Reach 12 of the Upper Guadalupe River Flood Control Project
Supplemental Environmental Assessment

(with Draft FONSI and 404 (b)(1) Analysis)

To view Upper Guadalupe River Reach 12 DRAFT FONSI and Appendices visit:
www.spn.usace.army.mil/Missions/Environmental

U.S. Army Corps of Engineers
San Francisco District

May 2014

Executive Summary

This Supplemental Environmental Assessment (EA) is written in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 USC § 4321 *et seq*), as amended, the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR §§1500-1508), and United States Army Corps of Engineers (USACE) Planning Regulations (Engineering Regulation (ER) 200-2-2). It presents an evaluation of the potential impacts associated with the changes to the project design of the Reach 12 portion of the Upper Guadalupe River Flood Control Project.

The USACE is the federal NEPA lead agency for the Upper Guadalupe River Flood Control Project – Reach 12 (Reach 12 project) and the Santa Clara Valley Water District (SCVWD) is the state California Environmental Quality Act (CEQA) lead agency. The Reach 12 project is a portion of the greater Upper Guadalupe River Flood Control Project, located in Santa Clara County, California.

The proposed actions include excavation and re-grading several portions of the banks adjacent to the river channel to create bankfull benches; laying back over-steepened banks in limited areas, installation of instream fish habitat structures (e.g., woody debris); placement of gravel and cobble in the channel; raising existing berms to protect adjacent percolation ponds; construction of maintenance roads on top of the banks and berms; construction or reconstruction of three access ramps; and planting of native vegetation. Overall, the project is intended to create better and more habitat complexity, and better and more sustainable geomorphic conditions, throughout the reach.

The SCVWD and USACE analyzed potential environmental consequences of the greater Upper Guadalupe River Flood Control Project in a joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared in 1999; including Reach 12. The 1999 EIR/EIS evaluated the proposed channel improvements to Reaches A and 6 through 13 of the Guadalupe River and sections of two tributary streams, Canoas and Ross Creeks. To date improvements were constructed on Reaches A, 6, 10B, and 13 of the project; and fish passage improvements throughout the river were completed. The 1999 EIR/EIS generally analyzed proposed improvements to Reach 12 to include channel widening, reconstruction of and raising levees, construction of wetland mitigation ponds, and construction of a Chynoweth Avenue Bridge. However, the currently proposed Reach 12 project has changed since the 1999 EIR/EIS was issued. It no longer includes many of the elements analyzed in the 1999 EIR/EIS and incorporates design modifications that were not examined in the 1999 EIR/EIS.

The upper Guadalupe River is located the city of San Jose, Santa Clara County, California (Figure ES-1). The river is situated in an urban area of southwestern San Jose, in the highly-urbanized Santa Clara Valley. Reach 12 is the most upstream reach of the federal Upper Guadalupe River project. The approximately 5,600-foot-long reach extends from Branham Lane Bridge, passing under the State Highway 85 overpasses, and ending at Blossom Hill Road (from Station 960+00 to Station 1018+00) (Figure ES-2). The reach is relatively straight except for a bend halfway down its length.

The SCVWD operates three (3) percolation ponds adjacent to, but separated from this reach of the river, which are used for recharging groundwater through percolation. The reach is separated from the ponds by berms. The Almaden Expressway is located west of the west bank, and homes line the area east of the east bank along Blossom River Drive and Tonino Drive. The south end of the reach has multi-family housing on both sides outside of the channel and percolation ponds areas, while the remainder of the west bank has commercial land uses existing or under construction.

The feasibility study of flood control needs along the upper Guadalupe River was authorized by Section 205 of the Flood Control Act of 1948 (33 USC § 701), as amended.

Reach 12 is the most upstream reach of the federal Upper Guadalupe Flood Control Project and does not generally pose a flood risk to the surrounding neighborhoods because the channel is generally sufficient to contain flows up to about the 1 percent annual occurrence level. However, the downstream portion of the reach does not meet USACE risk and uncertainty standards for containing a 1 percent flow.

The reach was channelized in the 1970s into a roughly trapezoidal shape in most locations. The result is a channel shape that does not provide good floodplain functions. In certain locations the banks are over-steepened creating hazards. The entire river is deficient in coarse sediment, gravel and cobble in particular. This has negative effects on channel morphology and stability as well as wildlife habitat and riparian forest regeneration.

The proposed action would improve the channel morphology by adding new floodplains and adding coarse sediment to the low-flow channel. The proposed action would improve habitat conditions for fish and wildlife by creating riparian forest and shaded aquatic riverine (SRA) cover. Placement of woody debris would improve aquatic habitat conditions. Vegetation replanting would not only mitigate for impacts within this reach from the channel work, it would also provide additional riparian forest and SRA cover mitigation for impacts in other reaches associated with the overall Upper Guadalupe Flood Risk Management Project.

Project Need: The federal Upper Guadalupe River Flood Risk Management project is needed to reduce the risk of the Upper Guadalupe River flooding adjacent urban areas; however, the construction of the entire project would result in significant impacts to riparian forest and shaded aquatic riverine cover, and urban forest (1999 EIS/EIR, SCVWD and USACE). The 1999 EIS/EIR discusses mitigation for these impacts. Those requirements include creation of 1.47 acres of freshwater wetlands, 20.89 acres of riparian forest, 4,886 linear feet of SRA cover and 1,720 linear feet of undercut bank habitat (San Francisco Bay RWQCB, 2003). While the current project design would not provide as much mitigation as discussed in the 1999 EIR/EIS, it would provide some additional mitigation for other reaches of the overall Upper Guadalupe River Flood Control Project. The proposed Reach 12 project would result in approximately 1.97 acres of riparian forest mitigation, of this 0.77 acre would be available for mitigation for riparian forest mitigation in other reaches of the overall Upper Guadalupe River project. The proposed project would also provide

358 linear feet of SRA cover mitigation, of which 271 linear feet could be used to mitigate for impacts in other reaches. Additionally, following construction, the reach would be more stable and provide improved fish habitat over existing conditions.

