, and Floodwalls

In addition, during project planning, the District considered several additional alternatives, but ultimately dismissed them from further analysis for one or more of the following reasons: (1) they would not sufficiently meet the proposed project objectives; (2) they were determined to be infeasible; or (3) they would not avoid or substantially reduce one or more significant impacts of the proposed project.

No Project Alternative

Under the No Project Alternative, no new construction activities would occur. The flood control channel would remain in its current condition. Ongoing maintenance activities, including sediment removal and vegetation management currently occurring under the District's SMP, would continue in the future. Although this alternative would avoid all impacts associated with construction of the proposed project, this alternative would not meet project objectives. Flood hazards and flooding impacts would increase under this alternative. In the event of a 100-year flood event, substantial damage to nearby land uses including residential, office space, the District's maintenance roads, nearby public roads, I-880, and the Penitencia Creek Trail. Flood damage and subsequent clean-up efforts could also result in adverse effects related to water quality, geology and soils, biological resources, cultural resources, recreational resources, noise, traffic and circulation, utilities and service systems, and air quality.

Alternative 1: Reach 1 Raised Levee, Floodwalls, and Ongoing Sediment Removal

Under this alternative, the south bank levee in Reach 1 would be raised but would not be relocated. Floodwalls would be constructed in Reaches 2, 3, and 4 and would be of similar height as those for the proposed project. As with the proposed project, headwalls would be constructed on both sides of the existing San Andreas Drive bridge.

Alternative 1 would result in similar construction-related impacts as the proposed project, including temporary transportation and traffic impacts, use of hazardous materials, air emissions, noise and vibration, and impacts on hydrology and water quality. Alternative 1 also would increase operational impacts associated with increased sediment removal in Reaches 2 and 4 compared to the proposed project, resulting in periodic disturbance of aquatic and riparian habitat that would be greater than if the proposed project were implemented. Additionally, the enhancements to Reach 1 tidal wetlands included in the proposed project would not be achieved, and the current degraded and isolated conditions of Reach 1 wetlands, which provide marginal habitat value, would continue indefinitely.

Alternative 2: Reach 1 Raised Setback Levee, Reaches 1 and 3 Wetland Benches, and Floodwalls

Under Alternative 2, the south bank levee in Reach 1 would be relocated and raised, which would create space for establishing a 50-foot-wide wetland bench immediately south of the existing channel. Floodwalls would be constructed in Reaches 2, 3, and 4. In Reach 3, the west bank floodwall would have a total height of 18.5 feet when viewed from inside the channel, but it would be partially below grade and extend about 4 feet above the crest of the existing levee. This alternative would create enhanced tidal wetlands in Reach 1, similar to the proposed project. In Reach 3, a 25 to 45-foot-wide wetland bench and depressed channel access road would be constructed.

Alternative 2 would meet the primary objective of conveying Lower Penitencia Creek's 1-percent design flow, would meet the required water surface elevations at the confluences with Coyote and Lower Berryessa creeks, would maintain certification of the east levee, and would meet FEMA certification standards. However, this alternative would not minimize the need for removal of sediment and non-woody vegetation.

This alternative would result in increased construction-related impacts due to excavation of the depressed maintenance road and Reach 3 wetland bench, and therefore would result in greater construction-related traffic, air quality, and noise impacts than the proposed project. Additionally, this alternative would involve greater excavation work than the proposed project and would therefore result in greater effects on existing landfill capacity. The increased hardscape in the channel due to the Reach 3 floodwall and depressed maintenance road could result in increased pollutant flows to the creek, adversely affecting water quality. This would be partially offset by the wetland bench between the road and the creek channel, which would help to filter pollutants from storm runoff before they reach the creek.

In the long term, up to 3 acres of wetland habitat would be established in Reach 3, which would provide habitat for common and special-status species. This wetland bench would offset loss of riparian habitat loss due to elimination of the Reach 3 central berm.

Alternative 3: Reach 1 Raised Raise, Reach 3 Concrete Channel Lining, and Floodwalls

Under Alternative 3, the south levee in Reach 1 would be raised and floodwalls would be constructed in Reaches 2, 3, and 4. The central berm in Reach 3 would be excavated and removed, and the entire channel would be lined with concrete. Alternative 3 would meet the primary objective of conveying Lower Penitencia Creek's 1-percent design flow, would meet the required water surface elevations at the confluences with Coyote and Lower Berryessa creeks, would maintain certification of the east levee, and would meet FEMA certification standards. This alternative would only partially meet objectives to minimize the need for removal of sediment and non-woody vegetation. Alternative 3 would minimize vegetation removal because about 8 acres of vegetation would be permanently replaced with concrete lining, but the need for future sediment removal would not be minimized.

