



Zone 7, Alameda County Flood Control and Water Conservation District

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June 29, 2015

NOTICE OF AVAILABILITY/NOTICE OF PUBLIC HEARING/ NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

STREAM MAINTENANCE - PRIORITY PROJECTS 2015

To:

Alameda County Recorder
1106 Madison Street
Oakland, CA 94607

From:

Zone 7 Water Agency
100 North Canyons Parkway
Livermore, CA 94551

Project:

Title: Stream Maintenance - Priority Projects 2015

Location: Pleasanton & Dublin, CA

Description: The goal of this project is to repair eroded banks and access roads at these five flood control channel sites along Arroyo Mocho, Pleasanton Canal, South San Ramon Creek, Chabot Canal, and Arroyo de la Laguna - and effectively restore these sites to Zone 7 standards for flood control protection and maintenance access.

Applicant: Zone 7 Water Agency

Contact: Elke Rank, 925-454-5005

Public Agency Approving Project: Zone 7 Water Agency

Public Review: Zone 7 will accept comments between June 29, 2015 and July 30, 2015. The draft IS/MND is available for download on the Zone 7 website, and at the City of Pleasanton public library. Paper copies are available from Zone 7 on request. Online: www.zone7water.com/publications-reports/environmental-review-documents

Public Hearing: The Zone 7 Board of Directors will review the final IS/MND, which will reflect comments received on the draft document, at their regular meeting on August 19, 2015 at 7p.m.



STREAM MAINTENANCE - PRIORITY PROJECTS 2015

LIVERMORE, CALIFORNIA

DRAFT

**Environmental Initial Study/
Mitigated Negative Declaration**

By

**Alameda County Flood Control and Water Conservation
District, Zone 7**

June 2015

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1. INTRODUCTION

1.1 BACKGROUND

The Alameda County Flood Control and Water Conservation District, Zone 7 ("Zone 7"), also known as Zone 7 Water Agency, was established in 1957 by the voters of the Livermore-Amador Valley in order to place water management, including flood control, under local control through a locally-elected Board of Directors.

Zone 7 supplies drinking water to retailers serving about 240,000 people in Livermore, Pleasanton, and Dublin, as well as to the Dougherty Valley area in San Ramon. Untreated irrigation water is supplied to some local vineyards, farms, and golf courses. Zone 7 also provides flood protection to eastern Alameda County, and is the groundwater basin manager of the Livermore-Amador Valley groundwater basin.

Zone 7 receives nearly 90% of its water supply from the Delta via the South Bay Aqueduct; the remaining supply comes from local rain runoff, or from water stored at Lake Del Valle. Water is sent directly to one of two water treatment facilities, or can be released to the major arroyos for recharge of the groundwater basin. Generally, imported water (when available) is used during the summer to recharge groundwater through releases to the arroyos.



Zone 7 Service Area

Of the 120 miles of drainage ways within the Valley, Zone 7 owns and maintains approximately 37 miles of both improved and unimproved channels. To ensure adequate flood-protection for the Valley, Zone 7 conducts routine maintenance activities necessary to maintain the conveyance capacity and structural/functional integrity of existing flood control facilities. Routine maintenance activities conducted annually include: inspections, vegetation management, debris and sediment removal, and facility maintenance and repair. Projects are planned and designed to avoid and minimize environmental effects. Specific best management practices are used for the different maintenance activities to further avoid and reduce potential environmental effects. Since 2006, Zone 7 has conducted these activities in accordance with a Routine Maintenance Agreement authorized by the California Department of Fish and Wildlife (CDFW).

Zone 7 is the Lead Agency for projects subject to the California Environmental Quality Act (CEQA). The Zone 7 Board of Directors will consider the information in the IS/MND at a public meeting, and will decide to adopt or reject the findings.



Figure 1: Project Site Map

1.2 PROJECT GOALS

In order to provide integrated water resources management (including flood protection, water supply, and protecting water quality) within the Livermore-Amador Valley, Zone 7 must conduct routine stream maintenance activities annually. Many of these activities require regulatory approvals, such as from CDFW, the Regional Water Quality Control Board (RWQCB), and the U.S. Army Corps of Engineers (USACE).

For 2015, Zone 7 seeks to secure authorization for 5 high priority maintenance projects. These projects are described in detail below.

While this document focuses on Zone 7's immediate 2015 maintenance needs, our agency has begun a longer-term planning process to develop a more programmatic approach for routine maintenance activities. Working together with regulatory agencies, we envision developing longer-term permits to authorize these routine activities. We are planning to develop a manual that describes the maintenance activities, program area resources, impact avoidance and minimization measures, and other topics necessary for permitting needs.

The 2015 priority maintenance projects are essential to ensure that the Agency meets its flood protection, water supply, and water quality mission – and, the three identified as highest priority were identified as such because, without intervention, these sites may incur impacts to life or property. The 2015 projects are representative of routine maintenance activities that are required annually and are a good example of the types of activities that will be covered in the longer-term program.

While the longer-term maintenance program is under development, Zone 7 will continue to apply annually for permits for annual routine maintenance projects and activities. Over this interim period, we envision that regulatory agencies will have the opportunity to familiarize themselves with Zone 7's routine maintenance needs and activities, and to build confidence in our approach to maintenance assessment, prioritization, design, and monitoring.

1.3 DESIGN PHILOSOPHY

Zone 7's channel maintenance design philosophy includes: (1) proactively monitoring and maintaining flood control channels, (2) seeking low-impact options first and early, (3) letting site conditions drive the design in order to achieve the maximum benefit, and (4) restoring (and improving, when possible) the work area both for aesthetic and ecological benefit.

Design Philosophy: Proactive Monitoring & Maintenance

Zone 7 proactively monitors and maintains the agency-owned flood control channels. This includes regular on-the-ground monitoring of channels, documenting issues that are specific to certain reaches, and promptly addressing issues – especially catching minor issues before they become larger future problems that require more intensive treatments.

For example, in channels which historically have had a number of bank failures, Zone 7 continually monitors the areas for early evidence of bank movement (like tension cracks) or signs of potential future issues (like gopher or fox holes). When these early indicators are discovered, often relatively simple solutions are implemented, such as:

- a) eliminating squirrel and fox holes;
- b) sealing cracks on the slope and on road to prevent saturation of the slope and road;
- c) re-grading the access road drainage to eliminate ponding water and preventing drainage into the slope; and
- d) planting trees and/or deep rooted grasses on channel banks to improve bank stability.

The photographs below demonstrate our proactive approach to address maintenance needs early to prevent needing to do larger and more intensive projects later.

Figure 2. Examples of proactive solutions that can help avoid or reduce the need for bigger repairs.

Some channels in Pleasanton have unstable soils that are prone to bank sliding and slumping. In collaboration with the RCD, Zone 7 is testing some long-rooted sod and plants to see if these can help stabilize banks in this area.

New plantings on Pleasanton Canal on left; New native sod on Line G-1-1 on right.



Filling cracks at the top of the bank and re-grading trails/roads at top of bank to reduce or avoid excessive penetration of water into the bank, which causes saturation of the bank soils resulting in bank movement.



Design Philosophy: Seek Low-Impact Options

Commonly there is a range of solutions for maintenance work – from small interim repairs to complete overhauls. Zone 7 seeks to minimize environmental impacts by using biotechnical or other non-invasive solutions wherever feasible; hardscape, such as riprap or concrete is applied only if other solutions will not work and the physical bank conditions or hydraulic flow conditions require that level of bank shear strength. For example, if a bank failure is identified, the initial plan of action calls for immediately covering the slide area in order to minimize additional saturation from rainfall. Then an engineer will identify and document the root cause of the failure, and determine if a low-impact fix is suitable. Finally, the site is seeded before the rainy season to promote stability. These tactics often allows (if needed) one to two winters to plan, design, and fund an appropriate project. The next step is to evaluate suitable biotechnical solutions – like brush walls, willow planting or brush layering. Depending on the mechanism and the severity of the bank failure, among other factors, these options offer either a temporary or a permanent fix. These techniques are low impact in that there is minimal or no soil or vegetation disturbance and they do not require heavy equipment in the channel.

Figure 3. Examples of low-impact techniques

1) Willow plantings / Brush walls help to stabilize areas of active toe erosion. This low-impact method can minimize further erosion in some locations.



2) "Geoweb" (woven fabric cells) backfilled with native soils to repair eroded slope surfaces. In this example, after a brush wall was built the eroded areas were rebuilt with cellular confinement, then seeded and covered with erosion fabric, and seeded again. This low-impact method can be successful in some locations.



Design Philosophy: Site Conditions Drive the Engineering Design

If the biotechnical approaches described above are deemed unsuitable or have not worked well previously at the site, Zone 7 then consider more structural/hardened solutions. In some cases, biotechnical solutions are not the most suitable option for repairing a bank failure, and an engineered rock-based design is required if softer approaches would continue to fail. Zone 7 will consider a rock-based design in order to achieve a satisfactory result – one that alleviates the need for repeated repairs and thereby repeated potential environmental impacts, and increases the flood protection in the adjacent communities. Table 2 identifies the key site conditions that could trigger the need for a more extensive bank repair.

Zone 7 has found that rock-based repairs installed 15+ years ago with shallow keyways, small rock size, and minimal riprap have since failed. Therefore, the keyway size, size of riprap, and thickness of riprap need to be adjusted with respect to the specific physical and site characteristics of each channel. The riprap thickness is directly related to the riprap size required. Larger riprap size is required for deeper channels and channel subject to high velocities / shear stress.

Table 1-1. Key Site Conditions and Constraints that Drive the Design

SITE CONDITION	NOTES
Rotational bank failure	If the bank failure is a deeper rotational failure, the most appropriate solution may be to excavate the bank deeper, re-compact bank soils, and use riprap to anchor the toe of the bank, or in particularly vulnerable locations the whole bank.
Quality of native soils	Expansive soils or highly mixed soils often result in unstable banks. Less stable, poorer quality soils exist in the area of Arroyo De La Laguna, Alamo Canal, Arroyo Mocho, Alamo Canal, Line G-1-1, and Pleasanton Canal. Such soils may limit the use of certain biotechnical approaches.
Stream velocity / shear stress	Some streams are subject to higher water velocity / shear stress. In particular, Arroyo de la Laguna, Chabot Canal and South San Ramon Creek are subject to relatively high velocities. High velocities can also limit the selection of certain treatments.
Bank slope	Steep slopes often prove difficult to repair without rock support.
Groundwater table	High groundwater table can result in saturated channel banks that are difficult to repair without rock support.

Design Philosophy: Restore the Site to Natural-like Conditions

All channel repair designs include post-construction restoration such that the repair is nearly indistinguishable from surrounding areas. This can include applying a layer of soil over the repair, then seeding with native, deep-rooted grasses. In some cases, new shrubs or trees can be installed, but this is highly dependent on the channel flood capacity.

Figure 4 Examples of restoration to natural conditions

2 PROJECT DESCRIPTION & CONSTRUCTION

2.1 PROJECT LOCATION AND SETTING

The 2015 maintenance activities include five bank repair projects on engineered flood control channels within Zone 7's service area. These five projects are summarized in Table 1, and their locations are shown in the map of Figure 1, below.

All of these repairs are the result of the persistent rains that occurred in December 2014 – and due to site locations (soils conditions, proximity to property, etc.) all five require a structural solution (buried rip-rap).

Table 2-1. 2015 Project Summary

SITE	DRAINAGE NAME, CITY	SCOPE OF WORK
#1	Line B-5 Pleasanton Canal (tributary to Arroyo de la Laguna), Pleasanton	• 51-foot bank repair with buried/planted rip-rap • Dewatering is not required at this site • 5 days construction • Access point: Haleakala Road
#2	Line G, Arroyo Mocho (tributary to Arroyo de la Laguna), Pleasanton	• 120-foot bank repair with buried/planted rip-rap • Dewatering of site likely needed • 8 days construction • Access point: Stoneridge Drive
#3	Line G-1, Chabot Canal (tributary to Arroyo Mocho), Pleasanton	• 30-foot bank repair with buried/planted rip-rap • Dewatering of site likely needed • 4 days construction • Access point: Gibraltar Drive
#4	Line J, South San Ramon Creek (tributary to Alamo Canal /Arroyo de la Laguna), Dublin	• 35-foot bank repair with buried/planted rip-rap • Dewatering is not required at this site • 4 days construction • Access point: Amador Valley Blvd
#5	Line B, Arroyo de la Laguna (tributary to Alameda Creek), Pleasanton	• 70-foot bank repair with buried/planted rip-rap • Dewatering is not required at this site • 5 days construction • Access point: Bernal Ave.

The bank repairs all require work to be performed both above and below the Ordinary High Water Mark (OHWM), and specified in Table 2.

Table 2-2. Project Specifications

Line	Cut (cubic yards)		Fill - Riprap (cubic yards)		Fill – soil cover (cubic yards)		Net Change (cubic yards) (Negative number indicates more material being removed than added)		
	Above OHWM	Below OHWM	Above OHWM	Below OHWM	Above OHWM	Below OHWM	Above OHWM	Below OHWM	Total
B-5	92.21	57.72	68.31	44.44	49.19	3.78	25.29	-9.50	15.79
G	140.94	99.49	231.94	121.58	100.23	4.33	191.23	26.42	217.65
G-1	33.53	58.32	31.62	59.22	13.85	6.52	11.94	7.42	19.36
J	100.29	66.41	114.56	58.21	31.81	5.00	46.08	-3.20	42.88
B	553.77	453.08	267.00	405.00	91.48	39.20	-195.29	-8.88	-204.17
Total Project	920.74	735.02	713.43	688.45	286.56	58.83	79.25	12.26	91.51

2.2 PROPOSED PROJECT CONSTRUCTION

2.2.1 Project Schedule and Prioritization

The five proposed projects are targeted for completion in 2015. However, if some tasks are not completed during the 2015 summer construction season, some work may need to be completed during the summer 2016 construction season. All work will be performed between May 1 and October 15.

If any project is not completed by the end of the 2015 construction season the project site will be “buttoned up” and prepared for the winter off-season. This may include use of ground cover, mulch or other anti-erosion BMPs. Zone 7 will not initiate a project if there is any risk that an incomplete project may remain unstable or cause additional erosion during the off-season. If that is the case, then the project will not be initiated.

In order to minimize impacts to the local residents, construction will generally occur only during normal working hours, or 8 a.m. to 5 p.m., Monday through Friday, or as allowed by City ordinance.

Project priority (1 = high, 2= medium) was assessed based on the severity of the condition, if it’s worsening, as well as proximity to areas where life and property may be at risk. The higher priority projects will be started first during the 2015 summer work season.

Table 2-3. Project Schedule

Site	Priority (1 or 2)	Estimated Days To Complete Work	Preferred Timing
1 Line B-5 / Pleasanton Canal	1	5 days	August 2015
2 Line G / Arroyo Mocho	1	8 days	August 2015
3 Line G-1 / Chabot Canal	1	4 days	August 2015
4 Line J / South San Ramon Creek	2	4 days	September 2015
5 Line B / Arroyo de la Laguna	2	5 days	September 2015

2.2.2 Typical Activities and Sequencing

For sites requiring the use of heavier machinery or engineered solutions, the following photographs illustrate typical activities and sequencing.

Figure 5. Examples of typical activities and sequencing.

		
1) Zone has a small storage yard off of Bernal Ave. in Pleasanton. The stockpiled rock riprap is hauled to project sites in 10 wheeled dump trucks.	2) Dump trucks offload onto steel plates placed on the access road at the project site.	3) Removal of the unstable bank failure material requires an excavator; all work is performed from the top of the bank.
		
4) Geotextile fabric is placed in the keyway before backfilling with ¼ or ½ ton riprap. 6 to 12 inches of native soil is overlain on the repair.	5) The finished slope is hydroseeded; within a year or two the repaired site is nearly indistinguishable from native slope.	6) Excess rock is hauled by dump trucks back to Zone 7's Bernal Ave. storage yard.

Figure 5. Examples of typical activities and sequencing.

7) From Zone 7's storage yard, reload all non-reusable project material into semi-end dumps to haul to Republic Services on Vasco Road in Livermore for proper disposal.



8) The trail and/or access road is restored.

2.2.3 Construction Equipment and Workers

Zone 7's on-call contractor is highly competent in bank repair in the region. This is a small firm, however, and it is unlikely that work will take place at more than one project locations simultaneously. The work will proceed from one site to another. There will be common equipment used at each site, as described below. Each location will likely have one to four pieces of equipment working at any given time, and two to four crew members plus a supervisor.

2.3 DESCRIPTION OF WORK SITES

2.3.1 Site #1: Line B-5 (Pleasanton Canal) – Pleasanton

Site Condition

Photo Set 1: Site #1 (Line B-5)

Pleasanton Canal is an engineered trapezoidal flood control channel that was constructed in 1965. It is bounded on either side by private residences, and the maintenance access road along the channel is

accessible to the public as a recreational trail. It typically runs dry in the summer months. While there is evidence of riprap in the area, this particular site has not been repaired before and the design team does not expect to encounter old riprap or concrete.

This approximately 51-foot bank failure occurred in December 2014. The failure toe has since moved several feet into the channel beyond the original bank toe. The upper limit, at the head scarp, has undermined the existing trail. A temporary rise of the groundwater table due to heavy storms may have exacerbated the conditions which led to the failure.

The design process evaluated the need for riprap at this site versus completely biotechnical treatments and determined that conditions at this site required additional shear strength provided by subsurface riprap. Three site conditions indicate the need for a planted rock riprap design (see Table 2 in Section 2.1.1): (1) rotational failure, (2) poor quality native soils, and (3) steep bank slope.

Proposed Work

Following is a summary of the work activities, listed generally in sequence as they will occur.

- *BMPs:* A silt fence will be installed at the toe of the slope to prevent loosened materials from being deposited into the waterway. A water truck will be onsite for dust control and to water the backfill material for compaction. Signage will be placed around the site to alert trail users to maintenance road closure due to construction.
- *Construction Mobilization:* Equipment such as a skiploader tractor, roller and excavator will be mobilized prior to the start of construction. Materials will be brought onsite using one to three dump trucks. Steel plates shall be placed on the road in order to reduce the impact of vibration to the adjacent neighbors from dumping riprap. The dump trucks will be dumping their load onto the steel plates placed on the maintenance road at the project site. Work areas will be confined to the channel maintenance road / trail.
- *De-Watering:* Dewatering is not required at this site because the creek is typically dry in the summer. With the existing drought conditions, a completely dry channel is expected.
- *Preparation:* The site will be cleared and grubbed – removing only the minimum amount of existing vegetation matter and debris in order to access the failure material.
- *Repair:* All work will be performed from the top of the bank. No equipment will be operated in the channel. Removal of the bank failure material will require an excavator. The slide shall be excavated to undisturbed bank material as determined onsite by the project engineer. The excavation shall continue below the channel bottom to develop a shear key at the toe of the rebuilt bank. The face of the reconstructed bank shall be over-excavated to allow the placement of a 3-foot layer of riprap into the slope to the top of bank. Geotextile fabric shall be placed within the keyway up the slope before backfilling with ¼ -ton rock riprap.
- *Restoration:* After the riprap is placed, 6"-12" of on-site material shall be placed and compacted to 80% so that it is suitable for the establishment of native grasses. The finished slope shall be hydroseeded with local, native grasses prior to the rainy season. Unlike the other

4 projects, erosion fabric is not necessary for this project because this site does not have the high surface water velocity present at the other sites.

- *Construction De-mobilization and Clean-Up:* Excess material will be hauled away by dump trucks to be stockpiled at Zone 7's Bernal storage yard. At this location, the combined disposal materials from all 5 projects will be loaded into semi-end dump trucks and hauled to Republic Services on Vasco Road in Livermore. Finally, the access road will be re-graded and aggregate baserock placed to restore the road.

It is expected this site work will be complete in approximately 5 working days.