The Guadalupe River has flooded nearby communities repeatedly, with the most recent flooding event occurring in 1998. In 1995 floodwaters submerged downtown San Jose and more than 150 homes. The overall Upper Guadalupe River Flood Control Project is needed to reduce the risk of the upper reaches of the river flooding adjacent urban areas. Construction of the overall project would result in unavoidable significant impacts to riparian forest and shaded aquatic riverine cover that must be mitigated. Reach 12 of the Upper Guadalupe River project would provide some mitigation to compensate for some of these adverse impacts. Additional mitigation work would be completed in other reaches of the river.

To view Upper Guadalupe River Reach 12 DRAFT FONSI and Appendices visit:
www.spn.usace.army.mil/Missions/Environmental

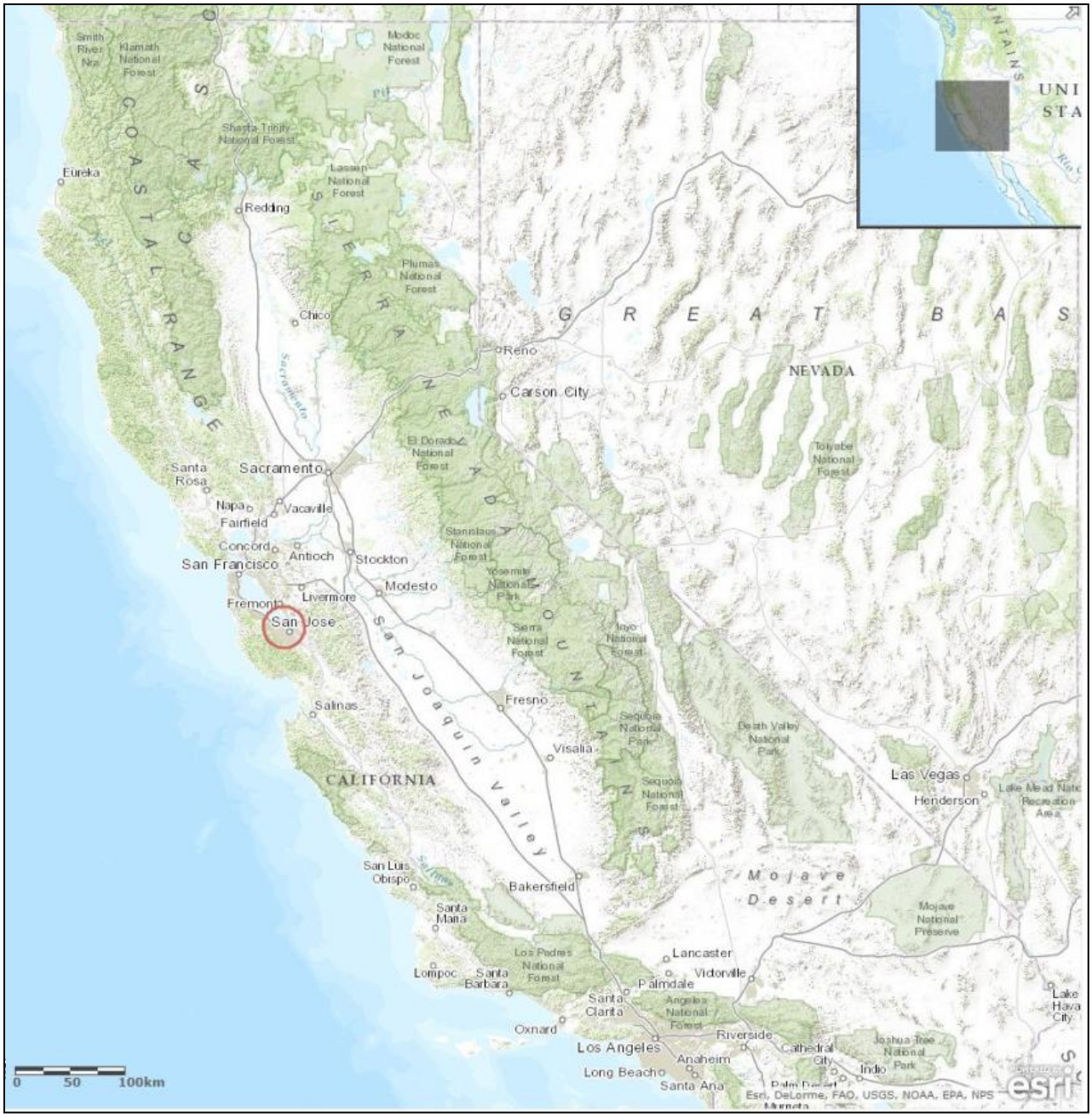

Figure ES-1. Upper Guadalupe River Flood Control Project - Reach 12 Location

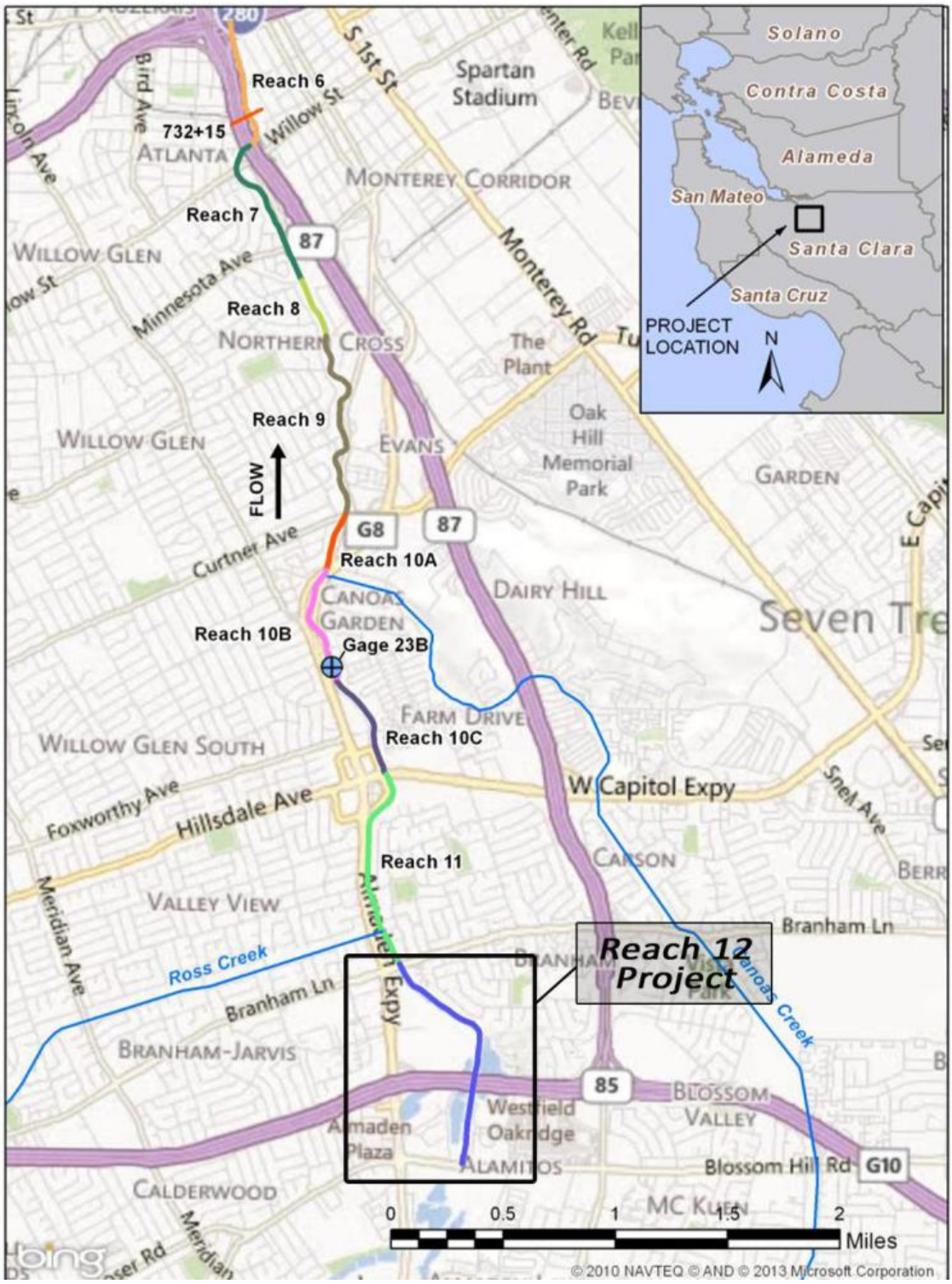

Figure ES-2. Upper Guadalupe River Flood Control Project - Reach 12 and Other Reaches

Project Purpose: The primary purpose of the proposed Reach 12 project is to enhance habitat conditions for fish and wildlife above current conditions and to create sufficient quantities of riparian forest and SRA cover in order to provide advance, on site mitigation for the overall Upper Guadalupe River Flood Risk Management Project. Secondary objectives include preventing floodwaters from affecting adjacent percolation ponds and improving access to the channel for maintenance purposes.

The 1999 EIR/EIS details impacts of the overall Upper Guadalupe River Flood Control Project alternatives, including the no-action alternative. Impacts resulting from the no-action alternative have not changed since the publication of the 1999 EIR/EIS. While some of the environmental