Alternative 3 would result in greater construction-related traffic, noise, vibration, and air quality impacts due to excavation and removal of the Reach 3 berm and installing concrete lining in the Reach 3 channel. These activities would require substantially more haul truck trips in comparison to the proposed project. Lining the channel with concrete also would

result in loss of about 8 acres riparian and aquatic habitat throughout Reach 3, most of which occurs on the berm and some of which is used by special-status species; this would adversely affect the ecological functions the existing creek channel may provide.

Environmentally Superior Alternative

Among the alternatives considered in this EIR (not including consideration of the proposed project), Alternative 2 is considered the environmentally superior alternative. When considering the proposed project against Alternative 2, however, the proposed project is environmentally superior. Alternative 2 would permanently create greater wetlands in the project area than the proposed project, but would also result in permanent removal of more riparian habitat and creation of more in-stream hardscape than the proposed project. Alternative 2 would also result in greater construction-related impacts associated with traffic, noise, vibration, hazards and hazardous materials, utilities and service systems, and air quality. While the proposed project would expose residents to significant and unavoidable construction noise and vibration impacts, Alternative 2 would increase the severity of those impacts.

Summary of Impacts and Levels of Significance

Table ES-2 summarizes the impact of the proposed project, mitigation measures, and levels of significance.

Table ES–2. Summary of Impacts and Mitigation Measures for the Proposed Project

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
<i>Aesthetics</i>			
AES-1: Have a substantial adverse effect on a scenic vista	NI	None	NI
AES-2: Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway	NI	None	NI
AES-3: Substantially degrade the existing visual character or quality of the site and its surroundings	LS	None	LS
AES-4: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	LS	None	LS
<i>Air Quality</i>			
AQ-1: Conflict with or obstruct implementation of the applicable air quality plan	LS	None	LS
AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation	S	Mitigation Measure AQ-1	LM
AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)	S	Mitigation Measure AQ-1	LM
AQ-4: Expose sensitive receptors to substantial pollutant concentrations	LS	None	LS
AQ-5: Potential to create objectionable odors affecting a substantial number of people during construction	S	Mitigation Measure AQ-2	LM

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
Biological Resources			
BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	S	Mitigation Measures BIO-1 through BIO 12	LM
BIO-1a: Impacts on longfin smelt and steelhead	S	Mitigation Measure BIO-1	LM
BIO-1b: Impacts on essential fish habitat	LS	None	LS
BIO-1c: Impacts on western pond turtles	S	BIO-2	LM
BIO-1d: Impacts on burrowing owls	LS	None	LS
BIO-1e: Impacts on the Alameda song sparrow and San Francisco common yellowthroat	S	Mitigation Measures BIO-3 and BIO-4	LM
BIO-1f: Impacts on non-nesting special-status birds	LS	None	LS
BIO-1g: Impacts on salt marsh harvest mouse	S	Mitigation Measures BIO 5 through BIO-8	LM
BIO-1h: Impacts on special-status bats	LS	None	LS
BIO-1i: Impacts on Congdon's tarplant	S	Mitigation Measures BIO-9 and BIO-10	LM
BIO-1j: Introduction of invasive species	S	Mitigation Measures BIO-11 and BIO-12	LM
BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service	LS	None	LS
BIO-3: Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.), waters of the U.S., and waters of the state through direct removal, filling, hydrological interruption, or other means	S	Mitigation Measure BIO-13	LM

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
BIO-4: 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	LS	None	LS
BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	LS	None	LS
BIO-6: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan	NI	None	NI
Cultural Resources			
CR-1: Cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5	NI	None	NI
CR-2: Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5	LS	None	LS
CR-3: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	NI	None	NI
CR-4: Disturb any human remains, including those interred outside of formal cemeteries.	LS	None	LS
CR-5: Cause a substantial adverse change in the significance of a tribal cultural resource as defined in public resources code Section 21074	NI/LS	None	NI/LS
Geology, Soils and Seismicity			
GEO-1: 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 Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42); or strong seismic ground shaking	LS	None	LS