Table 2-4. Site #1 (Line B-5) Construction Summary

TRUCK TRIPS AND VOLUME	
Import Rip-Rap <i>From Zone 7's Bernal storage yard</i>	19 truck trips (114 cy)
Import Aggregate for Road Repair <i>From: Zone 7's Bernal storage yard</i>	3 truck trips (18 cy)
Haul-off grubbed & cleared material <i>To: Zone 7's Bernal storage yard</i>	24 truck trips (143 cy)
PROJECT AREA	
Clearing & Grubbing	Channel Length: 51 ft Width: 18 ft
Rock Repair / Excavation	Channel Length: 51 ft Width: 18 ft
Coffer Dam	N/A
IMPACTS TO JURISDICTIONAL WETLANDS & WATERS	
USACE	WETLANDS Temporary: 0 ac Permanent: 0 ac WATERS Temporary: 0 ac Permanent: 0 ac
State	Temporary: 0.026 ac Permanent: 0 ac
MATERIALS (also see Table 2)	
Cut / Dredged	57.72 cubic yards (below OHWM)
Fill	48.22 cubic yards (below OHWM)

Haul Route

Trucks will haul in new materials for construction and haul away unused or excess materials, as noted in the table above. The site is easily accessible by Haleakala Road, just off of Valley Trails Drive in Pleasanton. All work and storage areas will be within the Zone 7-owned maintenance road.

- Rock will be imported from the Zone 7 storage yard at the west end of Bernal Avenue in Pleasanton (distance to work site is approximately 2 miles on city streets). Excess rock will be returned here.
- Aggregate to repair the road will be imported from Zone's Bernal storage yard (distance to work site is approximately 2 miles on city streets).
- Grubbed and cleared material will be hauled off-site to Zone's Bernal storage yard (distance to work site is approximately 2 miles on city streets).

Equipment

The following equipment will be used at this repair site, and the total estimated time in use is noted:

- Excavator 40 Hrs
- Skiploader 8 Hrs
- Cat 980 loader 40 Hrs
- Three 10-wheel trucks 120 Hrs
- Water truck 40 Hrs

2.3.2 Site #2: Line G (Arroyo Mocho) – Pleasanton

Site Condition

Photo Set 2: Site #2 (Line G)



This section of Arroyo Mocho in Pleasanton is an engineered trapezoidal flood control channel constructed in 1970. It is bound on each side of the channel by residential land use, and maintenance roads are open to the public as a recreational trail. Even in dry / drought conditions, this reach typically has surface water year-around do to various upstream sources. At this site, the public trail will be closed during construction for public safety.

This 120-foot bank failure occurred during the persistent rains in December 2014 and is causing bank instability. The natural deposition of sediment on the opposite side of the channel upstream of the project site resulted in directing flows into the bank at the project site. The redirected flows then eroded the toe of the bank which resulted in the upper bank cracking and moving downward as a slide. Approximately 3 to 7 feet of the original bank toe has eroded away. Erosion control fabric was previously placed atop the eroded toe. This project site has not been previously repaired.

The design process evaluated the need for riprap at this site versus completely biotechnical treatments and determined that soils at this site required additional shear strength provided by subsurface riprap. Four site conditions trigger the need for a buried rock riprap design (see Section 2.1.1): (1) rotational failure, (2) poor native soils, (3) relatively high velocity and surface stress, and (4) steep bank slopes.

Note that the project consists of 80-feet of riprap repair and an additional 40-feet of only of light grading, erosion fabric, and restoration.

Proposed Work

Following is a summary of the work activities, listed generally in sequence as they will occur.

- *BMPs:* A silt fence will be installed at the toe of the slope to prevent loosened materials from being deposited into the waterway. A water truck will be onsite for dust control and to water the backfill for compaction.
- *Construction Mobilization:* Equipment such as a skip loader tractor, roller and excavator shall be mobilized prior to the start of construction. Materials will be brought onsite using one to three dump trucks. Steel plates shall be placed on the road in order to reduce the impact of vibration to the adjacent neighbors from dumping riprap. Work areas will be confined to the Zone 7 maintenance road. The dump trucks will be dumping their load onto the steel plates placed on the access road at the project site.
- *De-Watering:* Dewatering is required at this site. Two cofferdams will be built, one upstream and one downstream of the bank repair area. Three or more 24" corrugated metal pipes shall be placed for the channel flow to bypass the repair area. The number of pipes will be determined on the channel flows at the time of construction. The cofferdams are built of sandbags filled with clean granular material over plastic sheeting.
- *Preparation:* The site will be cleared and grubbed – removing only the minimum amount of existing vegetation matter and debris in order to access the failure material.
- *Repair:* All work will be performed from the top of the bank. No equipment will be in the channel bed. (1) For the 80-foot riprap repair – Removal of the bank failure material will require an excavator. The slide shall be excavated to undisturbed material as determined by the project engineer. The excavation shall continue to below the canal bottom to develop a shear key at the toe of the rebuilt bank. The face of the reconstructed bank shall be over-excavated to allow the placement of a 3 1/2-foot layer of subsurface riprap into the slope to the top of bank. Geotextile fabric shall be placed within the keyway up the slope before backfilling with ½ ton rock riprap. (2) For the 40-foot grading repair – Removal of the overburden material will require an excavator. The area shall be re-graded to the as-build grade. Erosional control fabric will be secured on the finished slope and hydroseeded with a native grass mix.
- *Restoration:* After the riprap is placed, 6"-12" of on-site native material shall be placed and compacted to 80% so that it is suitable for the establishment of native grasses. The finished slope shall be hydroseeded prior to the rainy season. Erosion fabric will be placed on the lower half of the slope to prevent the soil from eroding away prior to the establishment of the native grasses.
- *Construction De-mobilization and Clean-Up:* Excess material will be hauled away by dump trucks to be stockpiled at the Zone 7's storage yard on Arroyo de la Laguna off of Bernal Ave. At this

location, the combined disposal materials from all 5 projects will be loaded into semi-end dump trucks and hauled to Republic Services on Vasco Road in Livermore. Finally, the access road will be re-graded and aggregate baserock placed to restore the road.

It is expected this site work will be complete in approximately 8 working days.

Table 2-5. Site #2 (Line G) Construction Summary

TRUCK TRIPS AND VOLUME	
Import Rip-Rap <i>From Zone 7's Bernal storage yard</i>	76 truck trips (455 cy)
Import Aggregate for Road Repair <i>From: Zone 7's Bernal storage yard</i>	4 truck trips (24 cy)
Haul-off grubbed & cleared material <i>To: Zone 7's Bernal storage yard</i>	108 truck trips (650 cy)
PROJECT AREA	
Clearing & Grubbing	Channel Length: 120 ft Width: 27 ft
Rock Repair / Excavation	Channel Length: 80 ft Width: 27 ft
Coffer Dam	Channel Length: 3 ft Width: 30 ft
IMPACTS TO JURISDICTIONAL WETLANDS & WATERS	
USACE	WETLANDS Temporary: 0.0001 ac Permanent: 0 ac WATERS Temporary: 0.00295 ac Permanent: 0 ac
State	Temporary: 0.04375 ac Permanent: 0 ac
MATERIALS (also see Table 2)	
Cut / Dredged	99.49 cubic yards (below OHWM)
Fill	125.91 cubic yards (below OHWM)

Haul Route

Trucks will haul in new materials for construction and haul away unused or excess materials, as noted in the table above. The site is easily accessible by Stoneridge Drive in Pleasanton. All work and storage areas will be within Zone 7's maintenance road.

- Rock will be imported from Zone 7's Bernal storage yard in Pleasanton (distance to work site is approximately 3 miles on city streets). Excess rock will be returned here.
- Aggregate to repair the road will be imported from Zone's Bernal storage yard (distance to work site is approximately 3 miles on city streets).
- Grubbed and cleared material will be hauled off-site to Zone 7's Bernal storage yard (distance to work site is approximately 3 miles on city streets).

Equipment

The following equipment will be used at this repair site, and the total estimated time in use is noted:

- Excavator, Long Reach 64 Hrs
- Skiploader 16 Hrs
- Cat 980 loader 64 Hrs
- Three 10 w trucks 192 Hrs
- Water truck 64 Hrs

2.3.3 Site #3: Line G-1 (Chabot Canal) – Pleasanton

Site Condition

Photo Set 3: Site #3 (Line G-1)



Flood Control Line G-1 in Pleasanton is an engineered trapezoidal flood control channel that was constructed in 1981. This reach of channel is not accessible to the public. This reach typically has surface water year-around due to various upstream releases and urban runoff. This 30-foot bank failure occurred during the persistent rains in December 2014. This project site has not been previously repaired.

The design process evaluated the need for riprap at this site versus completely biotechnical treatments and determined that soils at this site required additional shear strength provided by subsurface riprap. Two site conditions indicate the need for a buried rock riprap design (see Table 2 in Section 2.1.1): (1) rotational failure, and (2) poor quality native soils.

Proposed Work

Following is a summary of the work activities, listed generally in sequence as they will occur.

- *BMPs:* A silt fence will be installed at the toe of the slope to prevent loosened materials from being deposited into the waterway. A water truck will be onsite for dust control and to water the backfill material for compaction.
- *Construction Mobilization:* Equipment such as a skiploader tractor, roller and excavator will be mobilized prior to the start of construction. Materials will be brought onsite using one to three dump trucks. Steel plates will be placed on the road in order to reduce the impact of vibration to the adjacent neighbors from dumping riprap. The dump trucks will be dumping their load onto the steel plates placed on the access road at the project site. Work areas will be confined to the Zone 7 maintenance road.
- *De-Watering:* Dewatering is required at this site. Two cofferdams will be built, one upstream and one downstream of the bank repair area. Two 24" corrugated metal pipes shall be placed

for the channel flow to bypass the repair area. The number of pipes will be determined on the channel flows at the time of construction. The cofferdams are built of sandbags filled with clean granular material over plastic sheeting.

- *Preparation:* The site will be cleared and grubbed – removing only the minimum amount of existing vegetation matter and debris in order to access the failure material.
- *Repair:* Removal of the bank failure material will require an excavator. All work will be performed from the top of the bank. No equipment will be in the channel bed. The slide shall be excavated to undisturbed material as determined by the project engineer. The excavation shall continue to below the canal bottom to develop a shear key at the toe of the rebuilt bank. The face of the reconstructed bank shall be over-excavated to allow the placement of a 3-foot layer of subsurface riprap into the slope to the top of bank. Geotextile fabric will be placed within the keyway up the slope before backfilling with ¼ ton rock riprap.
- *Restoration:* After the riprap is placed, 6"-12" of on-site native material shall be placed and compacted to 80% so that it is suitable for the establishment of native grasses. The finished slope shall be hydroseeded prior to the rainy season. Erosion fabric will be placed on the lower half of the slope to prevent the soil from eroding away prior to the establishment of the native grasses.
- *Construction De-mobilization and Clean-Up:* Excess material will be hauled away by dump trucks to be stockpiled at the Zone 7's Bernal storage yard. At this location, the combined disposal materials from all 5 projects will be loaded into semi-end dump trucks and hauled to Republic Services on Vasco Road in Livermore. Finally, the access road will be re-graded and aggregate baserock placed to restore the road.

It is expected this site work will be complete in approximately 4 working days.

Table 2-6. Site #3 (G-1) Construction Summary

TRUCK TRIPS AND VOLUME	
Import Rip-Rap <i>From Zone 7's Bernal storage yard</i>	15 truck trips (91 cy)
Import Aggregate for Road Repair <i>From: Zone 7's Bernal storage yard</i>	3 truck trips (18 cy)
Haul-off grubbed & cleared material <i>To: Zone 7's Bernal storage yard</i>	14 truck trips (82 cy)
PROJECT AREA	
Clearing & Grubbing	Channel Length: 30 ft Width: 22 ft
Rock Repair / Excavation	Channel Length: 30 ft Width: 22 ft
Coffer Dam	Channel Length: 3 ft Width: 11 ft
IMPACTS TO JURISDICTIONAL WETLANDS & WATERS	
USACE	WETLANDS Temporary: 0.00005 ac Permanent: 0 ac WATERS Temporary: 0.00123 ac Permanent: 0 ac
State	Temporary: 0.01312 ac Permanent: 0 ac
MATERIALS (also see Table 2)	
Cut / Dredged	58.32 cubic yards (below OHWM)
Fill	65.74 cubic yards (below OHWM)

Haul Route

Trucks will haul in new materials for construction and haul away unused or excess materials, as noted in the table above. The site is easily accessible by Gibraltar Drive in Pleasanton. All work and storage areas will be within Zone 7's maintenance road.

- Rock will be imported from our current storage area at the west end of Bernal Avenue in Pleasanton (distance to work site is approximately 3 miles on city streets). Excess rock will be returned here also.
- Aggregate to repair the road will be imported from Zone's Bernal storage yard (distance to work site is approximately 3 miles on city streets).
- Grubbed and cleared material will be hauled off-site to Zone 7's Bernal storage yard (distance to work site is approximately 3 miles on city streets).

Equipment

The following equipment will be used at this repair site, and the total estimated time in use is noted:

- Excavator, Long Reach 32 Hrs
- Skiploader 8 Hrs
- Cat 980 loader 32 Hrs
- Three 10w trucks 96 Hrs
- Water truck 32 Hrs

2.3.4 Site #4 Line J (South San Ramon Creek) – Dublin

Site Condition

Photo Set 4: Site #4 (Line J)



Flood Control Line J in Dublin is an engineered trapezoidal flood control channel that was constructed in 1965. This site is adjacent to Dublin High School and the maintenance road doubles as a connector trail to the Iron Horse Trail system. The trail will not need to be closed during construction. This reach typically has surface water year-around do to upstream urban runoff. This 35-foot bank erosion occurred in 2014. This project site has not been previously repaired.

The design process evaluated the need for riprap at this site versus completely biotechnical treatments and determined that soils at this site required additional shear strength provided by subsurface riprap. Three site conditions indicate the need for a buried rock riprap design (see Table 2 in Section 2.1.1): (1) rotational bank failure, (2) relatively high surface water velocity & shear stress, and (3) steep bank slope.

Proposed Work

Following is a summary of the work activities, listed generally in sequence as they will occur.

- *BMPs:* A silt fence will be installed at the toe of the slope to prevent loosened materials from being deposited into the waterway. A water truck will be onsite for dust control and to water the backfill for compaction. Signage will be placed around the site to alert trail users to road closure due to construction.
- *Construction Mobilization:* Equipment such as a skip loader tractor, roller and excavator will be mobilized prior to the start of construction. Materials will be brought onsite using one to three dump trucks. Steel plates shall be placed on the road in order to reduce the impact of vibration to the adjacent neighbors from dumping riprap. The dump trucks will be dumping their load onto the steel plates placed on the access road at the project site. Work areas will be confined to the Zone 7 maintenance road / trail.
- *De-Watering:* Dewatering is not required. Since the slide material has migrated beyond the original slope toe, excavation will occur at the original toe leaving a “natural” berm around the repair such that there will be no impact to the live stream.
- *Preparation:* The site will be cleared and grubbed – removing only the minimum amount of existing vegetation matter and debris in order to access the failure material.
- *Repair:* Removal of the bank failure material will require an excavator. All work will be performed from the top of the bank. No equipment will be in the channel bed. The slide shall be excavated to undisturbed material as determined by the project engineer. The excavation shall continue to below the channel bottom to develop a shear key at the toe of the rebuilt bank. The face of the reconstructed bank shall be over-excavated to allow the placement of a 3.5-foot subsurface layer of riprap into the slope to the top of bank. Geotextile fabric will be placed within the keyway up the slope before backfilling with ½ ton rock riprap.
- *Restoration:* After the riprap is placed, 6”-12” of on-site native material shall be placed and compacted to 80% so that it is suitable for the establishment of native grasses. The finished slope shall be hydroseeded prior to the rainy season. Erosion fabric will be placed on the lower half of the slope to prevent the soil from eroding away prior to the establishment of the native grasses.
- *Construction De-mobilization and Clean-Up:* Excess material will be hauled away by dump trucks to be stockpiled at Zone 7’s Bernal storage yard. At this location, the combined disposal materials from all 5 projects will be loaded into semi-end dump trucks and hauled to Republic Services on Vasco Road in Livermore. Finally, the access road will be re-graded and aggregate baserock placed to restore the road.

It is expected this site work will be complete in approximately 4 working days.

Table 2-7. Site #4 (Line J) Construction Summary

TRUCK TRIPS AND VOLUME	
Import Rip-Rap <i>From Zone 7's Bernal storage yard</i>	29 truck trips (172 cy)
Import Aggregate for Road Repair <i>From: Zone 7's Bernal storage yard</i>	3 truck trips (18 cy)
Haul-off grubbed & cleared material <i>To: Zone 7's Bernal storage yard</i>	40 truck trips (240 cy)
PROJECT AREA	
Clearing & Grubbing	Channel Length: 35 ft Width: 32 ft
Rock Repair / Excavation	Channel Length: 35 ft Width: 32 ft
Coffer Dam	N/A
IMPACTS TO JURISDICTIONAL WETLANDS & WATERS	
USACE	WETLANDS Temporary: 0 ac Permanent: 0 ac WATERS Temporary: 0.00028 ac Permanent: 0 ac
State	Temporary: 0.0267 ac Permanent: 0 ac
MATERIALS (also see Table 2)	
Cut / Dredged	66.41 cubic yards (below OHWM)
Fill	63.21 cubic yards (below OHWM)

Haul Route

Trucks will haul in new materials for construction and haul away unused or excess materials, as noted in the table above. The site is easily accessible by Amador Valley Blvd in Dublin. All work and storage areas will be within Zone 7's maintenance road.

- Rock will be imported from a storage area at the west end of Bernal Avenue in Pleasanton (distance to work site is approximately 7 miles on city streets). Excess rock will be returned here also.
- Aggregate to repair the road will be imported from Zone's Bernal storage yard (distance to work site is approximately 7 miles on city streets).
- Grubbed and cleared material will be hauled off-site to Zone 7's Bernal Ave. storage yard (distance to work site is approximately 7 miles via city streets).

Equipment

The following equipment will be used at this repair site, and the total estimated time in use is noted:

Excavator, Long Reach	32 Hrs
Skiploader	8 Hrs
Cat 980 loader	32 Hrs
Three 10 w trucks	96 Hrs
Water truck	32 Hrs

2.3.5 Site #5: Line B (Arroyo de la Laguna) – Pleasanton

Site Condition

Photo Set 5: Site #5 (Line B)



This section of Arroyo de la Laguna in Pleasanton is an engineered trapezoidal flood control channel constructed in 1970. Due to the many upstream tributaries, including Arroyo del Valle, Arroyo Mocho, and Alamo Canal, this reach has surface water year-around. This site is closed to the public. It is immediately adjacent to Zone 7's storage yard. This 70-foot bank failure occurred during the persistent rains in December 2014. There has been a previous repair near this location. The channel bank along this reach of creek includes rock riprap and concrete banks in adjacent sections.

The design process evaluated the need for riprap at this site versus completely biotechnical treatments and determined that soils at this site required additional shear strength provided by subsurface riprap. Three site conditions indicate the need for a buried rock riprap design (see Table 2 in Section 2.1.1): (1) rotational failure, (2) poor quality native soils, and (3) relatively high surface water velocity & shear stress.

Proposed Work

Following is a summary of the work activities, listed generally in sequence as they will occur.

- *BMPs:* A silt fence will be installed at the toe of the slope to prevent loosened materials from being deposited into the waterway. A water truck will be onsite for dust control and to water the backfill material for compaction.
- *Construction Mobilization:* Equipment such as a skip loader tractor, roller and excavator will be mobilized prior to the start of construction. Materials are stockpiled on-site (adjacent storage yard) and will be moved to within the reach of the excavator with a loader. Work areas will be confined to the Zone 7 maintenance road.
- *De-Watering:* Dewatering is not required. Since the slide material has migrated beyond the original slope toe, excavation will occur at the original toe leaving a berm around the repair, and there will be no impact to the live stream.

- **Preparation:** The site will be cleared and grubbed – removing only the minimum amount of existing vegetation matter and debris in order to access the failure material.
- **Repair:** Removal of the bank failure material will require an excavator. All work will be performed from the top of the bank. No equipment will be in the channel bed. The slide shall be excavated to undisturbed material as determined by the project engineer. The excavation shall continue to below the canal bottom to develop a shear key at the toe of the rebuilt bank. The face of the reconstructed bank shall be overexcavated to allow the placement of a 3.5-foot layer of subsurface riprap into the slope to the top of bank. Geotextile fabric shall be placed within the keyway up the slope before backfilling with ½ ton rock riprap.
- **Restoration:** After the riprap is placed, 6"-12" of on-site native material shall be placed and compacted to 80% so that it is suitable for the establishment of native grasses. The finished slope shall be hydroseeded prior to the rainy season. Erosion fabric will be placed on the lower half of the slope to prevent the soil from eroding away prior to the establishment of the native grasses.
- **Construction De-mobilization and Clean-Up:** Excess material will be returned to Zone 7's Bernal storage yard. At this location, the combined disposal materials from all 5 projects will be loaded into semi-end dump trucks and hauled to Republic Services on Vasco Road in Livermore. Finally, the access road will be re-graded and aggregate baserock placed to restore the road.