conditions have changed since then (e.g., riparian vegetation has grown), the EIR/EIS analyzed these changes. The impacts resulting from implementation of the alternatives to the proposed action, including the no action alternative, are provided in the original 1999 EIR/EIS and this document only discloses the impacts of the proposed design changes that are not disclosed in the 1999 document. Resources that were adequately addressed in the EIS/EIR include: geology, soils, and seismicity (soil quality is addressed in this EA, however); mineral resources; energy consumption or generation, environmental justice, growth inducing impacts, and hazardous and toxic materials. The reader is referred to the 1999 EIS/EIR for details about potential impacts to these resources.

Table ES-1 provides an overview of the environmental resources analyzed in this Supplemental EA, the potential impacts of the propose project on the respective resource, and avoidance, minimization and mitigation measures to ensure impacts are reduced to less than significant.

The USACE has prepared this draft Supplemental EA to assess and disclose the potential impacts of the proposed project on the quality of the environment within the proposed project area. Based on this assessment, it has determined that the potential impacts of the proposed Reach 12 project would not rise above those previously disclosed in the 1999 EIS/EIR. However, similar to the 1999 EIS/EIR, avoidance, minimization, and mitigation measures are proposed to ensure that the proposed action does not significantly affect the surrounding environmental resources. The potential impacts and proposed avoidance, minimization, and mitigation measures are summarized in Table ES-1. Based on these findings, a Finding of No Significant Impact (FONSI) was prepared pursuant to 33 CFR § 325.