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
GEO-2: Expose people or structures to potential substantial adverse effects, including, the risk of loss, injury, or death involving: seismic-related ground failure, including liquefaction; or landslides	S	Mitigation Measure GEO-1	LM
GEO-3: Result in substantial soil erosion or the loss of topsoil	LS	None	LS
GEO-4: Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse	S	Mitigation Measure GEO-1	LM
GEO-5: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property	LS	None	LS
GEO-6: Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water	NI	None	NI
Greenhouse Gas Emissions			
GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	LS	None	LS
GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases	NI	None	NI
GHG-3: Cause wasteful, inefficient, and unnecessary consumption of energy or cause a substantial increase in energy demand and increase the need for energy resources	LS	None	LS
Hazards and Hazardous Materials			
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	S	Mitigation Measure HAZ-1	LM
HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment	LS	None	LS

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school	LS	None	LS
HAZ-4: Be located on a site which is included on a list of hazardous materials sites compiled pursuant to government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment	NI	None	NI
HAZ-5: 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, such that the project could result in a safety hazard for people residing or working in the project area	NI	None	NI
HAZ-6: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	NI	None	NI
HAZ-7: 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	LS	None	LS
Hydrology and Water Quality			
HYD-1: Violate any water quality standards or waste discharge requirements; or otherwise substantially degrade water quality	LS	None	LS
HYD-2: 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)	LS	None	LS
HYD-3: 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	LS	None	LS

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
HYD-4: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding, on- or off-site	LS	None	LS
HYD-5: 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	LS	None	LS
HYD-6: 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; or place structures within a 100-year flood hazard area structures which would impede or redirect flood flows	NI	None	NI
HYD-7: 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	B	None	B
HYD-8: Inundation by seiche, tsunami, or mudflow	NI	None	NI
Land Use and Planning			
LU-1: Physically divide an established community	LS	None	LS
LU-2: Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect	LS	None	LS
LU-3: Conflict with any applicable habitat conservation plan or natural community conservation plan	NI	None	NI
Noise and Vibration			
NOI-1: Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies	S	Mitigation Measure NOI-1	SU

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
NOI-2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels	S	Mitigation Measure NOI-1	SU
NOI-3: A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project	LS	None	LS
NOI-4: A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project	S	Mitigation Measure NOI-1	SU
NOI-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels	NI	None	NI
NOI-6: For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels	NI	None	NI
Recreation			
REC-1: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	LS	None	LS
REC-2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment	LS	None	LS
Traffic and Transportation			
TRA-1: Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit	S	Mitigation Measure TRA-1	LM

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
TRA-2: Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways	LS	None	LS
TRA-3: Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks	NI	None	NI
TRA-4: Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)	S	Mitigation Measure TRA-1	LM
TRA-5: Result in inadequate emergency access	S	Mitigation Measure TRA-1	LM
<i>Utilities and Service Systems</i>			
UTL-1: Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board	LS	None	LS
UTL-2: Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	NI	None	NI
UTL-3: Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	LS	None	LS
UTL-4: Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed	LS	None	LS
UTL-5: Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments	LS	None	LS
UTL-6: Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs	LS	None	LS

Impact	Significance Level Before Mitigation	Applicable Mitigation Measures	Significance Level After Mitigation
UTL-7: Comply with federal, state, and local statutes and regulations related to solid waste	LS	None	LS
UTL-8: Potential disruption and/or relocation of existing utilities	LS	None	LS
<i>Significant Cumulative Impacts</i>			
CUM-1: Cumulative Impacts on Air Quality	S	Mitigation Measure AQ-1	NCC
CUM-2: Cumulative Impacts on Biological Resources	S	Mitigation Measures BIO-1 through BIO-13	NCC
CUM-3: Cumulative Impacts on Hydrology and Water Quality	S	None	NCC
CUM-4: Cumulative Impacts on Noise and Vibration	S	Mitigation Measure NOI-1	CC
CUM-5: Cumulative Impacts on Traffic Patterns and Safety Hazards	S	Mitigation Measure TRA-1	NCC

Notes:

LS = Less than Significant; LM = Less than Significant with Mitigation; N/A = Not Applicable; CC = Cumulatively Considerable Contribution; NCC = Not Cumulatively Considerably; B = Beneficial; NI = No Impact; S = Significant; SU = Significant and Unavoidable