It is expected this site work will be complete in approximately 5 working days.

Table 2-8. Site #5 (Line B) Construction Summary

TRUCK TRIPS AND VOLUME	
<i>NOTE: No truck trips because project location is at Zone 7's storage yard</i>	
Import Rip-Rap <i>From Zone 7's Bernal storage yard</i>	0 truck trips (672 cy)
Import Aggregate for Road Repair <i>From: Zone 7's Bernal storage yard</i>	0 truck trips (30 cy)
Haul-off grubbed & cleared material <i>To: Zone 7's Bernal storage yard</i>	40 truck trips (1133 cy)
PROJECT AREA	
Clearing & Grubbing	Channel Length: 70 ft Width: 45 ft
Rock Repair / Excavation	Channel Length: 70 ft Width: 45 ft
Coffer Dam	N/A
IMPACTS TO JURISDICTIONAL WATERS	
USACE	WETLANDS Temporary: 0 ac Permanent: 0 ac WATERS Temporary: 0.0005 ac Permanent: 0 ac
State	Temporary: 0.0609 ac Permanent: 0 ac
MATERIALS (also see Table 2)	
Cut / Dredged	453.08 cubic yards (below OHWM)
Fill	444.20 cubic yards (below OHWM)

Haul Route

In this case, the project site is immediately adjacent to Zone 7's storage area at the west end of Bernal Avenue in Pleasanton. The site is easily accessible by Bernal Ave. in Pleasanton. All work and storage areas will be within Zone 7's maintenance road.

- Rock is available at Zone 7's storage area at the west end of Bernal Avenue in Pleasanton (distance to work site is 200 feet).
- Soil and/or aggregate is available at Zone 7's storage area at the west end of Bernal Avenue in Pleasanton (distance to work site is 200 feet).
- Grubbed and cleared material will be left onsite at Zone 7's storage area at the west end of Bernal Avenue in Pleasanton (distance to work site is approximately 200 feet).

Equipment

The following equipment will be used at this repair site, and the total estimated time in use is noted:

- Excavator, Long Reach 40 Hrs
- Skiploader 8 Hrs
- Cat 980 loader 40 Hrs
- Water truck 40 Hrs

3 ENVIRONMENTAL SETTING

This section provides an overview of key environmental features of the 5 work sites. Additional information is included within the topical discussions in Section 4.

The project area area is characterized by rolling hills, alluvial fans and floodplains. Regional natural plant communities include oak woodland, annual grassland, valley oak and sycamore riparian floodplains, and alkali wetlands. The climate is temperate with mean annual precipitation of 14 inches and mean annual temperatures ranging from a high of 73 to a low of 46 degrees Fahrenheit (Western Regional Climate Center, 2015).

The project sites are generally bounded by residential areas, schools, office parks, and/or major thoroughfares in the Cities of Dublin and Pleasanton. Zone 7 manages each of the channels described below for flood protection. All channels in the project analysis flow in a southerly path and are tributaries to Arroyo de la Laguna which is a tributary to Alameda Creek in Niles Canyon and eventually flows westerly to its discharge into San Francisco Bay.

There are five work sites; the study area for each is described below. Note that the study area is larger than the work site.

1. Line B-5, Pleasanton Canal. The Line B study area is located within and adjacent to the Pleasanton Canal. This 180-foot reach is contained between Hopyard Road to the east and Interstate 680 to the west, in the City of Pleasanton within eastern Alameda County. The Pleasanton Canal flows east to west into Arroyo Mocho which is located immediately east of the I-680. Surrounding land use is residential. The Pleasanton Canal flows perennially east to west into Arroyo de la Laguna.
2. Line G, Arroyo Mocho. The Line G study area is located within and adjacent to the Arroyo Mocho creek channel. This 560-foot reach is between the Stoneridge Drive crossing to the east and the Tassajara Creek confluence to the west, in the City of Pleasanton within eastern Alameda County. Surrounding land use is urbanized with residential homes bordering the channel study area. Arroyo Mocho flows perennially east to west into Arroyo de la Laguna.
3. Line G-1, Chabot Canal. The Line G-1 study area is located within and adjacent to the Chabot Canal channel. This 560-foot reach is contained between Gibraltar Drive to the north and Stoneridge Drive to the south, in the City of Pleasanton within eastern Alameda County. Land use surrounding the study area consists of office buildings and associated parking lots. The Chabot Canal flows perennially north to south into Arroyo Mocho.
4. Line J, South San Ramon Creek. The Line J study area is located within and adjacent to the South San Ramon Creek channel. This 145-foot reach is between Alcosta Boulevard to the north and Amador Valley Boulevard to the south, in the City of Dublin within eastern Alameda County. Land use surrounding the study area is generally residential and the Dublin High School athletic fields are located immediately west of the project site. Dougherty Hills Open Space is located east of the study area. South San Ramon Creek flows perennially from north to south into Alamo Creek.

5. Line B, Arroyo de la Laguna: The Line B study area is located within and adjacent to the Arroyo de la Laguna channel. This 365-foot reach is bounded by Interstate 680 to the northeast and Bernal Avenue to the south, in the City of Pleasanton within eastern Alameda County. Land use surrounding the study area is high end residential developments with some agricultural lands to the south. Arroyo de la Laguna flows perennially north to south into Alameda Creek in Niles Canyon.

4 ENVIRONMENTAL IMPACTS AND DISCUSSION

4.1 BASIC PROJECT INFORMATION

Project Title:	Stream Maintenance Priority Projects 2015
Lead Agency Name and Address:	Zone 7, Alameda County Flood Control and Water Conservation District 100 North Canyons Parkway Livermore, CA 94551
Contact Person and Phone Number:	Elke Rank Associate Water Resources Planner, Zone 7 (925) 454-5036
Project Location:	See Section 2.0 – Project Description
General Plan Designation:	Open Space
Zoning:	N/A
Property Description:	Projects are contained within the Zone 7 - owned channel corridors and adjacent maintenance roads.
Project Description:	The goal of this project is to repair eroded banks and access roads at these five flood control channel sites along Arroyo Mocho, Pleasanton Canal, South San Ramon Creek, Chabot Canal, and Arroyo de la Laguna and effectively restore these sites to Zone 7 Water Agency standards for flood control protection and maintenance access.
Surrounding Land Uses:	The project sites are generally bounded by residential areas, schools, office parks, and/or major thoroughfares in the Cities of Dublin and Pleasanton. Zone 7 manages each of the channels described below for flood protection. Also see Section 4 – Environmental Setting.
Other Agencies Whose Approval is Required:	Permits are required from USACE, RWQCB, and CDFW

4.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of the initial evaluation that follows:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. A TIERED ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

Elke Rank

6-26-2015

Signature

Date

Elke Rank

Printed Name

5 EVALUATION OF ENVIRONMENTAL IMPACTS

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

DISCUSSION

- a-d. No Impact.** The Project is located within stream channel and riparian corridors. The Project will result in little difference in the appearance of the channels. After construction, vegetation enhancements in the riparian corridor may slightly improve the appearance of the project area. Therefore, there is no impact to the scenic resources or scenic highways. In addition, there are no proposed lights or building surfaces that would create a new source of substantial light. Therefore, there would be no impact related to light or glare.

II. AGRICULTURE AND FORESTRY RESOURCES:

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project, and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

DISCUSSION

a-e. No Impact. The Project is confined to stream channels and riparian corridors. As such, there would be no impact related to loss of – or conflicting uses with – agricultural or forest lands associated with implementation of the Project.

III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

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

DISCUSSION

- a) **Less than Significant with Mitigation.** The most recently adopted air quality plan for the San Francisco Bay Area is the Bay Area 2010 Clean Air Plan (2010 CAP). The 2010 CAP is an update to the Bay Area Air Quality Management District (BAAQMD)'s 2005 Ozone Strategy to comply with state air quality planning requirements. The 2010 CAP also serves as a multi-pollutant air quality plan to protect public health and the climate. The 2010 CAP control strategy includes revised, updated, and new measures in the three traditional control measure categories, including stationary source measures, mobile source measures, and transportation control measures. In addition, the 2010 CAP identifies two new categories of control measures, including land use and local impact measures, and energy and climate measures (BAAQMD, 2010).

BAAQMD recommends that the agency approving a project where an air quality plan consistency determination is required, analyze the project with respect to the following questions: 1) does the project support the primary goals of the air quality plan; 2) does the project include applicable control measures from the air quality plan; and 3) does the project disrupt or hinder implementation of any 2010 CAP control measures? If all the questions are concluded in the affirmative, BAAQMD considers the project consistent with air quality plans prepared for the Bay Area (BAAQMD, 2012). Any project that would not support the 2010 CAP goals would not be considered consistent with the 2010 CAP, and if approval of the project would not result in significant and unavoidable air quality impacts after the application of mitigation, then the project would be considered consistent with the 2010 CAP.

As presented in the subsequent impact discussions, the proposed project would result in no new long-term operations-related emissions and with implementation of Mitigation Measure AIR-1, proposed project-related construction emissions would result in a less-than-significant impact. Therefore, the proposed project would support the primary goals of the 2010 CAP. As mentioned above, projects that incorporate all feasible air quality plan control measures are considered consistent with the 2010 CAP. There appear to be no 2010 CAP control measures that would be directly applicable to the proposed project; however, implementation of **Mitigation Measure AIR-1** (see discussion b), below) would ensure that BAAQMD basic construction control measures would be implemented.

Since approval of the project would not result in significant and unavoidable air quality impacts after the application of mitigation, it would be considered consistent with the primary goals of the 2010 CAP and it would not disrupt or hinder implementation of any 2010 CAP control measures. Therefore, with the impact associated with the project conflicting or obstructing implementation of the applicable air quality plan would be less than significant with mitigation.

- b) **Less than Significant with Mitigation.** The Federal Clean Air Act and the California Clean Air Act both require the establishment of standards for ambient concentrations of air pollutants, called Ambient Air Quality Standards (AAQs). The federal AAQs, established by U.S. Environmental Protection Agency (USEPA), are typically higher (less stringent) than the state AAQs, which are established by the California Air Resources Board (CARB) and enforced by the local air district, which is the BAAQMD in the project area. The standard time periods over which the various pollutants are measured range from a 1-hour average to an annual average. The standards are

read as a concentration, in parts per million (ppm) or as a weighted mass of material per a volume of air, in micrograms of the pollutant in a cubic meter of air ($\mu\text{g}/\text{m}^3$).

In general, an area is designated as “attainment” of a given standard if the concentration of a particular air contaminant does not exceed the standard. Likewise, an area is generally designated as “non-attainment” if a standard is violated. In circumstances where there is not enough data available to support designation as either attainment or non-attainment, the area can be designated as unclassified. An unclassified area is normally treated by CARB and USEPA the same as an attainment area for regulatory purposes. An area could be designated attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same air contaminant.

The nearest ambient air quality monitoring location to the project site is at the Livermore air quality monitoring station, which is approximately 9 miles east-southeast of Dublin and 5 miles east-northeast of Pleasanton. The Livermore station monitors concentrations of ozone, fine particulate matter ($\text{PM}_{2.5}$), and nitrogen dioxide (NO_2). Maximum ambient concentrations measured at the Livermore monitoring station are representative of the project area and are shown in **Table 5-1**. The maximum ambient air pollutant concentrations identified in the table for the 4-year study period from 2011 through 2014 are compared to the most restrictive standards. As indicated in **Table 5-1**, the limiting AAQs for ozone were exceeded each year during the 4-year study period, with the exception of the 1-hour standard in 2014, and the limiting AAQS for $\text{PM}_{2.5}$ was exceeded in 2011, 2013, and 2014. There were no exceedances of the NO_2 limiting AAQS during the 4-year study period.

Table 5-1 Criteria Pollutant Maximum Ambient Concentrations in Project Area

Pollutant	Averaging Period	Units	2011	2012	2013	2014	Limiting AAQS*
Ozone	1-Hour	ppm	0.12	0.10	0.10	0.09	0.09
Ozone	8-Hour	ppm	0.084	0.090	0.077	0.080	0.070
$\text{PM}_{2.5}$	24-Hour	$\mu\text{g}/\text{m}^3$	45	31	40	68	35
NO_2	1-Hour	ppm	0.057	0.053	0.051	0.049	0.100

NOTES:

* The limiting AAQS is the most stringent of the federal or state AAQSs for that pollutant and averaging period.

SOURCES: CARB, 2015 and BAAQMD, 2015a.

The project area currently is designated as a non-attainment area for violation of the state 1-hour and 8-hour ozone standards, the state particulate matter (PM_{10}) 24-hour and annual average standards, the state $\text{PM}_{2.5}$ annual average standard, the federal ozone 8-hour standard, and the federal $\text{PM}_{2.5}$ 24-hour standard. The project area is designated as attainment for all other state and federal AAQSs (BAAQMD, 2015b).

Construction exhaust emissions were estimated and compared to regional significance thresholds recommended in the BAAQMD’s *Revised Draft Options and Justification Report* (2009) in order to determine the level of significance for the project to cause or contribute to an

air quality standard violation. The justification report provides substantial evidence to support the recommended mass emissions thresholds and, therefore, Zone 7 Water Agency has determined they are appropriate for use in this analysis. Based on the following, construction and operation of the mitigated project would not result in a violation of an air quality standard or contribute significantly to an existing or projected air quality violation. Therefore, the associated impact would be less than significant with mitigation.

Construction

Construction activities would occur over a period of approximately 30 workdays, between June 15, 2015, and October 30, 2015. The majority of proposed project-related exhaust emissions would be generated at the five creek maintenance sites and at the materials staging site. The Line G, Arroyo Mocho (#797); Line B-5, Pleasanton Canal (#794); Line G-1, Chabot Canal (#804); and the Line B, Arroyo de la Laguna (#795) creek maintenance sites, and the material staging site are located in Pleasanton. The Line J and South San Ramon Creek (#802) creek maintenance sites are located in Dublin.

Construction activities at the creek maintenance sites would occur sequentially, and activities at the staging area would occur concurrently with the creek maintenance sites, except for Line G, Arroyo Mocho (#797), which would not require hauling or staging of materials. Emissions would be generated at each of the creek maintenance sites for periods that would range between 2 and 12 days. On-site construction activities at the creek maintenance sites would include the use of an excavator or mini excavator, up to three haul trucks, a water truck, and the use of a compactor or a skip loader. The excavator or mini excavator would operate up to 8 hours a day for approximately 29 days, haul trucks and water trucks would operate up to 2 hours a day for 29 days. Emissions would be generated at the staging area site due to the use of a loader up to 8 hours per day for 29 days. Off-site exhaust emissions would also be generated by up to five construction workers commuting to and from the project sites each day as well as from up to three heavy-duty diesel trucks that would each make up to five trips per day exporting debris and importing materials to and from the project sites.

Criteria pollutant exhaust emissions of PM₁₀ and PM_{2.5} and ozone precursor emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x) from construction equipment and vehicles would incrementally add to the regional atmospheric loading of these pollutants during construction of the proposed project. Impacts related to the project contributing to an existing or projected air quality violation and whether it would result in a cumulatively considerable net increase of any criteria pollutant or associated precursors are judged by comparing estimated direct and indirect project exhaust emissions to the significance thresholds. For short-term construction emissions, the applicable thresholds are 54 pounds per day for ROG, NO_x, and PM_{2.5}; and 82 pounds per day for PM₁₀. Only the exhaust portion of PM_{2.5} and PM₁₀ emissions are compared against the construction thresholds. The BAAQMD recommends that analyses focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. Rather, the BAAQMD considers implementation of their basic mitigation measures for fugitive dust sufficient to ensure that the construction-related fugitive dust impact is reduced to a less-than-significant level (BAAQMD, 2009).

Air pollutant emissions, including ROG, NO_x, PM₁₀, and PM_{2.5} that would be generated by on-site construction equipment and vehicles (i.e., excavator, mini excavator, haul truck, water truck, compactor, skip loader, and loader) were estimated using the California Emission Estimator Model Version 2013.2.2 (CalEEMod2013.2.2). Air pollutant emissions of ROG, NO_x, PM₁₀, and PM_{2.5} that would be generated off-site from worker vehicles and haul trucks were estimated using emission factors obtained from CARB's EMFAC2014 emissions model for on-road sources.

Table 5-2 shows the estimated total daily exhaust emissions that would be associated with construction of the proposed project. As mentioned above, construction activities at the creek maintenance sites would occur sequentially one after another; however, activities at the staging area site would occur concurrently with the creek restoration sites. Since work associated with the Line J, South San Ramon Creek (#802) site would result in the highest amount of air pollutants, the total maximum daily emissions would be a result of activities associated with the Line J, South San Ramon Creek (#802) site combined with activities that would occur at the staging area site.

Table 5-2 Construction Criteria Pollutant Exhaust Emissions

Emissions Source	Average Daily Construction Emissions (pounds/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Line G, Arroyo Mocho (#797)	0.85	8.78	0.40	0.36
Line B-5, Pleasanton Canal (#794)	1.58	19.09	0.84	0.75
Line J, South San Ramon Creek (#802)	1.63	20.65	0.88	0.78
Line G-1, Chabot Canal (#804)	1.60	19.72	0.85	0.76
Line B, Arroyo de la Laguna (#795)	1.50	16.86	0.77	0.70
Bernal Staging Area Site	1.08	12.12	0.61	0.56
Total Maximum Daily Emissions	2.72	32.78	1.49	1.34
BAAQMD Significance Thresholds	54	54	82	54
Significant Impact?	No	No	No	No

Notes: Emissions were estimated using CalEEMod2013.2.2 and EMFAC 2014. Refer to Appendix X for details on the emissions estimates.

For all assumptions and calculations used to estimate the project-related construction emissions, refer to **Appendix X**. As indicated in **Table 5-2**, the total daily construction exhaust emissions would not exceed the BAAQMD's significance thresholds. Therefore, impacts associated with potential for construction-related exhaust emissions to result or contribute to a violation of an air quality standard would be less than significant.

In addition to exhaust emissions, emissions of fugitive dust would also be generated by project construction activities associated with earth disturbance, travel on paved and unpaved roads, etc. As discussed above, BAAQMD focuses on implementation of dust control measures to ensure that dust-related impacts would be less than significant rather than comparing estimated levels of fugitive dust to quantitative significance thresholds. **Mitigation Measure AIR-1** (see below), would be implemented to ensure that impacts associated with fugitive dust emissions would be reduced to a less-than-significant level.

Mitigation Measure AIR-1: Implement BAAQMD Basic Mitigation Measures. Zone 7 Water Agency and/or its construction contractors shall comply with the following applicable BAAQMD basic control measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at Zone 7 Water Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Operations

Once construction is complete, the proposed project would result in no sources of air pollutants. Therefore, there would be no change in long-term conditions as a result of the project compared to the baseline conditions. There would be no long-term operational impact associated with the potential for construction-related exhaust emissions to result or contribute to a violation of an air quality standard.

- c) **Less than Significant with Mitigation.** Based on BAAQMD guidance, if a project would result in an increase in ROG, NO_x, PM₁₀, or PM_{2.5} of more than its respective average daily mass

significance thresholds, then it would also contribute considerably to a significant cumulative impact. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project would exceed the identified significance thresholds, its emissions would be cumulatively considerable, and if a project would not exceed the significance thresholds, its emissions would not be cumulatively considerable. As presented in discussion b) above, short-term construction exhaust emissions would not exceed the applicable significance thresholds and implementation of **Mitigation Measure AIR-1** (see above) would ensure that impacts associated with fugitive dust emissions would be reduced to a less-than-significant level. In addition, the project would result in no long-term operational emissions. Therefore, the project would not be cumulatively considerable and cumulative impacts would be mitigated to a less-than-significant level.