Table ES-1	**Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures**		
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
Flood Risk Management	**Impact H&H–1:** *Result in significant flooding downstream of the project area.*	***Less than significant***	None
Flows, Currents, and Circulation	**Impact H&H–2:** *Result in significant adverse effects on flows, currents, and circulation.* It	***Less than significant*** *during construction* ***Beneficial*** *following construction*	None
Ground Water (Aquifer recharge)	**Impact H&H–3:** *Result in substantial depletion of groundwater or interfere with groundwater recharge.*	***Less than significant*** *during construction.*	None
Soil Quality	**Impact SQ–1:** *Degrade sediment quality during construction or after construction.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure SQ–1:** *Comply with the San Francisco Bay RWQCB's requirements for reuse of mercury-laden sediment* (see Table 14). **Avoidance and Minimization Measure SQ–2:** *Utilize erosion control measures to ensure that mercury-laden sediment does not erode into the adjacent river.* **Avoidance and Minimization Measure SQ–3:** *Utilize construction techniques (i.e., berms during excavation) to ensure that mercury-laden sediment does not erode into the adjacent river.* Excavate
	Impact SQ–2: *Expose water or biological receptors to concentrations of mercury that would violate standards*	***Less than significant*** *with Avoidance and Minimization Measures*	

Table ES-1 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
			protective berms only after dewatering. **Avoidance and Minimization Measure SQ–4:** *All stockpiling of sediment shall be conducted in such a manner that prevents sediment from eroding into adjacent areas or streams.* **Avoidance and Minimization Measure SQ–5:** *Dispose mercury-laden sediment at approved upland facilities.*
Water Quality	**Impact WQ-1:** *Violate any water quality standard or waste discharge standard set by the RWQCB or substantially degrade water quality.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure WQ-1:** *Comply with erosion control measures identified in the Construction General National Pollution Discharge Elimination System (NPDES) permit.* **Avoidance and Minimization Measure WQ-3:** *Comply with the mercury and diazinon TMDLs for Guadalupe River and ensure that concentrations of*
	Impact WQ-2: *Increase the concentration of any CWA 303(d) substance identified for Guadalupe River (mercury, diazinon, or trash) or violate the river's TMDLs (mercury and diazinon).*	***Less than significant*** *with Avoidance and Minimization Measures*	

Table ES-1	**Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures**		
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Impact WQ-3: *Substantially contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems.*	***Less than significant*** *with Avoidance and Minimization Measures*	*CWA 303(d) constituents listed for Guadalupe River (mercury, diazinon, and trash) are not increased.* **Avoidance and Minimization Measure WQ-1:** *Comply with erosion control measures identified in the Construction General National Pollution Discharge Elimination System (NPDES) permit.*
Biological Environment	**Impact BIO-1:** *Result in a substantial loss of riparian forest or SRA cover that would not reestablish within 10 years following construction.*	***Less than significant*** *with Avoidance, Minimization, and Mitigation Measures*	**Avoidance and Minimization Measure BIO-1:** *Vegetation not proposed for removal will be protected during construction.* **Mitigation Measure BIO-2:** *Replant vegetation according to the planting designs for the project.* **Avoidance and Minimization Measure BIO-3:** *Update and revise the 1999 MMP.*
	Impact BIO-2: *Result in permanent loss of wetlands or other waters of the United States.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-3:** *Update and revise the 1999 MMP*

Table ES-1	**Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures**		
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Impact BIO-3: *Result in fish and wildlife avoiding the project area following establishment of riparian forest and SRA cover.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-3:** *Update and revise the 1999 MMP 3*
	Impact BIO-4: *Result in take of listed species that could not be mitigated.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-4:** *Monitor and relocate native fish during dewatering activities.*
	Impact BIO-5: *Result in take of protected birds or their nests.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-5:** *Conduct bird surveys prior to construction.*
Air Quality	**Impact AQ-1:** *Estimated emissions exceed General Conformity de minimis thresholds.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure AQ-1:** *Utilize Tier-4 off-road equipment.*
	Impact AQ-2: *Estimated emissions exceed applicable BAAQMD construction emissions thresholds.*	***Less than significant*** *with Avoidance and Minimization Measures*	
Historic and Cultural Resources	**Impact HIST-1:** *Adversely affect a resource that is listed or has the potential to be listed on the National Register.*	***None***	None
Noise	**Impact NOISE-1:** *Expose sensitive receptors to nuisance noise (i.e., nuisance noise within 500 feet of residential uses or 200 feet of commercial or office uses).*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure NOISE-1:** *Limit construction hours* **Avoidance and Minimization Measure NOISE-**

Table ES-1 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
			2: *Implement best management practices*
Recreation	**Impact REC-1:** *Temporary closure of a portion of the Guadalupe River Recreational Trail*	***Less than significant*** *with Avoidance and Minimization Measures*	**Mitigation Measure REC-1:** *Implement detour around the closed section of trail*
	Impact REC-2: *Degrade the condition of the existing paved recreation trail*	***Less than significant*** *with Avoidance and Minimization Measures*	**Mitigation Measure REC-2:** *Repair and/or re-pave trail to existing condition after construction*
Transportation and Traffic	**Impact TT-1:** *Substantially interfere with surrounding traffic which would result in major delays.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure TT-1:** *Prepare and implement a traffic control plan.* **Avoidance and Minimization Measure TT-3:** *Minimize interference with existing traffic.*
	Impact TT-2: *Damage roads or highways.*	***Less than significant*** *with Mitigation Measures*	**Mitigation Measure TT-4:** *Repair and rehabilitate roads damaged by construction vehicles*
	Impact TT-3: *Result in injury or harm to other drivers, pedestrians, bikers, or others using any form of transportation in the project area.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure TT-1:** *Prepare and implement a traffic control plan.* **Avoidance and Minimization Measure TT-2:** *Utilize traffic control safety measures.*