- d) **Less than Significant Impact.** The BAAQMD recommends that lead agencies assess the incremental toxic air contaminant (TAC) exposure risk to all sensitive receptors (e.g., residences, schools) within a 1,000-foot radius of a project's fence line. Long-term operations that would be associated with the project would result in no new TAC emissions. However, short-term project construction activities would generate diesel particulate matter (DPM), which is considered to be a TAC. The majority of DPM exhaust emissions that would be generated during construction would be due to the use of diesel off-road equipment.

Table 5-3 describes the approximate distances of the closest sensitive receptors to the proposed project sites. The closest residences would be at distances that would range from 30 feet to 300 feet from the project sites. In addition, sports fields at Dublin High School are within 100 feet of the Line J, South San Ramon Creek (#802) site and a child development center is within 150 feet of the Line G-1, Chabot Canal (#804) site.

Table 5-3 Sensitive Receptors In The Vicinity Of The Project Sites

Project Site	Sensitive Receptor Type	Distance from Site (feet)
Line G, Arroyo Mocho (#797)	Residences	50
Line B-5, Pleasanton Canal (#794)	Residences	50
Line J, South San Ramon Creek (#802)	Dublin High School	100
	Residences	300
Line G-1, Chabot Canal (#804)	Child Development Center	150
Line B, Arroyo de la Laguna (#795)	Residences	175
Bernal Staging Area Site	Residences	125

The dose to which receptors are exposed is the primary factor affecting health risk from exposure to TACs. Dose is a function of the concentration of a substance or substances in the

environment and the duration of exposure to the substance. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects (OEHHA, 2003). However, such health risk assessments should be limited to the duration of the emission-producing activities associated with the project. For the proposed project, DPM emissions that would be generated at the project sites would occur for periods that would vary from 2 to 29 workdays.

Table 5-2 (above) shows that the total maximum daily PM_{2.5} emissions from construction at each of the project sites would be up to 0.78 pound per day.¹ Because the daily emissions at any of the project sites would only occur over a period of up to 29 workdays, compared to the 70-year exposure period used in health risk assessments, project-related DPM emissions would not be considered substantial and would not result in a significant incremental cancer risk. Therefore, the impact related to exposing sensitive receptors to substantial pollutant concentrations would be less than significant.

- e) **Less than Significant Impact.** Diesel equipment used to construct the project may emit objectionable odors associated with combustion of diesel fuel. However, these emissions would be temporary and intermittent in nature, thus odor impacts associated with diesel combustion during construction activities would be less than significant. There would be no expected operational odors associated with the proposed project and no long-term impact would occur.

IV. BIOLOGICAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian aquatic, or wetland habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐

¹ PM_{2.5} exhaust emissions are conservatively used here as a surrogate for DPM.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local applicable policies protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other applicable habitat conservation plan?	☐	☐	☐	☒

REGULATORY SETTING

Federal Regulations

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have regulatory authority over federally listed species under the federal Endangered Species Act (ESA). Under the ESA, a permit is required to “take” a listed species for any action that may harm a member of that species. The term “take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” under Section 9 of ESA. Under federal regulation, “take” further encompasses habitat modification or deprivation where it would be anticipated to result in death or injury to listed wildlife by significantly inhibiting critical behavioral patterns, including breeding, feeding, or sheltering. If a project would result in the “take” of a federally listed species, the project proponent must obtain either an incidental-take permit, under Section 10(a) of ESA, or a federal interagency consultation, under Section 7 of ESA prior to the take.

Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act (16 U.S. Code, Sec. 703 Supp. I, 1989) protects migratory birds and includes a federal prohibition against the “take” of any migratory bird, or the nest or eggs of protected birds.

Clean Water Act, Section 404

Section 404 of the Clean Water Act (CWA) requires that a permit be obtained by the United States Army Corps of Engineers (USACE) for any project that involves the discharge of dredged or fill material into “waters of the United States.” These waters include navigable waters of the United States, tributaries to navigable waters, interstate wetlands, wetlands which could affect interstate or foreign commerce, and wetlands adjacent to other waters in the United States. The USACE and the United States Environmental Protection Agency (EPA) defines wetlands as “areas that are inundated or saturated by surface or

ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”. In order to qualify as a jurisdictional wetland, the following delineation criteria must be met: hydrophytic vegetation, hydric soil types, and wetland hydrology.

Clean Water Act, Section 401

Section 401 of the CWA requires that project proponents applying for a Section 404 permit must first obtain a certificate from the appropriate state agency confirming that the projected dredging or filling activity complies with the state’s water quality standards and criteria. In the State of California, water quality certification is granted by the State Water Resource Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCB).

State Regulations

California Endangered Species Act

According to the California Endangered Species Act (CESA) of the California Fish and Game Code, a permit from the California Department of Fish and Wildlife (CDFW)² is required when a project could result in the “take” of a State-listed threatened or endangered species. The exception is that listed plants that may be taken without a permit pursuant to the terms of the California Native Plant Protection Act (CNPPA). Section 2080 of the Fish and Game Code prohibits take of a listed species without an incidental take permit. Under CESA, the term “take” is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” a member of a state listed endangered or threatened species. The terms “harm” and “harass” are included in the federal act but are noticeably missing from the CESA definition. Therefore, the threshold for take under CESA is considered higher than under ESA.

California Fish and Game Code, Section 1602 – Notification of Lake or Streambed Alteration

The CDFW is responsible for the conservation, protection and management of the state’s fish, wildlife, and native plant resources. In order to fulfill this responsibility, Section 1602 of the Fish and Game Code requires that CDFW be notified if any proposed activity may substantially modify a river, stream or lake. Specifically, notification must be given if an activity will: substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel, or bank of, any river, stream or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

CDFG Code - Nesting Birds

Most native, nesting birds are protected under Section 3503 of the CDFG Code (Code), and raptors are protected under Section 3503.5. In addition, CDFG Code Section 3513 prohibits the killing, possession, or trading of migratory birds. Finally, Section 3800 of the Code prohibits the taking of non-game birds, which are defined as birds occurring naturally in California that are neither game birds nor fully protected species.

² The California Department of Fish and Game (CDFG) formally changed their name to the California Department of Fish and Wildlife (CDFW) on January 1, 2013.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act grants jurisdiction of “waters of the state” to the appropriate RWQCB, which then must prepare and periodically update water quality control plans, also known as basin plans. Each plan should provide water quality standards for surface and ground water, as well as measures to control point and non-point pollution sources to achieve and maintain these standards. Projects that discharge waste to wetlands or waters of the state must meet the RWQCB waste discharge requirements, which may be issued in addition to water quality certification or waiver under Section 401 of CWA.

Local Regulations*Alameda County East County Area Plan*

Policy 124. The County shall encourage the maintenance of biological diversity in East County including a variety of plant communities and animal habitats in areas designated for open space.

Policy 125. The County encourages preservation of areas known to support special-status species.

Policy 126. The County encourages no net loss of riparian and seasonal wetlands.

Policy 127. The County encourages the preservation of East County oak woodland plant communities.

Policy 129. The County shall protect existing riparian woodland habitat present along Arroyo Mocho, Arroyo Del Valle, Arroyo Las Positas, Arroyo de la Laguna; and Alamo, Tassajara, and Alameda Creeks.

FINDINGS**Vegetation and Wildlife**

The project incorporates five sites all within maintained flood control channels in the cities of Pleasanton and Dublin, as described in the Project Description. Vegetation and wildlife habitat at each of these sites is generally described in Table 5-4.

Table 5-4 General Description of Project Sites

Site	Description of Site
#1	Line B-5, Pleasanton Canal. Pleasanton Canal is a shallow channel passing through residential areas in Pleasanton. Site 1 supports no riparian habitat or sensitive natural communities and provides limited upland habitat for wildlife. The channel bottom is approximately 3 to 6 feet wide; water levels averaged 4 to 6 inches. Canal drains to Alamo Canal down a roughly 20-foot tall concrete drop structure.
#2	Line G, Arroyo Mocho. Arroyo Mocho is a large, trapezoidal channel that passes through residential and commercial areas at Site 2. Site 2 supports no riparian habitat or sensitive natural communities, and has limited upland habitat. Channel is approximately 50 feet wide at the toe of slope; 120 feet wide at top of bank; and 1.5 to 2.5 feet deep at bank full.

#3	Line G-1, Chabot Canal. Chabot Canal is a small trapezoidal flood control channel that passes through a commercial area in Pleasanton. The wetted channel at Site 4 ranges from 2 feet to 4 feet wide, with water ranging from 6 to 12 inches deep. No riparian vegetation or sensitive natural communities occur at this site, with limited non-native vegetation on banks.
#4	Line J, South San Ramon Creek. This trapezoidal flood control channel is a shallow, long glide only 3 to 4 feet across at the project site. Channel is adjacent to Dublin High School and residential housing in Dublin, with no riparian or natural communities and limited non-native upland habitat.
#5	Line B, Arroyo de la Laguna. Arroyo de la Laguna is a large, channelized, trapezoidal channel that conveys much of the flow from the Livermore-Amador Valley to Alameda Creek. The Channel is roughly 35 to 60 feet wide at the toe of the slope, and approximately 160 feet wide at the top of bank. Depth ranges from 6 inches to 4 feet. Limited riparian habitat with mature cottonwood trees on the east bank. The west bank, where improvements would occur, supports non-native grassland and rip rap.

The presence of wetland-associated vegetation is restricted at all five project sites drainages due to seasonally intense flows, regular maintenance, and channel designs that promote a relatively uniform channel bottom. Typical wetland vegetation is restricted to narrow fringes of annual emergent species such as cattail (*Typha* sp.), watercress (*Rorippa nasturtium-aquaticum*), and curly dock (*Rumex crispus*), which grow along the channel edges. A number of low-growing subdominant plants occur intermittently in these channels and include umbrella sedge (*Cyperus eragrostis*), rabbit's foot grass (*Polypogon monspeliensis*), and water smartweed (*Polygonum* sp.). There is no woody streamside vegetation at any the work sites. Several mature cottonwood trees (*Populus trichocarpa*) line the east bank, opposite the project site at Site 6. Upland habitats vary, but typical dominants in these areas are Harding grass (*Phalaris aquatica*), fennel (*Foeniculum vulgare*), wild oats (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), Italian thistle (*Carduus pycnocephalus*), cockle burr (*Xanthium strumarium*), and wild radish (*Raphanus sativus*). Land uses surrounding the project sites are generally urbanized, with residential homes and office buildings adjacent to the channels.

Special Status Species

The California Natural Diversity Database (CNDDB) documents 30 special-status plant and wildlife species in the Dublin and Livermore USGS 7.5-minute quadrangles (CDFW, 2015). In addition, a USFWS Endangered Species List for the Dublin and Livermore quadrangle (USFWS, 2015) documents 13 federal listed species in the regional vicinity of the project sites. However, a majority of these species are unlikely to occur either because the project sites are located outside of species' range, focused surveys have documented negative results, habitats are of poor quality, or unsuitable conditions occur at the project sites (ESA, 2014; 2015b). A list of special-status species with known occurrence or with the potential to occur in the project vicinities are provided in Appendix A.

The overall lack of instream vegetation provides little habitat for aquatic species, including California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*), looking to forage, seek cover, or breed in the project's channel segments. The western pond turtle (*Emys marmorata*) was the only special-status species observed during focused California red-legged frogs

surveys. The project areas also provide potential foraging and nesting habitat for common birds, and several special-status birds. Special-status plants are not expected at any of the project sites based on a review of available habitat at each project site. An evaluation of the potential for each special-status plant and wildlife species to occur in the project region is provided in Appendix A. Avian species observed using the wetland and instream habitat during surveys include Canadian geese (*Branta canadensis*), snowy egret (*Egretta thula*), great egret (*Ardea alba*), Wilson's snipe (*Gallinago delicata*), and mallard (*Anas platyrhynchos*) (ESA, 2015b).

Wetlands

All of the sites are engineered, trapezoidal flood protection channels within Dublin and Pleasanton cities. The proposed maintenance to the channels includes the stabilization of slope banks and removal of excess landslide fill to correct erosion into the drainages. Therefore the project will improve several acres of waters of the U.S., waters of the State, and CDFW jurisdictional wetlands.

ESA conducted a formal wetland delineation of the collective study areas on February 18, 2015. The field delineation identified and documented all potentially jurisdictional wetlands and other waters of the U.S. within the delineation study areas. Instream wetlands occur at four out of the five study areas in the action area. Table 5-5 summarizes findings of the delineation and summarizes estimated USACE jurisdictional areas for each feature type within the work area (ESA, 2015a).

The channel beds found at each of the study areas support a combination of upland and wetland species. Dominant plants observed during the wetland delineation at sample points included, Italian rye grass (*Festuca perennis*), bristly ox-tongue (*Helminthotheca echioides*), curly dock (*Rumex crispus*), umbrella sedge (*Cyperus eragrostis*), northern willow herb (*Epilobium ciliatum*), bitter cress (*Cardamine oligosperma*), prickly lettuce (*Lactuca serriola*), old man of spring (*Senecio vulgaris*), watercress (*Nasturtium officinale*), and bulrush (*Schoenoplectus americanus*).

Table 5-5 Potentially Jurisdictional Wetlands and Other Waters Of The U.S.

Site	Feature Type	Area (ac)	Area (sq ft)
1	Line B-5, Pleasanton Canal		
	Wetlands	0	0
	Other Waters of the U.S.	0	0
	Subtotal Wetlands and Other Waters of the U.S.	0	0
	Other Non-Corps Waters of the State	0.0260	1,132
2	Line G, Arroyo Mocho		
	Wetlands	0.0001	4
	Other Waters of the U.S.	0.0030	131
	Subtotal Wetlands and Other Waters of the U.S.	0.0031	135
	Other Non-Corps Waters of the State	0.0438	1,908
3	Line G-1, Chabot Canal		
	Wetlands	<0.0001	2
	Other Waters of the U.S.	0.0012	52
	Subtotal Wetlands and Other Waters of the U.S.	0.0013	54
	Other Non-Corps Waters of the State	0.0131	571

Site	Feature Type	Area (ac)	Area (sq ft)
4	Line J, South San Ramon Creek		
	Wetlands	0	0
	Other Waters of the U.S.	0.0003	12
	Subtotal Wetlands and Other Waters of the U.S.	0.0003	12
	Other Non-Corps Waters of the State	0.0267	1,163
5	Line B, Arroyo de la Laguna		
	Wetlands	0	0
	Other Waters	0.0005	22
	Subtotal Wetlands and Other Waters of the U.S.	0.0005	22
	Other Non-Corps Waters of the State	0.0609	2,653
	Total Instream Wetlands	0.0002	6
	Total Other Waters of the U.S.	0.0050	217
	Total Non-Corps Waters of the State	0.1705	7,426

Much of the in-stream work involves re-channeling flows and correcting channel lines, as well as, associated channel bank stabilization. Thus, temporarily disturbed areas would be restored as a component of the project.

DISCUSSION

- a) **Less than Significant with Mitigation.** Special-status plants and wildlife that are known or have potential to occur in the project region include the California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*) and western pond turtle (*Emys marmorata*). However, based on focused surveys and review of on-site habitat and the available resources, only the western pond turtle is expected at project sites. Raptors, such as red-shouldered hawk (*Buteo lineatus*) and barn owl (*Tyto alba*), and passerine birds may nest in and near the project areas and are protected under state and federal regulations. Potential impacts to wildlife resources from the project are discussed below.

Eleven special-status plant species that are known to or have the potential to occur in the project vicinity were considered for their potential to occur at the project sites (CDFW, 2015; CNPS, 2015). These species are generally associated with alkaline, woodland, vernal pool, meadow, swamp, and scrub habitat that do not occur at the project sites. Based on past and present land uses, observed non-native vegetation, and available habitats on-site, special-status plant species are not expected at any of the project sites (Appendix A).

Construction

California Tiger Salamander. The California tiger salamander is a federal and state-listed threatened species that most commonly breeds in vernal pools, but also breeds in the quiet waters of ponds, reservoirs, lakes, and drainages. Adults spend most of the year in terrestrial habitats including burrows of the California ground squirrel (*Otospermophilus beecheyi*) and pocket gopher (*Thomomys* spp.), debris piles, and beneath man-made structures.

California tiger salamanders have been detected in suitable breeding and dispersal habitat two to three miles from the project sites; in stock ponds surrounded by grazed-oak woodlands and annual grasslands with numerous California-ground squirrels; and to the north and east in annual grasslands also with burrows, agricultural fields, and vineyards (CDFW, 2015). Residential and commercial development surrounding the project sites completely restricts salamander access from these known breeding locations, and this species does not occur within urbanized portions of the cities of Pleasanton and Dublin. Based on the distance from known and potential breeding sites and lack of habitat in the project areas, California tiger salamanders are not anticipated in the project areas and no impacts are anticipated to this species.

California Red-legged Frog. The California red-legged frog is a federal threatened species and California species of special concern typically associated with deep pools or lakes with overhanging woody vegetation such as willows and cattails (USFWS, 2002). California red-legged frogs frequently breed in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. During summer and fall months this species may disperse upstream and downstream of breeding sites to forage and seek sheltering habitat. Such shelter may include all aquatic, riparian, and upland areas within the range of the species and landscape features that provide cover, such as small mammal burrows, rocks piles, organic debris (e.g., downed trees or logs), leaf litter, or industrial debris. Incised stream channels may also provide important summer sheltering habitat. California red-legged frogs generally breed from November to April, attaching egg masses to vegetation, fencing, or any available attachment sites in shallow water pools or protected backwater areas in streams (USFWS, 2002).

The general lack of instream riparian habitat coupled with the isolation from known populations due to instream barriers and surrounding land uses, reduces the potential for California red-legged frogs to occur within any of the project sites. During February 2015 all sites were evaluated for habitat potential according to the USFWS *Revised Guidance on Habitat Assessment and Field Surveys for the California Red-Legged Frog* (USFWS, 2005; ESA, 2015b). The survey did not identify any backwater pools or other habitat features preferred by California red-legged frogs. Furthermore, protocol-level California red-legged frog surveys of the five project sites in 2015 failed to detect this species (ESA, 2015b). As a result, this species is considered absent from the projects areas through May 2017, when the survey expires. Protocol-level surveys for California red-legged frog performed between 2001 and 2014 have repeatedly produced negative results for the project sites and their associated channels (ESA, 2014).

Habitats in the project areas are poor quality for California red-legged frog and prior focused protocol surveys (2001 to 2014) have not identified presence in any of the project channels or upstream in connected drainages (ESA, 2014). Based on survey findings, coupled with poor quality upland and aquatic habitat, existing barriers to frog movement, and the absence of nearby California red-legged frog populations, this species is not expected at project sites. Thus, no impacts are anticipated to California red-legged frogs or occupied or potential habitat for this species. While California red-legged frogs are not anticipated in the work areas, **Mitigation Measure BIO-1a** has been proposed to the U.S. Fish and Wildlife Service at Site #2 to avoid and minimize potential adverse effects on California red-legged frogs at Site #2.

Mitigation Measure BIO-1a: Implement measures to reduce impacts to California red-legged frog. The following measures shall be implemented at Site #2 to reduce impacts to these species:

1. To the extent practicable, initial ground-disturbing activities will be avoided between November 1 and March 31, when California red-legged frogs are most likely to be moving through upland areas.
2. No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for California red-legged frogs shall be conducted by a qualified biologist. The survey will consist of walking the project limits and within the project site to ascertain the possible presence of the species. The USFWS-approved biologist will investigate all potential areas that could be used by California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors. General minimum qualifications for the qualified biologist are a 4-year degree in biological sciences or other appropriate training and/or experience in surveying, identifying, and handling CRLF.
3. The qualified biologist will conduct employee education training for employees working on earthmoving and/or construction activities. Personnel will be required to attend the presentation which will describe California red-legged frog avoidance, minimization, and conservation measures, legal protection of the animal, and other related issues. All attendees will sign an attendance sheet along with their printed name, company or agency, email address, and telephone number.
4. If a California red-legged frog is detected, work shall cease in the immediate area and the USFWS shall be notified before work is reinitiated. Additional measures including full time or spot check biological monitoring and/or exclusion measures for California red-legged frog may be implemented during the remainder of construction following consultation with the USFWS.
5. Uneaten human food and trash attracts crows, ravens, coyotes, and other California red-legged frog predators. A litter control program will be instituted at each project site. All workers will ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers will be removed from the project site at the end of each working day.
6. Loss of soil from run-off or erosion will be prevented with non-monofilament straw bales, straw wattles, or similar means.
7. To the maximum extent practicable, no construction activities will occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a USFWS approved biologist will inspect the action area and all equipment/materials for the presence of California red-legged frog. The animals will be allowed to move away from the project site of their own volition or moved by the qualified biologist.