Table ES-1	**Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures**		
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
Land Use Classification	***Impact LU-1:*** *Conflict with the adopted General Plan designations, land uses, or physical arrangement of the community.*	***Less than significant***	None
Aesthetics	**Impact VR-1:** *Losses of vegetative cover in limited portions of the river channel and the west bank due to construction activity and selective removal of non-native trees and shrubs.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure VIS-1:** *Retain native vegetation to the maximum extent practicable.* **Mitigation Measure BIO-2:** *Replant vegetation according to the planting designs for the project.*
	Impact VR-2: *Temporary views of construction activities and materials.*	***Less than significant***	None
	Impact VR-3: *New berms along the percolation ponds.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure VIS-1:** *Retain native vegetation to the maximum extent practicable.* **Mitigation Measure VIS-3:** *Hydroseed areas where vegetation will be removed.*
	Impact VR-4: *Loss of trees behind houses on the east bank, downstream portion of the reach.*	***Less than significant***	**Avoidance and Minimization Measure VIS-2:** *Retain non-invasive non-native native trees in this area to the extent practicable.*
Public Utilities, Facilities, and	**Impact PUS-1:** *Potential interference with Police and Fire protection services.*	***Less than significant*** *with Avoidance and*	**Avoidance and Minimization Measure PUS-1:** *Notify Police and Fire protection services regarding*

Table ES-1 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
Services.		*Minimization Measures*	*construction and implement site security patrol.*
	Impact PUS-2: *Potential interference with utility service.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Mitigation Measure PUS-2:** *Identify and coordinate relocation or protection of utilities.* **Avoidance and Minimization Measure PUS-3:** *Avoid placement of trees in locations that could interfere with utilities.*
Public Health and Safety	**Impact PHS-1:** *Potential public safety impacts due to unauthorized entry to the construction area or the reach after construction is complete.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Mitigation Measure PHS-1:** *Provide warning signs, install fencing and barricades, and implement site security patrol at construction site.* **Avoidance and Mitigation Measure PHS-2:** *Install permanent access control measures post-construction.*
	Impact PHS-2: *Construction Hazards to Vehicles and Pedestrians.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Mitigation Measure PHS-3:** *Identify truck routes and construction zones prior to project commencement.* **Avoidance and Mitigation Measure PHS-4:** *Notify residents of construction schedule and proposed traffic detours.*
	Impact PHS-3: *Displacement of Homeless*	***Less than significant***	None

Table ES-1 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Persons Occupying the Reach.		

TABLE OF CONTENTS

LIST OF TABLES

TABLE OF FIGURES

APPENDICIES

Appendix A: Upper Guadalupe River Reach 12 Sediment Sampling and Analysis Report (June 2013)

Appendix B: Reach 6 (2011) and Reach 10B (2012) Water Quality Sampling and Analysis

Appendix C: Upper Guadalupe Reach 12 Air Quality Assessment: CalEEMOD Notes (2014)

Appendix D: CWA 404(b)(1) Analysis

Appendix E: Upper Guadalupe River Flood Control Project Supplemental Biological Opinion, File Number 151422SWR00SR589 (NMFS 2005)

Appendix F: Waste Discharge Requirement and Water Quality Certification for the Santa Clara Valley Water District and United States Army Corps of Engineers Upper Guadalupe River Flood Control Project, City of San Jose, Santa Clara County. Order No. R2-2003-0115 (San Francisco RWQCB 2003).

(Appendices provided digitally)

ACRONYMS AND ABBREVIATIONS

ATM	Adaptive Management Team
BAAQMD	Bay Area Air Quality Management District
BO	Biological Opinion
°C	Degrees Celsius
CAA	Federal Clean Air Act
CAAQD	California Ambient Air Quality Standards
CAR	Coordination Act Report
CCAA	California clean air act
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH	Critical habitat
CIE	Channel Improvement Easements
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CWA	Clean Water Act
dB	Decibels
dBA	A-weighted decibels
DWR	Department of Water Resources
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Study
ER	Engineering Regulation
ESA	Endangered Species Act
°F	Degrees Fahrenheit
FE	Federal endangered
FLPE	Flood Levee Protection Easements
FT	Federal threatened
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
GHG	Greenhouse gases
HEP	Habitat Evaluation Procedure
Hz	Hertz
L_{dn}	Day Night Average Level

L_{eg}	Equivalent continuous noise level
L_{min}	Minimum sound levels
L_{max}	Maximum sound levels
lb/day	Pounds per day
LEDPA	Least Environmental Damaging Practicable Alternative
MBTA	Migratory Bird Treaty Act
mg/kg	Milligrams per kilograms
mg/L	Milligrams per liter
MMP	Mitigation Monitoring Plan
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides
NTU	Nephelometric Turbidity Units
Pb	Lead
PM	Particle matter
ppm	Parts per million
PRE	Permanent Road Easements
ROD	Record of Decision
ROG	Reactive organic gases
ROW	Right of Way
RWQCB	Regional Water Quality Control Board
SCVWD	Santa Clara Valley Water District
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJWC	San Jose Water Company
SO_2	Sulfur dioxide
SR	State Route
SRA	Shaded aquatic riverine
ST	State threatened
TMDL	Total Maximum Daily Load
U.S.	United States
USACE	United States Army Corps of Engineers.
USC	United States Code
USDA	United States Department of Agriculture

USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Service
VOC	Volatile organic compound
WDR	Waste Discharge Requirement

1.0 Introduction

This supplemental Environmental Assessment (EA) is written in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 USC § 4321 *et seq*), as amended, the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR §§1500-1508), and United States Army Corps of Engineers (USACE) Planning Regulations (Engineering Regulation (ER) 200-2-2). It presents an evaluation of the potential impacts associated with the changes to the project design of the Reach 12 portion of the Upper Guadalupe River Flood Control Project.

The USACE is the federal NEPA lead agency for the Upper Guadalupe River Flood Control Project – Reach 12 (Reach 12 project) and the Santa Clara Valley Water District (SCVWD) is the state California Environmental Quality Act (CEQA) lead agency. The Reach 12 project is a portion of the greater Upper Guadalupe River Flood Control Project, located in Santa Clara County, California.

The proposed actions include excavation and re-grading of portions of the banks adjacent to the river channel to create bankfull benches; laying back over-steepened banks; installation of instream fish habitat structures (e.g., woody debris); placement of gravel in the channel; raising existing berms to protect adjacent percolation ponds; construction of maintenance roads on top of the banks and berms; construction of three access ramps; removal of invasive and some other non-native vegetation; and planting of native vegetation. Overall, the proposed project is intended to create better and more habitat complexity and sustainable geomorphic conditions throughout the reach.

1.1 NEPA Background

The SCVWD and USACE analyzed potential environmental consequences of the overall Upper Guadalupe River Flood Control Project in a joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared in 1999. The 1999 EIR/EIS evaluated channel improvements to Reaches A and 6 through 13 of the Guadalupe River and portions of two tributary streams, Canoas and Ross Creeks. To date improvements were constructed on Reaches A, 6, and 10B of the project; and fish passage improvements throughout the river were completed. The 1999 EIR/EIS generally analyzed proposed improvements to Reach 12 as well. Proposed Reach 12 improvements included channel widening, reconstruction of and raising levees, construction of wetland mitigation ponds, and construction of a Chynoweth Avenue Bridge. However, the currently proposed Reach 12 project has changed since the 1999 EIR/EIS was issued. It no longer includes many of the elements analyzed in the 1999 EIR/EIS and incorporates design modifications that were not examined in the 1999 EIR/EIS.

In 2004, a supplemental EA was prepared for the overall Upper Guadalupe River Project. This EA supplemented the 1999 EIS/EIR. The purpose of this supplemental EA was to change the overall time to construct the project from 25 years to 9 years. This supplemental EA did not affect the original construction plans for Reach 12.

The CEQ and USACE have provisions for preparing supplemental NEPA documents when project conditions change. Section 1509.9 of the CEQ's regulations discusses draft, final, and supplemental statements. Section 1502.9(c) provides that agencies:

> *(1) Shall prepare supplements to either draft or final environmental impact statements if:*
>
> *(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or*
>
> (ii) *There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action and its impacts.*

However, in this case, the changes are neither substantial nor significant, and thus do not require the preparation of a supplemental EIS. Nonetheless, the new information and developments of this project do require a supplemental EA to verify that the project changes do not rise to the level of significant. Engineering Regulation 200-2-2: Procedures for Implementing NEPA provides guidance on USACE responsibilities for meeting NEPA requirements. Section 7 of ER 200-2-2 lists actions that normally require an EA but not necessarily an EIS and includes "changes in environmental impacts which were not considered in the [original] project EIS or EA." Because the design of this reach has changed since the 1999 EIR/EIS was issued, this EA supplements the 1999 EIR/EIS by reevaluating the potential environmental consequences of the currently proposed Reach 12 improvements as well as proposed measures to avoid, minimize, and mitigate environmental effects. The 1999 EIR/EIS is incorporated by reference in this document.

At various points, this document discusses both the overall Upper Guadalupe River Flood Control Project for which the 1999 EIS/EIR was prepared and the proposed Reach 12 project. For clarification, this document refers to the overall Upper Guadalupe River Flood Control Project as the 'overall Upper Guadalupe River project' or 'overall project' and the propose Reach 12 project as the 'proposed project' or 'proposed action'.

1.2 Project Location

The Guadalupe River is located the city of San Jose, Santa Clara County, California (Figure 1). The upper Guadalupe River is situated in an urban area of southwestern San Jose, in the highly-urbanized Santa Clara Valley. Reach 12 is the most upstream reach of the federal Upper Guadalupe River Flood Control Project. The approximately 5,600-foot-long Reach 12 portion of the project extends from Branham Lane Bridge, passing under the State Highway 85 overpasses, and ending at Blossom Hill Road (from Station 960+00 to Station 1018+00) (Figure 2). This reach is relatively straight except for a bend halfway down its length. The SCVWD operates three (3) percolation ponds adjacent to, but separated from the reach by berms. The ponds are used for recharging groundwater through percolation. The Almaden Expressway , Sanchez Drive, commercial uses, and multi-family residential uses are located west of the west bank, and single-family and multi-family

residential uses are located in the area east of the east bank along Blossom River Drive and Tonino Drive.

1.3 Study Authority

The feasibility study of flood control needs along the upper Guadalupe River was authorized by Section 205 of the Flood Control Act of 1948 (33 USC § 701), as amended.