Western Pond Turtle. The western pond turtle (*Emys marmorata*) is a California Species of Special Concern that ranges along the western portion of California, including the Central Valley, north into British Columbia and south into northern Baja California. Pond turtles inhabit ponds, marshes, streams, and ditches that typically have a rocky or muddy substrate and support emergent vegetation. The pond turtle is commonly associated with permanent water bodies, though they may seasonally move through upland habitat and intermittent drainages. Western pond turtles have been identified during ESA surveys in Chabot Canal (Site #3) and in Arroyo de la Laguna (upstream of Site #5) (Pittman, pers. obs.). This species may be encountered in work areas at the time of construction, and adult turtles could be subject to direct impacts from equipment.

Habitats in the project areas are of marginal quality for western pond turtle and do not possess suitable breeding features for this species (i.e., sandy banks). Surveys have identified western pond turtles in Arroyo Mocho, Chabot Canal, and Arroyo de la Laguna (B. Pittman, pers. obs.). Therefore, it is possible that this species may be present in work areas at the time of construction. Direct effects to western pond turtle would be considered a significant impact. The implementation of **Mitigation Measure BIO-1b** will reduce the potential for construction-related impacts to this species to less-than significant.

Mitigation Measure BIO-1b: Implement measures to reduce impacts to western pond turtle. The following measures shall be implemented to reduce impacts to these species:

1. Instream disturbances shall be performed during the dry season when stream flows are at their lowest (e.g., May 15 to October 15). Upstream water sources shall be diverted around the sites during in stream construction to minimize the likelihood of western pond turtle movement through the project area during construction.
2. A qualified biological monitor shall perform a preconstruction survey of the project area prior to construction to verify that western pond turtles are not present in work areas. Additionally, in the event that standing water is present at the time of construction, the monitor shall perform periodic inspections of the project sites to verify the absence of western pond turtle.
3. A biological resource education program shall be provided to construction crews and contractors before construction activities begin. The program shall describe the life history and identification of western pond turtles, protective measures to be implemented if sensitive species are identified or suspected to be in the work area (i.e., immediate notification of the biological monitor and temporary protective buffers of 100 feet), and penalties for handling or harming these species.
4. If pond turtles are identified in the work area, construction activities shall cease until the individual disperses from the project site, or is relocated by the biological monitor.

Nesting Birds

A variety of suitable nesting habitat is present near the project sites in the form of ornamental landscaping that could support nesting passerine birds. During a reconnaissance survey on February 18, 2015 two Anna's hummingbird (*Calypte anna*) nests were detected in nearby residential yards adjacent to Site #1. In addition, an occupied black phoebe (*Sayornis nigricans*) nest was noted under I-680 overpass as well as swift colony nests around the bridge pillars. No ground squirrel or other mammal burrows of suitable size were observed near the project area during field surveys. Therefore burrowing owl (*Athene cunicularia*) is not expected within the project sites.

The tricolored blackbird (*Agelaius tricolor*) sometimes occurs in large nesting colonies or flocks, with a range including the Central Valley and much of the Coast Ranges. Nesting habitats include freshwater wetlands with dense cattails or other wetland vegetation, and nesting colonies are larger than any other North American landbird (Shuford and Garaldi, 2008). Basic requirements for the species' selection of nesting sites includes open accessible water, a protected nesting substrate with either flooded or thorny vegetation, and a suitable foraging space with adequate insect prey within one to two miles of the colony. As specific nesting habitat does not exist on site, it would be unlikely to encounter this bird species on the project sites.

As a result of project construction, any nesting raptors within 250 feet and passerine birds within 150 feet could be disrupted by project activities. The displacement of actively nesting birds is disallowed under the Migratory Bird Treaty Act and CDFG code, and would constitute a significant impact. The implementation of **Mitigation Measure BIO-2** will reduce potential impacts on nesting birds to a less-than significant level.

Mitigation Measure BIO-2: If construction or vegetation removal must be performed during the nesting period (February 1 through August 31), Zone 7 shall retain a qualified biologist to survey trees and dense wetland vegetation within 250 feet of the project site for any nesting birds to verify the presence or absence of nests no more than 14 days prior to construction activities. If active nests are observed, buffer zones will be established around trees/shrubs with nests, with a buffer size established by the qualified biologist through consultation with the appropriate regulatory agency (e.g., CDFW). Typical nest avoidance buffers are 50 to 150 feet for passerine birds and 150 to 500 feet for raptors, depending upon the nature of proposed activities and the sensitivity of the identified bird to disturbance. If buffers are established due to bird nesting, areas will be avoided during construction activities until the young birds have fledged.

Special-Status Bats

The project sites do not provide roosting habitat for special-status bat species within project footprints and only limited roosting habitat is found nearby (such as under I-680 bridge). In general, special-status bats that occur locally, which include pallid bat (*Antrozous pallidus*), hoary bat (*Lasiurus cinereus*), and Yuma myotis (*Myotis yumanensis*), require protected areas such as rock crevices, cliffs, caves, bridges, buildings, and dense tree foliage for roosting. Special status bats are more sensitive to human disturbances and the surrounding development of the

project sites makes the likelihood of special status bat occurrence minimal. If bats were utilizing buildings or bridges in the vicinity of the project sites any disturbances caused by project activities would be minimal in relation to the high level of noise and disturbance already present at the sites. Bat foraging may occur in the channel sites; however, foraging bats would not be adversely impacted from on-site construction activities.

Operations

Upon completion of the project, the channel would function as it does presently with bank stabilization improving stream flow. As a result, there would be no long-term operational impact to candidate, sensitive or special-status plant or wildlife species.

- b) **Less than Significant.** There is only one site that supports riparian vegetation: Site #5: Line B, Arroyo de la Laguna. However, riparian vegetation occurs only on the east bank in the vicinity of the project site and is outside the project footprint. Project activities at Arroyo de la Laguna are restricted to the west bank and would not directly harm or remove any riparian vegetation in this location. All other project sites lack riparian vegetation or other sensitive natural communities. Therefore project impacts to riparian habitat or other sensitive natural communities would be less than significant.
- c) **Less than Significant with Mitigation.** The project will result in temporary impacts to creek channels during construction, but instream flows are expected to be restored to current function or improved with bank stabilization activities. The removal of excess fill, correction of flow channels, and placement of hardpan material onto slopes will require in-stream access and disturbance. Project activities may potentially disturb 0.002 acres of USACE jurisdictional instream wetlands and up to 0.005 acres of Other Waters of the U.S. in the project areas (ESA, 2015a). Table 5-5 shows acreage of potential wetland and waters by project site. Impacts would be largely temporary. Following the placement of riprap, banks will be finished with a cap of native soils and compacted so they are suitable for the establishment of native grasses. Hence, post-project vegetation conditions will be similar to pre-project conditions. Project permitting is required with the USACE, RWQCB, and CDFW. Disturbance to wetlands and waters of the U.S. and state would constitute a significant impact. Implementation of **Mitigation Measures BIO-3a and BIO-3b** will reduce project impacts to wetlands and waters to less than significant.

Mitigation Measure BIO-3a: Where feasible, Zone 7 shall avoid and minimize disturbance of in-stream wetlands and riparian vegetation in the project areas as a focus of project design and construction. The preferable form of mitigation recommended by the USACE and CDFW is avoidance of jurisdictional waters and riparian vegetation. All project activities associated with recontouring stream banks, incorporating hardpan stabilization material, instream sediment removal, removal of structures, or vegetation grubbing would be limited to the minimum area necessary to complete the work. To minimize disturbance to the extent feasible project activities shall be conducted from top of bank on disturbed access roads. Furthermore, catchment screens and barriers shall be installed to reduce materials and sediments from entering water downstream and fueling and cleaning of equipment/vehicles will occur away from the channels off project sites.

Mitigation Measure BIO-3b: Where jurisdictional wetlands and other waters cannot be avoided, to offset temporary and permanent impacts that would occur as a result of the project, in-situ site restoration mitigation shall be provided through the following mechanisms: Prior to construction Zone 7 shall obtain relevant permits and authorizations from the USACE, CDFW, and RWQB. Consistent with the terms and conditions of these permits and authorizations, Zone 7 shall compensate for the unavoidable loss of wetlands and other waters at a minimum of a 1:1 ratio. Compensation may be provided by one or more of the following methods: 1) on-site creation or habitat restoration, 2) off-site habitat creation, restoration and/or enhancement, or 3) payment to an approved wetland mitigation bank.

- d) **Less than Significant.** As described in a) existing habitat conditions at the project sites are of minimal value and surrounded by developed and disturbed land uses. Project implementation will be temporary and channels will return to existing function with no long-term modification impacting wildlife movement. Thus, impacts to native resident or wildlife movement would be less than significant.
- e) **No Impact.** Project objectives to restore instream flows and stabilize banks are consistent with the open space and conservation elements of the Alameda County East County Area Plan. No trees would be removed under the project. As a result, the project does not conflict with local biological resource protection policies or ordinances.
- f) **No Impact.** No habitat conservation plans, natural community conservation plan, or other approved conservation plans have been approved for lands that include the project sites.

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

Discussion

a-d) Less than Significant Impact. A Cultural Resources Survey Report was prepared to support compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

Results of the records search indicate no archaeological resources have been previously recorded within the area of potential effects (APE). Within the APE at Line B-5 and Line G are the previously recorded Arroyo Mocho Canal and the Pleasanton Canal, both channelized flood control canals. The canals were previously evaluated for their potential eligibility to the National Register of Historic Places; they were found not eligible for listing.

A field survey of the work locations was completed in February 2015. No cultural resources were identified in the proposed project APE. Based on the survey results, geologic framework, and either the historic location within Willow Marsh or distance to the nearest perennial water source, Line G, Line B-5, Line J, and Line G-1 appear to have a low archaeological sensitivity. Despite the negative survey results and previous disturbance, the APE at Line B has archaeological sensitivity. This is due to its proximity to the historic Willow Marsh and the numerous prehistoric archaeological sites in the immediate vicinity.

Mitigation Measure CULT-1: The following measures shall be implemented at Line B. Because the project site and depth of excavation is relatively minor, no impacts to cultural resources are expected. However, these precautionary actions help to ensure that potential impacts are avoided:

Prior to ground disturbing activities at Line B, Zone 7 shall have a qualified archaeologist prepare a cultural resources monitoring plan addressing (but not be limited to) the following issues:

- Training program for all construction involved in site disturbance;
- Person(s) responsible for conducting monitoring activities;
- How the monitoring shall be conducted and the required format and content of monitoring reports;
- Schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports;
- Protocol for notifications in case of encountering of cultural resources, as well as
- methods of dealing with the encountered resources (e.g., collection, identification, curation);
- Methods to ensure security of cultural resources;
- Protocol for notifying local authorities (i.e. Sheriff, Police) should looting and other illegal activities occur during construction.

The Zone 7 will retain the services of a qualified archaeological consultant that has experience in California prehistory to monitor ground-disturbing activity at Line B. During the course of the monitoring, the archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the conditions and professional judgment regarding the potential to impact resources.

If an intact archaeological deposit is encountered, all soil disturbing activities within 100 feet will cease until the find is evaluated. The archaeological monitor will immediately notify the USACE and the Zone 7 of the encountered archaeological deposit. The monitor will, after making a reasonable effort to assess the identity, integrity, and significance of the encountered resource, present the findings of this assessment to the USACE and Zone 7.

If the archaeological monitor, in consultation with the USACE and the Zone 7, determines that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, Zone 7 may:

- Re-design the proposed project to avoid any adverse effect on the significant archaeological resource; or,
- Design and implement a Historic Properties Treatment Plan (HPTP). The project archaeologist, Zone 7, the USACE, and the SHPO shall meet and consult to determine the scope of the HPTP and develop a formal Memorandum of Agreement (MOA). The archaeologist will submit a draft HPTP for review and approval to the SHPO, the USACE, Zone 7, and, for prehistoric resources, the appropriate Native American representative. The HPTP will identify how a data recovery program would preserve any significant information the archaeological resource is expected to contain. The HPTP will identify the scientific and historic research questions applicable to the resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, will be limited to the portions of the site that could be adversely affected by the proposed project.

Mitigation Measure CULT-2: Based on the survey results, geologic framework, and historic location in relation to Willow Marsh and other waterways, there appears to be a low potential for the discovery of archaeological resources and/or human remains at Line G, Line B-5, Line J, and Line G-1. While unlikely, the accidental discovery of archaeological resources or human remains at these locations cannot be entirely discounted. In the event of accidental discovery, the following measures be implemented:

- **Accidental Discovery of Archaeological Resources:** If prehistoric or historic-era archaeological resources are encountered, all construction activities within 100 feet will halt. The Zone 7 Water Agency and the USACE will be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist will inspect the findings within 24 hours of discovery. If it is determined that the project could damage a significant archaeological resource, the

Zone 7 Water Agency shall re-design the proposed project to avoid any adverse effects. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed HPTP in consultation with the SHPO, the USACE, Zone 7, and, for prehistoric resources, the appropriate Native American representative.

- **Accidental Discovery of Human Remains:** In the event of discovery of any human remains during project activities, such activities within 100 feet of the find shall cease until the Alameda County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the USACE and Zone 7 for the appropriate means of treating the human remains and any grave goods.

VI. GEOLOGY AND SOILS

Would the project:

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

☐	☐	☐	☒
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ii) Strong seismic ground shaking?

☐	☐	☐	☒
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iii) Seismic-related ground failure, including liquefaction?

☐	☐	☐	☒
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iv) Landslides?

☐	☐	☐	☒
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b) Result in substantial soil erosion or the loss of topsoil?

☐	☐	☐	☒
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c) 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?

☐	☐	☐	☒
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d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

☐	☐	☐	☒
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e) 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?

☐☐☐☒

DISCUSSION

- a-e) No Impact.** The project area is located in the San Francisco Bay area, a region of high seismic activity. The Calaveras fault—the most significant fault in the Dublin and Pleasanton area, has a 7% probability of producing a magnitude 6.7 or greater earthquake in the next 30 years. The Project is confined to segments of existing stream channels, built upon imported and/or packed materials that are currently subject to natural erosional process and sediment transport during both precipitation events and recharge operations. Slope repairs will stabilize the slopes that have been compromised due to erosion and drainage issues and in some cases will also protect existing maintenance roads and recreational trails. The Project is intended to reinforce unstable areas and therefore, would not result in a significant impact. The sites are non-habitable and would not expose people to injury or death, or risks to life or property. Therefore, this Project will have no impacts to geology or soils.

VII. GREENHOUSE GAS EMISSIONS

Would the project:

Potentially
Significant
Impact

Less Than
Significant with
Mitigation
Incorporated

Less Than
Significant
Impact

No Impact

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

☐☐☒☐

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

☐☐☐☒

DISCUSSION

- a) **Less than Significant Impact.** Based on the following analysis, construction and operation of the project would not generate greenhouse gas (GHG) emissions, either directly or indirectly, that would have a significant impact on the environment.

Construction

Construction activities that would be associated with the project would include improvements for flood protection, as well as riparian enhancements. Construction activities that would be associated with the proposed project would occur over the course of approximately 29 workdays, between June 15, 2015, and October 30, 2015. The majority of the project-related GHG emissions would be generated on-site due to the use of heavy-duty off-road equipment, including an excavator, mini excavator, compactor, skip loader, a loader, a water truck, and up

to three haul trucks. The equipment operation hours per day and number of required workdays would vary depending on the specific type of equipment and on the construction activity. GHG emissions would also be generated off-site associated with construction worker daily commutes and material and debris hauling.

The BAAQMD's *Revised Draft Options and Justification Report* (BAAQMD, 2009) identifies qualitative and quantitative operations-related thresholds of significance for GHG emissions. For projects other than stationary sources, the qualitative threshold is noncompliance with a qualified climate action plan or qualified general plan. The quantitative threshold is annual operational emissions of more than 1,100 metric tons carbon dioxide equivalent (CO₂e). For stationary source projects, there is only a quantitative threshold of 10,000 metric tons CO₂e per year. There is no threshold established for emissions of GHG generated during project construction. However, for a conservative study, this analysis applies the BAAQMD's threshold of 1,100 metric tons CO₂e per year for non-stationary source projects.

Project construction GHG emissions that would be associated with onsite activity were estimated using the CalEEMod2013.2.2 emissions estimating model. GHG emissions from motor vehicles used during construction were estimated using the EMFAC2014 model for carbon dioxide (CO₂) and methane (CH₄) emission factors, and N₂O emission factors for gasoline and diesel combustion were obtained from The Climate Registry (TCR, 2014). GHG emissions in the form of CO₂e were calculated by multiplying the estimated total miles travelled by project-related worker vehicles and export and import haul trucks by the GHG emission factors, then multiplying the N₂O and CH₄ emissions by their respective global warming potential, and then by adding the CO₂, N₂O, and CH₄ emissions.

Estimated construction GHG emissions that would be associated with the project are presented in **Table 5-6**. Refer to **Appendix A** for the assumptions used to estimate GHG construction emissions that would be associated with the project.

Table 5-6 Construction GHG Emissions Estimate

Construction Activity Source	CO ₂ e (metric tons)
Line G, Arroyo Mocho (#797)	7.16
Line B-5, Pleasanton Canal (#794)	2.22
Line J, South San Ramon Creek (#802)	6.17
Line G-1, Chabot Canal (#804)	3.48
Line B, Arroyo de la Laguna (#795)	1.88
Bernal Staging Area Site	16.23
Total Emissions	43.18
Significance Threshold (metric tons)	1,100
Significant Impact?	No

As indicated in **Table 5-6** short-term total project construction-related GHG emissions would be up to approximately 43 metric tons CO₂e, which would be considerably less than BAAQMD's

quantitative threshold of 1,100 metric tons CO₂e per year for non-stationary sources. Therefore, GHG emissions that would be associated with construction of the project would represent a less-than-significant impact.

Operations

Once construction is complete, the project would result in no sources of GHG emissions. Therefore, there would be no change in long-term baseline conditions as a result of the project and there would be no long-term operational impact.

- b) **No Impact.** There are no adopted GHG-related plans, policies, or regulations that would be directly applicable to the project. Therefore, there would be no impact associated with the project conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG.

VIII. HAZARDS AND HAZARDOUS MATERIALS	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) 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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) 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?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) 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?	☐	☐	☐	☒

DISCUSSION

- a-b) Less Than Significant Impact.** The Project will require the use of certain potentially hazardous materials such as fuels and oils. Fuels and oil would be used by construction equipment. Spills during on-site fueling of equipment or an upset condition, could result in a release of these material into the environment. There will be limited equipment at each site, and equipment will be limited to top of bank. Therefore, impacts from hazardous materials release are considered less than significant.
- c) Less Than Significant Impact.** Two of the work sites (South San Ramon Creek and Chabot Canal) are situated within one-quarter mile of a school. However, the Project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. Therefore, there would be no impact on schools within one-quarter mile of the site related to hazardous emissions or materials.
- d) No Impact.** The project is not included on the hazardous materials sites compiled pursuant to Government Code §65962.5. Therefore, there is no impact with respect to this list.
- e) Less Than Significant Impact.** The five work sites are not located within two miles of an airport.
- f) No Impact.** There are no private airstrips within two miles of the project site. Therefore, there would be no impact with respect to safety at private airstrips.
- g) No Impact.** The project work is in the stream channel, in areas not accessible to cars. The project would not interfere with implementation of an emergency response or evacuation plan. Therefore, there would be no impact with respect to such emergency plans.
- h) No Impact.** The project site is not located in an extreme or high fire risk area. The Project would not result in creation of structures for habitation and would not expose people to wildfires. Therefore, there would be no impact with respect to extreme or high fire risks.

IX. HYDROLOGY AND WATER QUALITY	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements?				
i) Is the project tributary to an already impaired water body, as listed in the Clean Water Act Section 303(d) list? If so, will it result in an increase in any pollutant for which the water body is already impaired?	☐	☐	☒	☐
ii) Will the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?	☐	☐	☒	☐
b) 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)?	☐	☐	☐	☒
c) 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?	☐	☐	☒	☐
d) 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?	☐	☐	☒	☐
i) Review the final approved CWP Hydrograph Modification Plan (HMP) to assess the significance of altering existing drainage patterns.	☐	☐	☒	☐
ii) Potentially cause streambed or bank erosion downstream from the project?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒

i) Would the proposed project result in increased impervious surfaces and associated increased runoff? Does the project meet the NPDES permit's Group 1 or Group 2 criteria? Note that Provision C.3 requirements need to be met in environmental documents. For projects that do not meet Group 1 or Group 2 criteria, consider incorporating appropriate site design and source control measures.	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?				
i) Would the proposed project result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity, and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash).	☐	☐	☒	☐
ii) Would the proposed project result in significant alternation of receiving water quality during or following construction?	☐	☐	☒	☐
iii) Would the proposed project have a potentially significant environmental impact on surface water quality to marine, fresh, or wetland waters?	☐	☐	☒	☐
iv) Would the proposed project have a potentially significant adverse impact on ground water quality?	☐	☐	☒	☐
g) 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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) 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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

DISCUSSION

- a) **Less Than Significant Impact.** Both Arroyo de la Laguna and Arroyo Mocho are each listed in the Clean Water Act Section 303(d) list as an impaired water body for diazanon. However, the Project should not result in an increase of this pollutant because there will be no additional discharges into the waterbodies as a result of this Project. The Arroyo Mocho has also been

listed under section 303(d) of the Clean Water Act as impaired due to excessive water temperatures; however, the Project will not result in further increases to water temperature.

- b) No Impact.** Two sites are located outside the main groundwater basin for the region, and the three remaining sites are located in areas that do not have high groundwater recharge capacity. Further, project activities will not affect recharge. Therefore, this Project will not deplete or alter groundwater supplies.
- c-e) Less Than Significant Impact.** The Project will not result in any new impervious surface, and is not expected to increase surface runoff. The Project is not expected to result in increased risk of streambed or bank erosion downstream of the project sites. Two sites may require coffer-dams and use of pipes to route flow around the work area. The coffer-dams are temporary and would last only for the duration of work at the site (approximately 7-8 days), after which the coffer-dams would be removed and the channel would return to its pre-construction alignment.
- f) Less Than Significant Impact.** Construction of the proposed project could violate water quality standards or waste discharge requirements should there be an accidental fuel spill, uncontrolled runoff of sediment laden water, or any other construction related soil erosion. This is unlikely, however, as Site #1 is typically dry in summer, sites #2 and #3 will be fully contained by coffer-dams on the upstream and downstream ends, and slide material at sites #4 and #5 has migrated beyond the original slope toe, allowing excavation to occur at the original toe leaving a “natural” berm around the repair such that there will be no impact to the live stream. Further, no equipment will be operated in the channel; all work will be done from the top of bank. BMPs are also in place to prevent loosened materials from being deposited into the waterway and control for dust. Polluted discharges to receiving waters are very unlikely during construction, but would be fully contained and clean-up readily achievable. No impact to groundwater quality is anticipated.
- g-i) No Impact.** The project is contained within the stream channel, which is designed to carry the 100-year storm event. No housing or other structures will be built as part of the project. The project does not include levees or dams and the sites are non-habitable and would not expose people to injury or death, or risks to life or property. Therefore, there is no impact with respect to flooding.
- j) No Impact.** The project area is not in a location affected by seiche, tsunami, or mudflow. Therefore, there is no impact with respect to flooding.

X. LAND USE AND PLANNING	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the LRDP, general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

DISCUSSION

- a) **No Impact.** There is no potential to physically divide an established community; therefore, there would be no impact since there is no established community.
- b) **No Impact.** The Project work sites are located in an existing stream (flood control) channel in Pleasanton and Dublin, CA; the work will not conflict with any other plans or policies.
- c) **No Impact.** The work will not conflict with the East Alameda County Conservation Strategy; therefore, there is no impact.

XI. MINERAL RESOURCES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

DISCUSSION

- a-b) **No Impact.** The Project work sites are contained within in existing stream (flood control) channels, and the work is limited to removing “failed” bank material. The Project will have no impact with respect to the loss of availability of mineral resources.

XII. NOISE				
Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) 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?	☐	☐	☐	☒
f) 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?	☐	☐	☐	☒

DISCUSSION

- a) **Less than Significant Impact.** Construction noise levels will be intermittent, and will fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. None of the sites require ongoing and/or deafening equipment use that typically exceed noise standards (jack hammers, etc). Given the background traffic and other noises, and the natural attenuation of noise with distance, this is considered a less than significant impact.
- b) **Less Than Significant Impact.** Construction activities do not include blasting or drilling or other activities typically associated with groundborne vibration or groundborne noise. Given the background traffic and other noises, and the natural attenuation of noise with distance, this is considered a less than significant impact.
- c) **No Impact.** Following construction, the project will result in no permanent increase in noise, and therefore there is no impact.
- d) **Less Than Significant Impact with Mitigation.** Construction noise levels will be intermittent, and would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Much of the work does not require ongoing loud equipment (like jack hammers, etc.). The background traffic and other noises in the area, as well as the natural attenuation of noise with distance, will alleviate much of the nuisance associated with

construction noise. Still, construction would temporarily increase noise levels in the project vicinity. Some land uses are more sensitive to ambient noise levels than others due to the amount of noise exposure and types of activities typically involved. Noise sensitive land uses include residential, mobile home parks, motels and hotels, schools, libraries, churches, hospitals, nursing and convalescent homes, and some parks and cultural facilities. **Mitigation Measure NOI-1** would ensure that equipment noise is controlled to the degree feasible and would reduce potential noise impacts to less-than-significant levels.

Measure NOI-1: Noise generating construction work will generally be limited to weekdays from 8a.m. to 5p.m., or as specified in the City's ordinances. All construction work shall be conducted only as prescribed by City permits.

e-f) No Impact. The work sites are not within 2 miles of an active airport or private airstrip.

XIII. POPULATION AND HOUSING	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

DISCUSSION

a-c) No Impact. Growth inducement impacts will not occur because the project purpose is limited to repairing existing flood control channels. No existing housing will be displaced necessitating construction of replacement housing. No people will be displaced. Therefore, there are no impacts with respect to population/housing.

XIV. PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				

Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

DISCUSSION

- a) **No Impact.** The proposed project would not necessitate the need for alteration of public services or facilities. Therefore, no physical or environmental impacts associated with the provision of new or altered governmental facilities would result.

XV. RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

DISCUSSION

- a-b) **Less than Significant Impact.** Three of the five work sites are normally open to the public as part of the local trail systems. Two of the sites (Pleasanton Canal and Arroyo Mocho) will be closed to foot traffic for about a week during construction. It's not expected that this short period of closure will have any noticeable impact on other recreational facilities, nor will this repair alter the recreation use at these sites. Therefore, impacts are considered less than significant.

XVI. TRANSPORTATION/TRAFFIC				
Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness 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?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to a level of service standard and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) 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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity	☐	☐	☐	☒
g) Conflict with applicable policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

DISCUSSION

a,b) Less Than Significant Impact. The work sites are all easily accessible by major city streets. All work and storage areas will be within Zone 7's maintenance road. No street closures are planned.

Off-site vehicle trips generated by construction would primarily consist of truck movements associated with transporting the heavy equipment to the site, transport of soil and other materials to and from the project site, and the daily arrival and departure of construction workers. The impact of construction-related traffic would be a temporary – about a week for each site. At each work site, there will be a fairly steady stream of haul trucks entering and exiting the site on most days (see Tables 2-4 through 2-8). Over the course of 4 to 8 days, depending on the site, this is not a significant increase in local traffic. As a result, the proposed

project would not result in any long-term degradation in operating conditions or level of service on any project roadway.

In addition to construction truck trips, construction activities would require approximately three to five construction employees, who would generate about six to ten one-way commute trips per day (three to five inbound in the morning, and three to five outbound in the afternoon). As stated above, there are major arterial streets surrounding the project work sites, and the temporary addition of construction employee trips would not adversely affect traffic flow conditions. Therefore, vehicle trips associated with construction employees are considered a less than significant impact.

- c) **No Impact.** The project is not located near an airport; further, the project will not impact the air traffic since the project will not involve erecting structures that could impede flight path or radio signals.
- d) **No Impact.** The proposed project would not include any permanent design features (e.g., new facilities or obstructions) within public roadways or alterations of existing roadway features (e.g., road realignment) that would create a permanent and substantial design hazard.
- e) **No Impact.** All work will occur on Zone 7's channel maintenance roads and therefore will not affect emergency access.
- f) **No Impact.** The project will require parking for construction workers. There is adequate parking to accommodate the approximately three to six daily construction workers within the project area or nearby street parking. Therefore, there is no impact with respect to parking.
- g) **No Impact.** The project is limited to repairing existing stream (flood control) channels and as such will have no impact on public transit, bicycle, or pedestrian facilities.

XVI. UTILITIES AND SERVICE SYSTEMS				
Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) 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?	☐	☐	☐	☒
c) 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?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

e) 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with applicable federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

DISCUSSION

- a-g) No Impact.** The Project is limited to stream (flood control) channel bank repair. Activities will not require water or wastewater service onsite. Therefore, no expansion of existing or construction of new water or wastewater facilities would be required, and wastewater treatment requirements would not be exceeded. The project will not result in the construction of new storm water drainage facilities. Finally, there will be no solid waste generated as a result of this project, and therefore there would be no impact on water, wastewater, or solid waste disposal services.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

DISCUSSION

- a) Less Than Significant Impact.** Without mitigation, the proposed project does have the potential to temporarily degrade the quality of the environment during construction activities. However,

with the mitigation measures included as part of this Initial Study, all potentially significant impacts would be reduced to a less-than significant level.

- b) **Less Than Significant Impact.** Potential impacts associated with the proposed project are related to construction activities, and are therefore temporary. Due to the limited scope of the proposed activities, the proposed project would not contribute to cumulatively considerable impacts. Therefore, potential impacts are considered to be less than significant.
- c) **Less Than Significant Impact.** Without mitigation, the proposed project does have the potential to adversely affect human beings, primarily through activities related to project construction. However, these impacts would be temporary (lasting only for the duration of construction) and the mitigation measures included as part of this Initial Study would reduce these potential impacts to a less-than-significant level.

XVIII. FISH AND GAME DETERMINATION

Based on the information above, there is no evidence that the project has a potential for a change that would adversely affect wildlife resources or the habitat upon which the wildlife depends. The presumption of adverse effect set forth in 14 CCR 753.5 (d) has been rebutted by substantial evidence.

- ☐ Yes (Certificate of Fee Exemption)
☒ No (Pay fee)

6 PUBLIC COMMENTS

A notice of this Draft Initial Study/ Mitigated Negative Declaration document was mailed to agencies and interested parties, including property owners adjacent to the proposed Project site. It was also made available at the public library in Livermore, and noticed in the Valley Times newspaper. The 30-day public review period is June 29, 2015 through July 30, 2015.

The final IS-MND will include a summary of comments and responses received through July 30, 2015.

7 MITIGATION MONITORING AND REPORTING PLAN

The Mitigation Monitoring and Reporting Plan (MMRP) is included as Appendix B; it identifies the implementation procedure, monitoring and reporting actions, monitoring responsibility, and monitoring schedule for all mitigations measures.

8 REFERENCES

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Appendix A: Air Quality and Greenhouse Gas Evaluation

1. Emissions Summaries

Total Maximum Daily Criteria Pollutant Construction Emissions

Emissions Source	Total Daily Emissions (pounds)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Line G, Arroyo Mocho (#797)	0.85	8.78	0.40	0.36
Line B-5, Pleasanton Canal (#794)	1.58	19.09	0.84	0.75
Line J, South San Ramon Creek (#802)	1.63	20.65	0.88	0.78
Line F-4 (#701 and #793)	1.62	20.34	0.87	0.78
Line G-1, Chabot Canal (#804)	1.60	19.72	0.85	0.76
Line B, Arroyo de la Laguna (#795)	1.50	16.86	0.77	0.70
Bernal Staging Area Site	1.08	12.12	0.61	0.56
Total Maximum Daily Emissions	2.72	32.78	1.49	1.34
Significance Thresholds	54	54	82	54
Significant Impact?	No	No	No	No

Total Combined Annual GHG Construction Emissions

Emissions Source	CO ₂ e (metric tons)
Line G, Arroyo Mocho (#797)	7.16
Line B-5, Pleasanton Canal (#794)	2.22
Line J, South San Ramon Creek (#802)	6.17
Line F-4 (#701 and #793)	6.04
Line G-1, Chabot Canal (#804)	3.48
Line B, Arroyo de la Laguna (#795)	1.88
Bernal Staging Area Site	16.23
Total Emissions	43.18
Significance Thresholds	1,100
Significant Impact?	No

2. Emission Summaries and Worker Vehicle and Truck Emissions

On-Road Vehicle Criteria Pollutant Emission Factors

Vehicle Type (calendar year)	grams/mile			
	ROG	NO _x	PM10*	PM2.5*
Light duty truck (2015)	0.0323	0.1903	0.0463	0.0191
Heavy Diesel Truck (2015)	0.3523	9.4479	0.2836	0.2133

*PM10 and PM2.5 emission factors include tire and break wear.

Vehicle emission factors were obtained from EMFAC2014.

Light duty truck = LDT2

On-Road Vehicle GHG Emission Factors

Vehicle Type (calendar year)	grams/mile		
	CO ₂	CH ₄	N ₂ O
Light duty truck (2015)	443.8821	0.0103	0.0871
Heavy Diesel Truck (2015)	1639.2672	0.0164	0.0048

Notes:

Vehicle emission factors for CO₂ and CH₄ are from EMFAC2014 (see appendix section 3, EMFAC2014 Emission Factors., N₂O emission factors are from TCR, 2014.

Light duty truck = LDT2; Heavy diesel truck = T7 tractor construction.

Reference:

The Climate Registry (TCR), 2014. 2014 Climate Registry Default Emission Factors, Table 13.4. Released: April 11, 2014.

Line G, Arroyo Mocho (#797)

Criteria Pollutant Emissions Summary

Emissions Source	Total Emissions (pounds/day)			
	ROG	NO _x	PM10	PM2.5
Off-road Equipment and Vehicles	0.80	7.74	0.35	0.33
Worker Commute Truck Haul Trips	0.05	1.04	0.05	0.03
Total	0.85	8.78	0.40	0.36

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip Criteria Pollutant Emissions

Vehicle Type	Trips/day	miles/trip	ROG	NO _x	PM10	PM2.5
Light-Duty Gasoline Trucks	5	50	0.02	0.10	0.03	0.01
Heavy-Duty Diesel Trucks	5	9	0.03	0.94	0.03	0.02
Total (pounds/day)			0.05	1.04	0.05	0.03

Five construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day. One dump truck would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 9 miles).

GHG Emissions Summary

Emissions Source	CO ₂ e
	(metric tons)
Off-road Equipment and Vehicles	4.86
Worker Commute Truck Haul Trips	2.30
Total	7.16

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip GHG Emissions

Vehicle Type	Trips	miles/trip	CO ₂	CH ₄	N ₂ O	CO ₂ e
Light-Duty Gasoline Trucks	60	50	1.33	0.00	0.00	1.41
Heavy-Duty Diesel Trucks	60	9	0.89	0.00	0.00	0.89
Total (metric tons/year)			2.22	0.00	0.00	2.30

Five construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day for 12 days. One dump truck would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 9 miles) for 12 days.

Global Warming Potential for CH₄ = 25; GWP for N₂O = 298 (CARB, 2014).

Line B-5, Pleasanton Canal (#794)**Criteria Pollutant Emissions Summary**

Emissions Source	Total Emissions (pounds/day)			
	ROG	NO _x	PM10	PM2.5
Off-road Equipment and Vehicles	1.48	16.82	0.75	0.69
Worker Commute Truck Haul Trips	0.10	2.27	0.09	0.06
Total	1.58	19.09	0.84	0.75

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip Criteria Pollutant Emissions

Vehicle Type	Trips/day	miles/trip	ROG	NO _x	PM10	PM2.5
Light-Duty Gasoline Trucks	4	50	0.01	0.08	0.02	0.01
Heavy-Duty Diesel Trucks	15	7	0.08	2.19	0.07	0.05
Total (pounds/day)			0.10	2.27	0.09	0.06

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 7 miles).

GHG Emissions Summary

Emissions Source	CO ₂ e
	(metric tons)
Off-road Equipment and Vehicles	1.69
Worker Commute Truck Haul Trips	0.53
Total	2.22

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip GHG Emissions

Vehicle Type	Trips	miles/trip	CO ₂	CH ₄	N ₂ O	CO ₂ e
Light-Duty Gasoline Trucks	8	50	0.18	0.00	0.00	0.19
Heavy-Duty Diesel Trucks	30	7	0.34	0.00	0.00	0.34
Total (metric tons/year)			0.52	0.00	0.00	0.53

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day for 2 days. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 7 miles) for 2 days.

Global Warming Potential for CH₄ = 25; GWP for N₂O = 298 (CARB, 2014).

Line J, South San Ramon Creek (#802)**Criteria Pollutant Emissions Summary**

Emissions Source	Total Emissions (pounds/day)			
	ROG	NO _x	PM10	PM2.5
Off-road Equipment and Vehicles	1.48	16.82	0.75	0.69
Worker Commute Truck Haul Trips	0.15	3.83	0.13	0.09
Total	1.63	20.65	0.88	0.78

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip Criteria Pollutant Emissions

Vehicle Type	Trips/day	miles/trip	ROG	NO _x	PM10	PM2.5
Light-Duty Gasoline Trucks	4	50	0.01	0.08	0.02	0.01
Heavy-Duty Diesel Trucks	15	12	0.14	3.75	0.11	0.08
Total (pounds/day)			0.15	3.83	0.13	0.09

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 12 miles).

GHG Emissions Summary

Emissions Source	CO ₂ e
	(metric tons)
Off-road Equipment and Vehicles	4.22
Worker Commute Truck Haul Trips	1.95
Total	6.17

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip GHG Emissions

Vehicle Type	Trips	miles/trip	CO ₂	CH ₄	N ₂ O	CO ₂ e
Light-Duty Gasoline Trucks	20	50	0.44	0.00	0.00	0.47
Heavy-Duty Diesel Trucks	75	12	1.48	0.00	0.00	1.48
Total (metric tons/year)			1.92	0.00	0.00	1.95

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day for 5 days. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 12 miles) for 5 days.

Global Warming Potential for CH₄ = 25; GWP for N₂O = 298 (CARB, 2014).

Line F-4 (#701 and #793)**Criteria Pollutant Emissions Summary**

Emissions Source	Total Emissions (pounds/day)			
	ROG	NO _x	PM10	PM2.5
Off-road Equipment and Vehicles	1.48	16.82	0.75	0.69
Worker Commute Truck Haul Trips	0.14	3.52	0.12	0.09
Total	1.62	20.34	0.87	0.78

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip Criteria Pollutant Emissions

Vehicle Type	Trips/day	miles/trip	ROG	NO _x	PM10	PM2.5
Light-Duty Gasoline Trucks	4	50	0.01	0.08	0.02	0.01
Heavy-Duty Diesel Trucks	15	11	0.13	3.44	0.10	0.08
Total (pounds/day)			0.14	3.52	0.12	0.09

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 11 miles).

GHG Emissions Summary

Emissions Source	CO ₂ e
	(metric tons)
Off-road Equipment and Vehicles	4.22
Worker Commute Truck Haul Trips	1.82
Total	6.04

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip GHG Emissions

Vehicle Type	Trips	miles/trip	CO ₂	CH ₄	N ₂ O	CO ₂ e
Light-Duty Gasoline Trucks	20	50	0.44	0.00	0.00	0.47
Heavy-Duty Diesel Trucks	75	11	1.35	0.00	0.00	1.35
Total (metric tons/year)			1.80	0.00	0.00	1.82

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day for 5 days. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 11 miles) for 5 days.