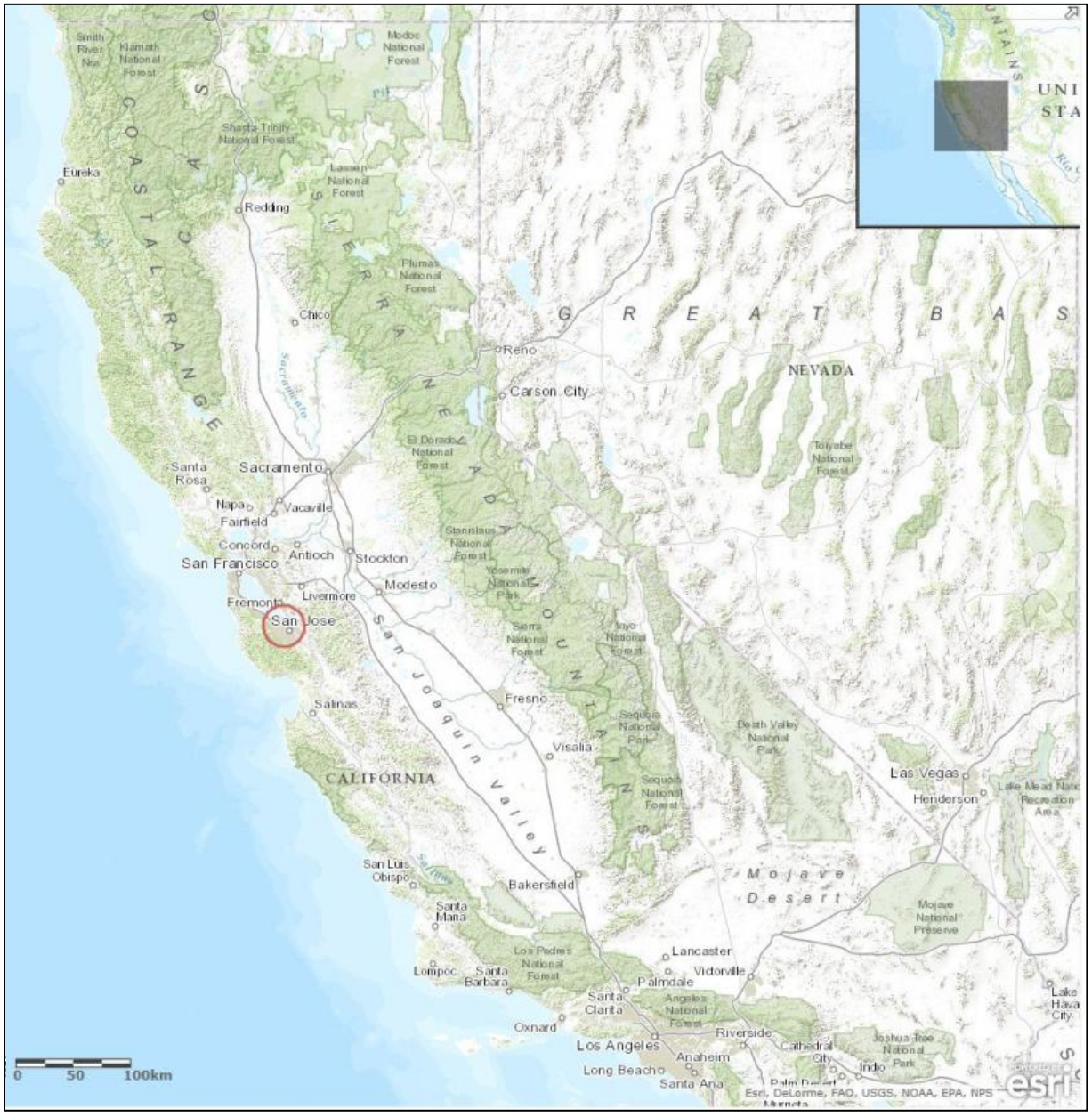

Figure 1. Upper Guadalupe River Flood Control Project - Reach 12 Location

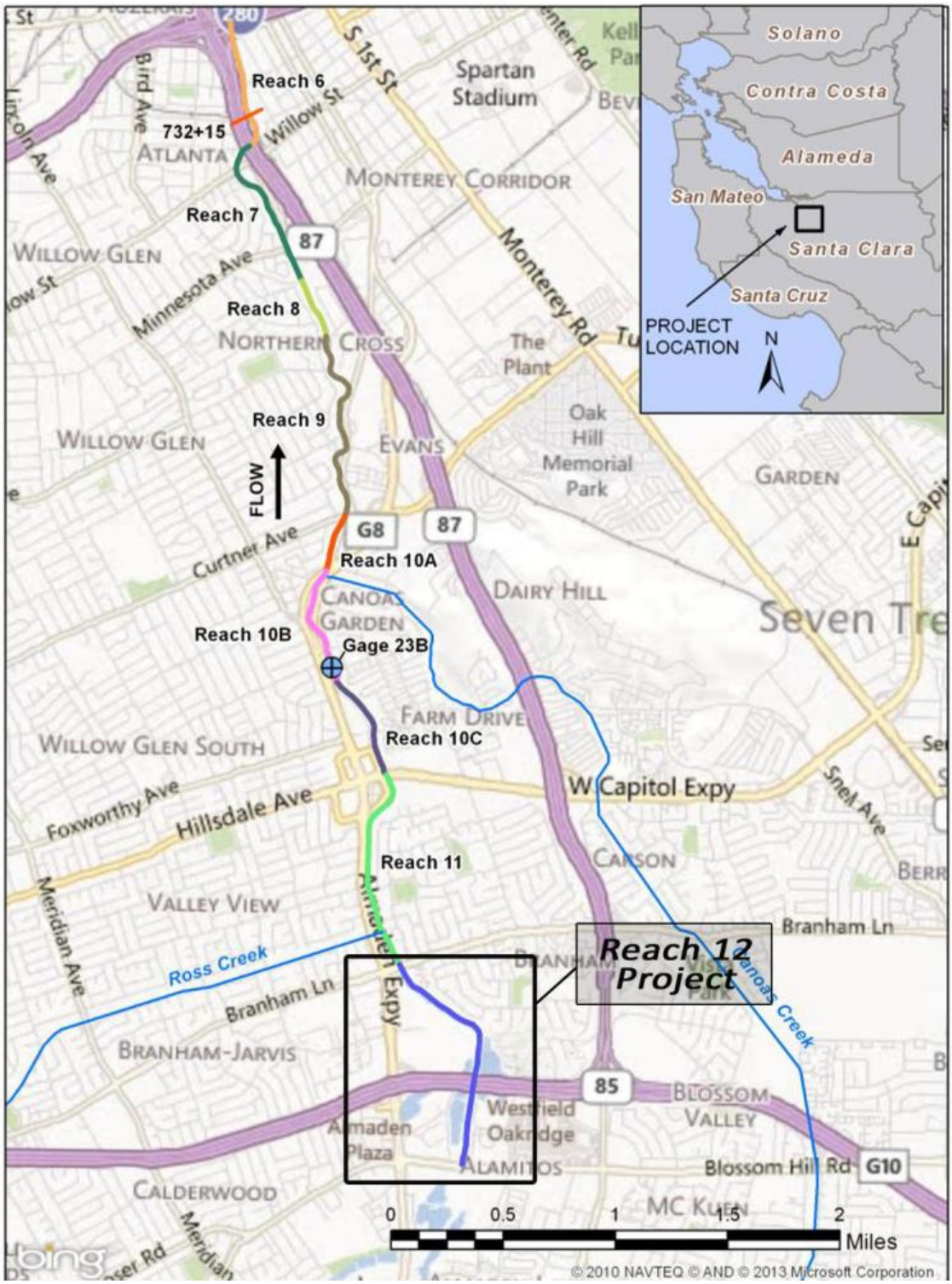

Figure 2. Upper Guadalupe River Flood Control Project - Reach 12 and Other Reaches

1.4 Purpose and Need for Proposed Action

The Guadalupe River watershed has a highly urbanized landscape with a long history of agricultural practices. As a result of urbanization, the surrounding landscape surface has become increasingly impervious. Reservoirs in the upper watershed, as well as Lake Almaden upstream of the river, have also reduced sediment supply to the channel. Reduced sediment supply and the development of urban hydrology characteristics in the watershed have resulted in more erosive flows incising the channel.