Global Warming Potential for CH₄ = 25; GWP for N₂O = 298 (CARB, 2014).

Line G-1, Chabot Canal (#804)**Criteria Pollutant Emissions Summary**

Emissions Source	Total Emissions (pounds/day)			
	ROG	NO _x	PM10	PM2.5
Off-road Equipment and Vehicles	1.48	16.82	0.75	0.69
Worker Commute Truck Haul Trips	0.12	2.90	0.10	0.07
Total	1.60	19.72	0.85	0.76

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip Criteria Pollutant Emissions

Vehicle Type	Trips/day	miles/trip	ROG	NO _x	PM10	PM2.5
Light-Duty Gasoline Trucks	4	50	0.01	0.08	0.02	0.01
Heavy-Duty Diesel Trucks	15	9	0.10	2.81	0.08	0.06
Total (pounds/day)			0.12	2.90	0.10	0.07

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 9 miles).

GHG Emissions Summary

Emissions Source	CO ₂ e
	(metric tons)
Off-road Equipment and Vehicles	2.53
Worker Commute Truck Haul Trips	0.95
Total	3.48

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip GHG Emissions

Vehicle Type	Trips	miles/trip	CO ₂	CH ₄	N ₂ O	CO ₂ e
Light-Duty Gasoline Trucks	12	50	0.27	0.00	0.00	0.28
Heavy-Duty Diesel Trucks	45	9	0.66	0.00	0.00	0.66
Total (metric tons/year)			0.93	0.00	0.00	0.95

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day for 3 days. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 9 miles) for 3 days.

Global Warming Potential for CH₄ = 25; GWP for N₂O = 298 (CARB, 2014).

Line B, Arroyo de la Laguna (#795)**Criteria Pollutant Emissions Summary**

Emissions Source	Total Emissions (pounds/day)			
	ROG	NO _x	PM10	PM2.5
Off-road Equipment and Vehicles	1.48	16.82	0.75	0.69
Worker Commute Truck Haul Trips	0.02	0.04	0.02	0.01
Total	1.50	16.86	0.77	0.70

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip Criteria Pollutant Emissions

Vehicle Type	Trips/day	miles/trip	ROG	NO _x	PM10	PM2.5
Light-Duty Gasoline Trucks	4	50	0.01	0.00	0.02	0.01
Heavy-Duty Diesel Trucks	15	0.11	0.00	0.04	0.00	0.00
Total (pounds/day)			0.02	0.04	0.02	0.01

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 600 feet).

GHG Emissions Summary

Emissions Source	CO ₂ e
	(metric tons)
Off-road Equipment and Vehicles	1.69
Worker Commute Truck Haul Trips	0.19
Total	1.88

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip GHG Emissions

Vehicle Type	Trips	miles/trip	CO ₂	CH ₄	N ₂ O	CO ₂ e
Light-Duty Gasoline Trucks	8	50	0.18	0.00	0.00	0.19
Heavy-Duty Diesel Trucks	30	0.11	0.01	0.00	0.00	0.01
Total (metric tons/year)			0.18	0.00	0.00	0.19

Four construction crew members would commute average of 25 miles (50 miles roundtrip) to the site each day for 2 days. Three dump trucks would make 5 trips per day to the Bernal Staging site (roundtrip estimated to be approximately 600 feet) for 2 days.

Global Warming Potential for CH₄ = 25; GWP for N₂O = 298 (CARB, 2014).

Bernal Staging Area Site

Criteria Pollutant Emissions Summary

Emissions Source	Total Emissions (pounds/day)			
	ROG	NO _x	PM10	PM2.5
Off-road Equipment and Vehicles	1.07	12.04	0.59	0.55
Worker Commute	0.01	0.08	0.02	0.01
Total	1.08	12.12	0.61	0.56

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip Criteria Pollutant Emissions

Vehicle Type	Trips/day	miles/trip	ROG	NO _x	PM10	PM2.5
Light-Duty Gasoline Trucks	4	50	0.01	0.08	0.02	0.01
Total (pounds/day)			0.01	0.08	0.02	0.01

One construction crew member would commute average of 25 miles (50 miles roundtrip) to the site each day.

GHG Emissions Summary

Emissions Source	CO ₂ e
	(metric tons)
Off-road Equipment and Vehicles	15.83
Worker Commute	0.40
Total	16.23

For Off-road Equipment and Vehicle Emissions see CalEEMod output sheets.

Worker Commute and Truck Haul Trip GHG Emissions

Vehicle Type	Trips	miles/trip	CO ₂	CH ₄	N ₂ O	CO ₂ e
Light-Duty Gasoline Trucks	17	50	0.38	0.00	0.00	0.40
Total (metric tons/year)			0.38	0.00	0.00	0.40

One construction crew member would commute average of 25 miles (50 miles roundtrip) to the site each day for 17 days.

Global Warming Potential for CH₄ = 25; GWP for N₂O = 298 (CARB, 2014).

3. Emfac 2014 Emission Factors

calendar year	season month	sub area	vehicle class	temp	relative humidity	process	speed time	pollutant	emission rate (g/mile)
2015	Annual	Alameda (SF)	LDT2	60	78	RUNEX	65	NOx	0.190273992
2015	Annual	Alameda (SF)	LDT2	60	78	RUNEX	65	ROG	0.032297342
2015	Annual	Alameda (SF)	LDT2	60	78	RUNEX	65	CO2	443.8820681
2015	Annual	Alameda (SF)	LDT2	60	78	RUNEX	65	CH4	0.010266338
2015	Annual	Alameda (SF)	LDT2	60	78	RUNEX	65	PM10	0.001501593
2015	Annual	Alameda (SF)	LDT2	60	78	RUNEX	65	PM2_5	0.001384098
2015	Annual	Alameda (SF)	LDT2			PMTW		PM10	0.008
2015	Annual	Alameda (SF)	LDT2			PMTW		PM2_5	0.002
2015	Annual	Alameda (SF)	LDT2			PMBW		PM10	0.03675
2015	Annual	Alameda (SF)	LDT2			PMBW		PM2_5	0.01575
2015	Annual	Alameda (SF)	T7 Tractor Construction	60	50	RUNEX	45	NOx	9.447869774
2015	Annual	Alameda (SF)	T7 Tractor Construction	60	50	RUNEX	45	ROG	0.352343404
2015	Annual	Alameda (SF)	T7 Tractor Construction	60	50	RUNEX	45	CO2	1639.267177
2015	Annual	Alameda (SF)	T7 Tractor Construction	60	50	RUNEX	45	CH4	0.016365439
2015	Annual	Alameda (SF)	T7 Tractor Construction	60	50	RUNEX	45	PM10	0.18588309
2015	Annual	Alameda (SF)	T7 Tractor Construction	60	50	RUNEX	45	PM2_5	0.17784187
2015	Annual	Alameda (SF)	T7 Tractor Construction			PMTW		PM10	0.036
2015	Annual	Alameda (SF)	T7 Tractor Construction			PMTW		PM2_5	0.009
2015	Annual	Alameda (SF)	T7 Tractor Construction			PMBW		PM10	0.06174
2015	Annual	Alameda (SF)	T7 Tractor Construction			PMBW		PM2_5	0.02646

Zone 7 2015 Flood Control Maintenance

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2015

Utility Company

CO2 Intensity (lb/MW/hr)	0	CH4 Intensity (lb/MW/hr)	0	N2O Intensity (lb/MW/hr)	0
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1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Custom phase names represent each of the six flood control maintenance sites.

Off-road Equipment - Cat 980 Loader

Off-road Equipment - Construction equipment per contractor specifications

Off-road Equipment - Rubber tired loaders represent a skip loader and a cat 980 loader.

Off-highway trucks represent a dump truck and a water truck.

Off-road Equipment - contractor specifications

Off-road Equipment - Rubber tired loaders represent a skiploader and a cat 980 loader.

The off-highway trucks represent a dump truck and a water truck.

Off-road Equipment - One of the offroad trucks represent a dump truck and the other represents a water truck.

Off-road Equipment - One off-highway truck is a dump truck and the other represents a water truck.

One rubber tired loader represents a skip loader and the other represents a Cat 980 loader.

Grading -

Trips and VMT - Off-site trips are estimated outside of CalEEMod using EMFAC2014.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	12.00
tblConstructionPhase	NumDays	0.00	29.00
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	PhaseEndDate	8/26/2015	8/10/2015
tblConstructionPhase	PhaseEndDate	8/12/2015	7/20/2015
tblConstructionPhase	PhaseStartDate	7/17/2015	7/1/2015
tblConstructionPhase	PhaseStartDate	8/11/2015	7/17/2015
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	AcresOfGrading	0.00	15.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	AcresOfGrading	0.00	1.50
tblGrading	AcresOfGrading	0.00	1.00
tblOffRoadEquipment	HorsePower	174.00	0.00
tblOffRoadEquipment	HorsePower	162.00	47.00

tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	85.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	85.00
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tbiOffRoadEquipment	HorsePower	199.00	85.00
tbiOffRoadEquipment	LoadFactor	0.41	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00

tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day															
2015	2.5492	28.8602	15.2570	0.0290	1.0788	1.3463	2.4251	0.1165	1.2386	1.3551	0.0000	3,042.8353	3,042.8353	0.9084	0.0000	3,061.9120
Total	2.5492	28.8602	15.2570	0.0290	1.0788	1.3463	2.4251	0.1165	1.2386	1.3551	0.0000	3,042.8353	3,042.8353	0.9084	0.0000	3,061.9120

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Line G, Arroyo Mocho (#797)	Site Preparation	7/1/2015	7/16/2015	5	12	
2	Bernal Staging Site	Site Preparation	7/1/2015	8/10/2015	5	29	
3	Line B-5, Pleasanton Canal (#794)	Site Preparation	7/17/2015	7/20/2015	5	2	
4	Line J, South San Ramon Creek (#802)	Site Preparation	7/21/2015	7/27/2015	5	5	
5	Line F-4, (#701 and #793)	Site Preparation	7/28/2015	8/3/2015	5	5	
6	Line G-1, Chabot Canal (#804)	Site Preparation	8/4/2015	8/6/2015	5	3	
7	Line B, Arroyo de la Laguna (#795)	Site Preparation	8/7/2015	8/10/2015	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Line G, Arroyo Mocho (#797)	Excavators	1	8.00	47	0.38
Line G, Arroyo Mocho (#797)	Graders	0	0.00	174	0.41
Line G, Arroyo Mocho (#797)	Off-Highway Trucks	1	2.00	400	0.38
Line G, Arroyo Mocho (#797)	Off-Highway Trucks	1	2.00	400	0.38

Line G, Arroyo Mocho (#797)	Plate Compactors	1	4.00	8	0.43
Line G, Arroyo Mocho (#797)	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Bernal Staging Site	Graders	0	0.00	174	0.41
Bernal Staging Site	Rubber Tired Loaders	1	8.00	270	0.36
Bernal Staging Site	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Line B-5, Pleasanton Canal (#794)	Excavators	1	8.00	165	0.38
Line B-5, Pleasanton Canal (#794)	Graders	0	0.00	0	0.00
Line B-5, Pleasanton Canal (#794)	Off-Highway Trucks	3	2.00	400	0.38
Line B-5, Pleasanton Canal (#794)	Off-Highway Trucks	1	2.00	207	0.38
Line B-5, Pleasanton Canal (#794)	Rubber Tired Loaders	0	0.00	270	0.36
Line B-5, Pleasanton Canal (#794)	Rubber Tired Loaders	1	2.00	85	0.36
Line B-5, Pleasanton Canal (#794)	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Line J, South San Ramon Creek (#802)	Excavators	1	8.00	165	0.38
Line J, South San Ramon Creek (#802)	Graders	0	0.00	174	0.41
Line J, South San Ramon Creek (#802)	Off-Highway Trucks	3	2.00	400	0.38
Line J, South San Ramon Creek (#802)	Off-Highway Trucks	1	2.00	207	0.38
Line J, South San Ramon Creek (#802)	Rubber Tired Loaders	0	0.00	270	0.36
Line J, South San Ramon Creek (#802)	Rubber Tired Loaders	1	2.00	85	0.36
Line J, South San Ramon Creek (#802)	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Line F-4, (#701 and #793)	Excavators	1	8.00	165	0.38
Line F-4, (#701 and #793)	Graders	0	0.00	174	0.41
Line F-4, (#701 and #793)	Off-Highway Trucks	3	2.00	400	0.38
Line F-4, (#701 and #793)	Off-Highway Trucks	1	2.00	207	0.38
Line F-4, (#701 and #793)	Rubber Tired Loaders	0	0.00	270	0.36
Line F-4, (#701 and #793)	Rubber Tired Loaders	1	2.00	85	0.36
Line F-4, (#701 and #793)	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Line F-4, (#701 and #793)	Excavators	1	8.00	165	0.38
Line F-4, (#701 and #793)	Graders	0	0.00	174	0.41
Line F-4, (#701 and #793)	Off-Highway Trucks	3	2.00	400	0.38
Line F-4, (#701 and #793)	Off-Highway Trucks	1	2.00	207	0.38
Line F-4, (#701 and #793)	Rubber Tired Loaders	0	0.00	270	0.36
Line F-4, (#701 and #793)	Rubber Tired Loaders	1	2.00	85	0.36
Line F-4, (#701 and #793)	Tractors/Loaders/Backhoes	0	0.00	97	0.37

Line G-1, Chabot Canal (#804)	Excavators		1	8.00	165	0.38
Line G-1, Chabot Canal (#804)	Graders		0	0.00	174	0.41
Line G-1, Chabot Canal (#804)	Off-Highway Trucks		3	2.00	400	0.38
Line G-1, Chabot Canal (#804)	Off-Highway Trucks		1	2.00	207	0.38
Line G-1, Chabot Canal (#804)	Rubber Tired Loaders		0	0.00	270	0.36
Line G-1, Chabot Canal (#804)	Rubber Tired Loaders		1	2.00	85	0.36
Line G-1, Chabot Canal (#804)	Tractors/Loaders/Backhoes		0	0.00	97	0.37
Line B, Arroyo de la Laguna (#795)	Excavators		1	8.00	165	0.38
Line B, Arroyo de la Laguna (#795)	Graders		0	0.00	174	0.41
Line B, Arroyo de la Laguna (#795)	Off-Highway Trucks		3	2.00	400	0.38
Line B, Arroyo de la Laguna (#795)	Off-Highway Trucks		1	2.00	207	0.38
Line B, Arroyo de la Laguna (#795)	Rubber Tired Loaders		0	0.00	270	0.36
Line B, Arroyo de la Laguna (#795)	Rubber Tired Loaders		1	2.00	85	0.36
Line B, Arroyo de la Laguna (#795)	Tractors/Loaders/Backhoes		0	0.00	97	0.37

3.1 Line G, Arroyo Mocho (#797) - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day															
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7977	7.7442	4.3866	8.5400e-003		0.3547	0.3547		0.3268	0.3268		888.0738	888.0738	0.2618		893.5710
Total	0.7977	7.7442	4.3866	8.5400e-003	0.5303	0.3547	0.8850	0.0573	0.3268	0.3840		888.0738	888.0738	0.2618		893.5710

3.2 Bernal Staging Site - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5485	0.0000	0.5485	0.0592	0.0000	0.0592			0.0000			0.0000
Off-Road	1.0723	12.0372	6.4235	0.0114		0.5935	0.5935		0.5461	0.5461		1,195.5691	1,195.5691	0.3569		1,203.0646
Total	1.0723	12.0372	6.4235	0.0114	0.5485	0.5935	1.1421	0.0592	0.5461	0.6053		1,195.5691	1,195.5691	0.3569		1,203.0646

3.3 Line B-5, Pleasanton Canal (#794) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4769	16.8231	8.8335	0.0176		0.7527	0.7527		0.6925	0.6925		1,847.2662	1,847.2662	0.5515		1,858.8474
Total	1.4769	16.8231	8.8335	0.0176	0.5303	0.7527	1.2830	0.0573	0.6925	0.7498		1,847.2662	1,847.2662	0.5515		1,858.8474

3.4 Line J, South San Ramon Creek (#802) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2121	0.0000	0.2121	0.0229	0.0000	0.0229			0.0000			0.0000
Off-Road	1.4769	16.8231	8.8335	0.0176		0.7527	0.7527		0.6925	0.6925		1,847.2662	1,847.2662	0.5515		1,858.8474
Total	1.4769	16.8231	8.8335	0.0176	0.2121	0.7527	0.9648	0.0229	0.6925	0.7154		1,847.2662	1,847.2662	0.5515		1,858.8474

3.5 Line F-4, (#701 and #793) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4242	0.0000	0.4242	0.0458	0.0000	0.0458			0.0000			0.0000
Off-Road	1.4769	16.8231	8.8335	0.0176		0.7527	0.7527		0.6925	0.6925		1,847.2662	1,847.2662	0.5515		1,858.8474
Total	1.4769	16.8231	8.8335	0.0176	0.4242	0.7527	1.1769	0.0458	0.6925	0.7383		1,847.2662	1,847.2662	0.5515		1,858.8474

3.6 Line G-1, Chabot Canal (#804) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4769	16.8231	8.8335	0.0176		0.7527	0.7527		0.6925	0.6925		1,847.2662	1,847.2662	0.5515		1,858.8474
Total	1.4769	16.8231	8.8335	0.0176	0.5303	0.7527	1.2830	0.0573	0.6925	0.7498		1,847.2662	1,847.2662	0.5515		1,858.8474

3.7 Line B, Arroyo de la Laguna (#795) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	1.4769	16.8231	8.8335	0.0176		0.7527	0.7527		0.6925	0.6925		1,847.2662	1,847.2662	0.5515		1,858.8474
Total	1.4769	16.8231	8.8335	0.0176	0.5303	0.7527	1.2830	0.0573	0.6925	0.7498		1,847.2662	1,847.2662	0.5515		1,858.8474

Zone 7 2015 Flood Control Maintenance
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2015

Utility Company

CO2 Intensity (lb/MW/hr)	0	CH4 Intensity (lb/MW/hr)	0	N2O Intensity (lb/MW/hr)	0
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1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Custom phase names represent each of the six flood control maintenance sites.

Off-road Equipment - Cat 980 Loader

Off-road Equipment - Construction equipment per contractor specifications

Off-road Equipment - Rubber tired loaders represent a skip loader and a cat 980 loader.

Off-highway trucks represent a dump truck and a water truck.

Off-road Equipment - contractor specifications

Off-road Equipment - Rubber tired loaders represent a skiploader and a cat 980 loader.

The off-highway trucks represent a dump truck and a water truck.

Off-road Equipment - One of the offroad trucks represent a dump truck and the other represents a water truck.

Off-road Equipment - One off-highway truck is a dump truck and the other represents a water truck.

One rubber tired loader represents a skip loader and the other represents a Cat 980 loader.

Grading -

Trips and VMT - Off-site trips are estimated outside of CalEEMod using EMFAC2014.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	12.00
tblConstructionPhase	NumDays	0.00	29.00
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	PhaseEndDate	8/26/2015	8/10/2015
tblConstructionPhase	PhaseEndDate	8/12/2015	7/20/2015
tblConstructionPhase	PhaseStartDate	7/17/2015	7/1/2015
tblConstructionPhase	PhaseStartDate	8/11/2015	7/17/2015
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	AcresOfGrading	0.00	15.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	1.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	AcresOfGrading	0.00	1.50
tblGrading	AcresOfGrading	0.00	1.00
tblOffRoadEquipment	HorsePower	174.00	0.00
tblOffRoadEquipment	HorsePower	162.00	47.00

tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	162.00	165.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	400.00	207.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	85.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	85.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	85.00
tbiOffRoadEquipment	HorsePower	199.00	270.00
tbiOffRoadEquipment	HorsePower	199.00	85.00
tbiOffRoadEquipment	LoadFactor	0.41	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tbiOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2015
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00

tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.0329	0.3640	0.1946	3.7000e-004	0.0146	0.0171	0.0317	1.5700e-003	0.0158	0.0173	0.0000	34.8050	34.8050	0.0104	0.0000	35.0228
Total	0.0329	0.3640	0.1946	3.7000e-004	0.0146	0.0171	0.0317	1.5700e-003	0.0158	0.0173	0.0000	34.8050	34.8050	0.0104	0.0000	35.0228

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Line G, Arroyo Mocho (#797)	Site Preparation	7/1/2015	7/16/2015	5	12	
2	Bernal Staging Site	Site Preparation	7/1/2015	8/10/2015	5	29	
3	Line B-5, Pleasanton Canal (#794)	Site Preparation	7/17/2015	7/20/2015	5	2	
4	Line J, South San Ramon Creek (#802)	Site Preparation	7/21/2015	7/27/2015	5	5	
5	Line F-4, (#701 and #793)	Site Preparation	7/28/2015	8/3/2015	5	5	
6	Line G-1, Chabot Canal (#804)	Site Preparation	8/4/2015	8/6/2015	5	3	
7	Line B, Arroyo de la Laguna (#795)	Site Preparation	8/7/2015	8/10/2015	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Line G, Arroyo Mocho (#797)	Excavators	1	8.00	47	0.38
Line G, Arroyo Mocho (#797)	Graders	0	0.00	174	0.41

Line G, Arroyo Mocho (#797)	Off-Highway Trucks		1	2.00	400	0.38
Line G, Arroyo Mocho (#797)	Off-Highway Trucks		1	2.00	400	0.38
Line G, Arroyo Mocho (#797)	Plate Compactors		1	4.00	8	0.43
Line G, Arroyo Mocho (#797)	Tractors/Loaders/Backhoes		0	0.00	97	0.37
Bernal Staging Site	Graders		0	0.00	174	0.41
Bernal Staging Site	Rubber Tired Loaders		1	8.00	270	0.36
Bernal Staging Site	Tractors/Loaders/Backhoes		1	8.00	97	0.37
Line B-5, Pleasanton Canal (#794)	Excavators		1	8.00	165	0.38
Line B-5, Pleasanton Canal (#794)	Graders		0	0.00	0	0.00
Line B-5, Pleasanton Canal (#794)	Off-Highway Trucks		3	2.00	400	0.38
Line B-5, Pleasanton Canal (#794)	Off-Highway Trucks		1	2.00	207	0.38
Line B-5, Pleasanton Canal (#794)	Rubber Tired Loaders		0	0.00	270	0.36
Line B-5, Pleasanton Canal (#794)	Rubber Tired Loaders		1	2.00	85	0.36
Line B-5, Pleasanton Canal (#794)	Tractors/Loaders/Backhoes		0	0.00	97	0.37
Line J, South San Ramon Creek (#802)	Excavators		1	8.00	165	0.38
Line J, South San Ramon Creek (#802)	Graders		0	0.00	174	0.41
Line J, South San Ramon Creek (#802)	Off-Highway Trucks		3	2.00	400	0.38
Line J, South San Ramon Creek (#802)	Off-Highway Trucks		1	2.00	207	0.38
Line J, South San Ramon Creek (#802)	Rubber Tired Loaders		0	0.00	270	0.36
Line J, South San Ramon Creek (#802)	Rubber Tired Loaders		1	2.00	85	0.36
Line J, South San Ramon Creek (#802)	Tractors/Loaders/Backhoes		0	0.00	97	0.37
Line F-4, (#701 and #793)	Excavators		1	8.00	165	0.38
Line F-4, (#701 and #793)	Graders		0	0.00	174	0.41
Line F-4, (#701 and #793)	Off-Highway Trucks		3	2.00	400	0.38
Line F-4, (#701 and #793)	Off-Highway Trucks		1	2.00	207	0.38
Line F-4, (#701 and #793)	Rubber Tired Loaders		0	0.00	270	0.36

Line F-4, (#701 and #793)	Rubber Tired Loaders	1	2.00	85	0.36
Line F-4, (#701 and #793)	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Line G-1, Chabot Canal (#804)	Excavators	1	8.00	165	0.38
Line G-1, Chabot Canal (#804)	Graders	0	0.00	174	0.41
Line G-1, Chabot Canal (#804)	Off-Highway Trucks	3	2.00	400	0.38
Line G-1, Chabot Canal (#804)	Off-Highway Trucks	1	2.00	207	0.38
Line G-1, Chabot Canal (#804)	Rubber Tired Loaders	0	0.00	270	0.36
Line G-1, Chabot Canal (#804)	Rubber Tired Loaders	1	2.00	85	0.36
Line G-1, Chabot Canal (#804)	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Line B, Arroyo de la Laguna (#795)	Excavators	1	8.00	165	0.38
Line B, Arroyo de la Laguna (#795)	Graders	0	0.00	174	0.41
Line B, Arroyo de la Laguna (#795)	Off-Highway Trucks	3	2.00	400	0.38
Line B, Arroyo de la Laguna (#795)	Off-Highway Trucks	1	2.00	207	0.38
Line B, Arroyo de la Laguna (#795)	Rubber Tired Loaders	0	0.00	270	0.36
Line B, Arroyo de la Laguna (#795)	Rubber Tired Loaders	1	2.00	85	0.36
Line B, Arroyo de la Laguna (#795)	Tractors/Loaders/Backhoes	0	0.00	97	0.37

3.1 Line G, Arroyo Mocho (#797) - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.1800e-003	0.0000	3.1800e-003	3.4000e-004	0.0000	3.4000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.7900e-003	0.0465	0.0263	5.0000e-005		2.1300e-003	2.1300e-003		1.9600e-003	1.9600e-003	0.0000	4.8339	4.8339	1.4200e-003	0.0000	4.8638
Total	4.7900e-003	0.0465	0.0263	5.0000e-005	3.1800e-003	2.1300e-003	5.3100e-003	3.4000e-004	1.9600e-003	2.3000e-003	0.0000	4.8339	4.8339	1.4200e-003	0.0000	4.8638

3.2 Bernal Staging Site - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0156	0.1745	0.0931	1.7000e-004		8.6100e-003	8.6100e-003		7.9200e-003	7.9200e-003	0.0000	15.7267	15.7267	4.7000e-003	0.0000	15.8253
Total	0.0156	0.1745	0.0931	1.7000e-004	7.9500e-003	8.6100e-003	0.0166	8.6000e-004	7.9200e-003	8.7800e-003	0.0000	15.7267	15.7267	4.7000e-003	0.0000	15.8253

3.3 Line B-5, Pleasanton Canal (#794) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4800e-003	0.0168	8.8300e-003	2.0000e-005		7.5000e-004	7.5000e-004	6.9000e-004	6.9000e-004	6.9000e-004	0.0000	1.6758	1.6758	5.0000e-004	0.0000	1.6863
Total	1.4800e-003	0.0168	8.8300e-003	2.0000e-005	5.3000e-004	7.5000e-004	1.2800e-003	6.0000e-005	6.9000e-004	7.5000e-004	0.0000	1.6758	1.6758	5.0000e-004	0.0000	1.6863

3.4 Line J, South San Ramon Creek (#802) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6900e-003	0.0421	0.0221	4.0000e-005		1.8800e-003	1.8800e-003	1.7300e-003	1.7300e-003	1.7300e-003	0.0000	4.1895	4.1895	1.2500e-003	0.0000	4.2158
Total	3.6900e-003	0.0421	0.0221	4.0000e-005	5.3000e-004	1.8800e-003	2.4100e-003	6.0000e-005	1.7300e-003	1.7900e-003	0.0000	4.1895	4.1895	1.2500e-003	0.0000	4.2158

3.5 Line F-4, (#701 and #793) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0600e-003	0.0000	1.0600e-003	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6900e-003	0.0421	0.0221	4.0000e-005		1.8800e-003	1.8800e-003	1.7300e-003	1.7300e-003	1.7300e-003	0.0000	4.1895	4.1895	1.2500e-003	0.0000	4.2158
Total	3.6900e-003	0.0421	0.0221	4.0000e-005	1.0600e-003	1.8800e-003	2.9400e-003	1.1000e-004	1.7300e-003	1.8400e-003	0.0000	4.1895	4.1895	1.2500e-003	0.0000	4.2158

3.6 Line G-1, Chabot Canal (#804) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2200e-003	0.0252	0.0133	3.0000e-005		1.1300e-003	1.1300e-003	1.0400e-003	1.0400e-003	1.0400e-003	0.0000	2.5137	2.5137	7.5000e-004	0.0000	2.5295
Total	2.2200e-003	0.0252	0.0133	3.0000e-005	8.0000e-004	1.1300e-003	1.9300e-003	9.0000e-005	1.0400e-003	1.1300e-003	0.0000	2.5137	2.5137	7.5000e-004	0.0000	2.5295

3.7 Line B, Arroyo de la Laguna (#795) - 2015**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4800e-003	0.0168	8.8300e-003	2.0000e-005		7.5000e-004	7.5000e-004	6.9000e-004	6.9000e-004	6.9000e-004	0.0000	1.6758	1.6758	5.0000e-004	0.0000	1.6863
Total	1.4800e-003	0.0168	8.8300e-003	2.0000e-005	5.3000e-004	7.5000e-004	1.2800e-003	6.0000e-005	6.9000e-004	7.5000e-004	0.0000	1.6758	1.6758	5.0000e-004	0.0000	1.6863

Appendix B: Mitigation Monitoring and Reporting Plan

APPENDIX B: MITIGATION MONITORING AND REPORTING PLAN

<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
Mitigation Measure AIR-1: Implement BAAQMD Basic Mitigation Measures. Zone 7 Water Agency and/or its construction contractors shall comply with the following applicable BAAQMD basic control measures: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics Control Measure Tile 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at Zone 7 Water Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	Construction contractor is responsible for implementation of all air quality control measures, excluding signage for which Zone 7 is responsible.	Construction contractor shall perform daily inspections confirm with Zone 7 that measures are being implemented, and identifying any lapses or issues.

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
Mitigation Measure BIO-1a: Implement measures to reduce impacts to California red-legged frog. The following measures shall be implemented at Site #2 to reduce impacts to these species: - To the extent practicable, initial ground-disturbing activities will be avoided between November 1 and March 31, when California red-legged frogs are most likely to be moving through upland areas. - No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for California red-legged frogs shall be conducted by a qualified biologist. The survey will consist of walking the project limits and within the project site to ascertain the possible presence of the species. The USFWS-approved biologist will investigate all potential areas that could be used by California red-legged frog for feeding, breeding, sheltering, movement, and other essential behaviors. General minimum qualifications for the qualified biologist are a 4-year degree in biological sciences or other appropriate training and/or experience in surveying, identifying, and handling CRLF. - The qualified biologist will conduct employee education training for employees working on earthmoving and/or construction activities. Personnel will be required to attend the presentation which will describe California red-legged frog avoidance, minimization, and conservation measures, legal protection of the animal, and other related issues. All attendees will sign an attendance sheet along with their printed name, company or agency, email address, and telephone number. - If a California red-legged frog is detected, work shall cease in the immediate area and the USFWS shall be notified before work is reinitiated. Additional measures including full time or spot check biological monitoring and/or exclusion measures	Zone 7 is responsible for implementing all biological surveys and monitoring, as well as a worker education program. Construction contractor is responsible for controlling soil erosion and litter. Construction contractor will notify Zone 7 immediately should they encounter California red-legged frogs or Pacific pond turtle in the project area. Zone 7 is responsible for notifying U.S. Fish and Wildlife as needed.	Zone 7 will have daily onsite project monitoring.

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
for California red-legged frog may be implemented during the remainder of construction following consultation with the USFWS. 5. Uneaten human food and trash attracts crows, ravens, coyotes, and other California red-legged frog predators. A litter control program will be instituted at each project site. All workers will ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers will be removed from the project site at the end of each working day. 6. Loss of soil from run-off or erosion will be prevented with non-monofilament straw bales, straw wattles, or similar means. 7. To the maximum extent practicable, no construction activities will occur during rain events or within 24-hours following a rain event. Prior to construction activities resuming, a USFWS approved biologist will inspect the action area and all equipment/materials for the presence of California red-legged frog. The animals will be allowed to move away from the project site of their own volition or moved by the qualified biologist.		
Mitigation Measure BIO-1b: Implement measures to reduce impacts to western pond turtle. The following measures shall be implemented to reduce impacts to these species: 1. Instream disturbances shall be performed during the dry season when stream flows are at their lowest (e.g., May 15 to October 15). Upstream water sources shall be diverted around the sites during in stream construction to minimize the likelihood of western pond turtle movement through the project area during construction. 2. A qualified biological monitor shall perform a preconstruction survey of the	Zone 7 is responsible for implementing all biological surveys and monitoring, as well as a worker education program. Construction contractor is responsible for controlling soil erosion and litter.	Zone 7 will have daily onsite project monitoring.

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
project area prior to construction to verify that western pond turtles are not present in work areas. Additionally, in the event that standing water is present at the time of construction, the monitor shall perform periodic inspections of the project sites to verify the absence of western pond turtle. 3. A biological resource education program shall be provided to construction crews and contractors before construction activities begin. The program shall describe the life history and identification of western pond turtles, protective measures to be implemented if sensitive species are identified or suspected to be in the work area (i.e., immediate notification of the biological monitor and temporary protective buffers of 100 feet), and penalties for handling or harming these species. 4. If pond turtles are identified in the work area, construction activities shall cease until the individual disperses from the project site, or is relocated by the biological monitor.	Construction contractor will notify Zone 7 immediately should they encounter California red-legged frogs or Pacific pond turtle in the project area. Zone 7 is responsible for notifying U.S. Fish and Wildlife as needed.	
Mitigation Measure BIO-2: If construction or vegetation removal must be performed during the nesting period (February 1 through August 31), Zone 7 shall retain a qualified biologist to survey trees and dense wetland vegetation within 250 feet of the project site for any nesting birds to verify the presence or absence of nests no more than 14 days prior to construction activities. If active nests are observed, buffer zones will be established around trees/shrubs with nests, with a buffer size established by the qualified biologist through consultation with the appropriate regulatory agency (e.g., CDFW). Typical nest avoidance buffers are 50 to 150 feet for passerine birds and 150 to 500 feet for raptors, depending upon the nature of proposed activities and the sensitivity of the identified bird to disturbance. If buffers are established due to bird nesting, areas will be avoided during construction activities until the young birds have	Zone 7 is responsible for implementing all biological surveys and monitoring. Construction contractor is responsible for controlling soil erosion and litter. Construction contractor will notify Zone 7 immediately should they encounter California red-legged frogs or Pacific pond turtle in the	Zone 7 will have daily onsite project monitoring.

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
fledged.	project area. Zone 7 is responsible for notifying U.S. Fish and Wildlife as needed.	
Mitigation Measure BIO-3a: Where feasible, Zone 7 shall avoid and minimize disturbance of in-stream wetlands and riparian vegetation in the project areas as a focus of project design and construction. The preferable form of mitigation recommended by the USACE and CDFW is avoidance of jurisdictional waters and riparian vegetation. All project activities associated with recontouring stream banks, incorporating hardpan stabilization material, instream sediment removal, removal of structures, or vegetation grubbing would be limited to the minimum area necessary to complete the work. To minimize disturbance to the extent feasible project activities shall be conducted from top of bank on disturbed access roads. Furthermore, catchment screens and barriers shall be installed to reduce materials and sediments from entering water downstream and fueling and cleaning of equipment/vehicles will occur away from the channels off project sites.	Construction contractor to identify suitable BMPs for Zone 7 review and approval.	Zone 7 will have daily onsite project monitoring.
Mitigation Measure BIO-3b: Where jurisdictional wetlands and other waters cannot be avoided, to offset temporary and permanent impacts that would occur as a result of the project, in-situ site restoration mitigation shall be provided through the following mechanisms: Prior to construction Zone 7 shall obtain relevant permits and authorizations from the USACE, CDFW, and RWQB. Consistent with the terms and conditions of these permits and authorizations, Zone 7 shall compensate for the unavoidable loss of wetlands and other waters at a minimum of a 1:1 ratio. Compensation may be provided by one or more of the following methods: 1) on-site creation or habitat restoration, 2) off-site habitat creation, restoration and/or	Zone 7 will negotiate terms with permitting agencies.	Per permits.

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
enhancement, or 3) payment to an approved wetland mitigation bank.		
Mitigation Measure CULT-1: The following measures shall be implemented at Line B. Because the project site and depth of excavation is relatively minor, no impacts to cultural resources are expected. However, these precautionary actions help to ensure that potential impacts are avoided: • Prior to ground disturbing activities at Line B, Zone 7 shall have a qualified archaeologist prepare a cultural resources monitoring plan addressing (but not be limited to) the following issues: ○ Training program for all construction involved in site disturbance; ○ Person(s) responsible for conducting monitoring activities; ○ How the monitoring shall be conducted and the required format and content of monitoring reports; ○ Schedule for submittal of monitoring reports and person(s) responsible for review and approval of monitoring reports; ○ Protocol for notifications in case of encountering of cultural resources, as well as ○ methods of dealing with the encountered resources (e.g., collection, identification, curation); ○ Methods to ensure security of cultural resources; ○ Protocol for notifying local authorities (i.e. Sheriff, Police) should looting and other illegal activities occur during construction. • The Zone 7 will retain the services of a qualified archaeological consultant that has experience in California prehistory to monitor ground-disturbing activity at Line B. During the course of the monitoring, the archaeologist may adjust the frequency—from continuous to intermittent—of the monitoring based on the	Zone 7 will be responsible to implementing all surveys and monitoring.	Zone 7 will have daily onsite project monitoring.

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
conditions and professional judgment regarding the potential to impact resources. • If an intact archaeological deposit is encountered, all soil disturbing activities within 100 feet will cease until the find is evaluated. The archaeological monitor will immediately notify the USACE and the Zone 7 of the encountered archaeological deposit. The monitor will, after making a reasonable effort to assess the identity, integrity, and significance of the encountered resource, present the findings of this assessment to the USACE and Zone 7. • If the archaeological monitor, in consultation with the USACE and the Zone 7, determines that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, Zone 7 may: ○ Re-design the proposed project to avoid any adverse effect on the significant archaeological resource; or, ○ Design and implement a Historic Properties Treatment Plan (HPTP). The project archaeologist, Zone 7, the USACE, and the SHPO shall meet and consult to determine the scope of the HPTP and develop a formal Memorandum of Agreement (MOA). The archaeologist will submit a draft HPTP for review and approval to the SHPO, the USACE, Zone 7, and, for prehistoric resources, the appropriate Native American representative. The HPTP will identify how a data recovery program would preserve any significant information the archaeological resource is expected to contain. The HPTP will identify the scientific and historic research questions applicable to the resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, will be limited to the		

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
portions of the site that could be adversely affected by the proposed project. Mitigation Measure CULT-2: Based on the survey results, geologic framework, and historic location in relation to Willow Marsh and other waterways, there appears to be a low potential for the discovery of archaeological resources and/or human remains at Line G, Line B-5, Line J, and Line G-1. While unlikely, the accidental discovery of archaeological resources or human remains at these locations cannot be entirely discounted. In the event of accidental discovery, the following measures be implemented: • Accidental Discovery of Archaeological Resources: If prehistoric or historic-era archaeological resources are encountered, all construction activities within 100 feet will halt. The Zone 7 Water Agency and the USACE will be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist will inspect the findings within 24 hours of discovery. If it is determined that the project could damage a significant archaeological resource, the Zone 7 Water Agency shall re-design the proposed project to avoid any adverse effects. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed HPTP in consultation with the SHPO, the USACE, Zone 7, and, for prehistoric resources, the appropriate Native American representative.	Zone 7 will be responsible to implementing all surveys and monitoring. Contractor responsible for stopping work if any potential cultural resource is discovered, and will notify the Zone 7 project manager.	Zone 7 will have daily onsite project monitoring.

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<u>Mitigation Measure</u>	<u>Mitigation Implementation Responsibility</u>	<u>Monitoring and Reporting Actions, Timing, and Responsibility</u>
Accidental Discovery of Human Remains: In the event of discovery of any human remains during project activities, such activities within 100 feet of the find shall cease until the Alameda County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the USACE and Zone 7 for the appropriate means of treating the human remains and any grave goods.		
Measure NOI-1: Noise generating construction work will generally be limited to weekdays from 8a.m. to 5p.m., or as specified in the City's ordinances. All construction work shall be conducted only as prescribed by City permits.	Contractor responsible for adhering to city ordinances.	Zone 7 will have daily onsite project monitoring.