The upper Guadalupe River has flooded communities repeatedly, with the most recent flooding event occurring in 1998. In 1995 floodwaters submerged portions of downtown San Jose and more than 150 homes. The purpose of and need for the overall Upper Guadalupe Flood Control Project is to reduce the risk of such flooding in the adjacent San Jose communities. However, construction of the overall Upper Guadalupe River Flood Control project would result in unavoidable significant impacts to riparian forest and shaded aquatic riverine cover which must be mitigated.

Reach 12 is the most upstream reach of the federal Upper Guadalupe Flood Control Project and does not generally pose a flood risk to the surrounding neighborhoods because the channel is sufficient to contain flows up to about the 1 percent annual occurrence level. However, the reach is almost entirely artificial in configuration, having been constructed in the early 1970s and used for instream percolation ponds for many years. As a result, the geomorphology of the reach is not optimum for its stability and floodplain functions and habitat conditions are suboptimal.

The proposed project would improve the channel morphology and floodplain functions of the reach. Additionally, vegetation replanting would not only mitigate for habitat impacts from this construction work, but would also provide additional riparian forest and shaded aquatic riverine (SRA) cover mitigation for impacts in other reaches associated with the overall Upper Guadalupe Flood Risk Management Project.

Project Need: The overall Upper Guadalupe River Flood Risk Management Project is needed to reduce the risk of the Upper Guadalupe River flooding adjacent urban areas; however, its construction would result in significant impacts to riparian forest, SRA cover, and urban forest (1999 EIS/EIR, SCVWD and USACE). The 1999 EIS/EIR discusses mitigation for these impacts. Those requirements include creation of 1.47 acres of freshwater wetlands, 20.89 acres of riparian forest, 4,886 linear feet of SRA cover and 1,720 linear feet of undercut bank (San Francisco Bay RWQCB, 2003). While the current project design would not provide as much mitigation as discussed in the 1999 EIR/EIS, it would provide some additional mitigation for other reaches of the overall Upper Guadalupe River Flood Control Project. The proposed Reach 12 project would result in approximately 1.97 acres of riparian forest mitigation, of which 0.77 acre would be available for mitigation for riparian forest mitigation in other reaches of the overall Upper Guadalupe River project. The proposed project would also provide 358 linear feet of SRA cover mitigation, of which 271 linear feet could be used to mitigate for impacts in other reaches.

Additionally, following construction, the reach would have a more geomorphically sound configuration and would provide improved fish habitat over existing conditions.

The Guadalupe River has flooded communities repeatedly, with the most recent flooding event occurring in 1998. In 1995 floodwaters submerged downtown San Jose and more than 150 homes. The overall Upper Guadalupe River project is needed to reduce the risk of the upper reaches of the river flooding adjacent urban areas. Construction of the Upper Guadalupe River Flood Control Project would result in unavoidable significant impacts to riparian forest and shaded aquatic riverine cover that must be mitigated. Reach 12 of the overall project would serve as a mitigation reach to compensate for some of these adverse impacts. Additional mitigation work would be done in other reaches.

Project Purpose: The primary purpose of the proposed Reach 12 project is to enhance habitat conditions for fish and wildlife above current conditions and to create sufficient quantities of riparian forest and SRA cover in order to provide advance, on site mitigation for the overall Upper Guadalupe River Flood Risk Management Project. Secondary objectives include preventing floodwaters from affecting adjacent percolation ponds and improving access to the channel for maintenance purposes.

1.4.1 Habitat Mitigation Goals for the Proposed Action

The proposed Reach 12 project is intended to attain multiple beneficial environmental objectives while meeting the overall project's basic purpose of flood risk management. The purpose of the proposed project is to establish riparian forest and SRA cover of sufficient quality to compensate for a portion of the overall Upper Guadalupe River Flood Risk Management Project related impacts. Habitat goals for the proposed action include:

- Develop and maintain an improved riparian forest plant community;
- Develop and maintain bank stability and moderate flows;
- Develop and maintain habitat interspersion and connectivity;
- Develop and maintain nesting, foraging and escape cover;
- Provide shade to aquatic habitats;
- Provide instream refugia for salmonids and other aquatic organisms; and
- Provide organic matter input.

1.5 Scope of Analysis

The scope of this analysis in terms of geographic extent and duration is defined by the potential direct, indirect, and cumulative impacts from the proposed changes to the Reach 12 portion of the overall Upper Guadalupe River Flood Control Project. The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) (40 CFR §§ 1500-1508) define direct effects as those that are caused by an action, and occur at the same time and place as the action (40 CFR § 1508.8a). Indirect effects are defined as reasonably foreseeable to be

caused by an action, but may occur later in time or further removed in distance (40 CFR § 1508.8b). Cumulative effects "results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes those other actions" (40 CFR § 1508.7).

The geographic scope of this analysis is limited to the footprint of the proposed project and downstream river water that may be affected. In terms of duration, the scope of analysis covers the proposed 2–3 years of construction and 4 years of maintenance, for a total of 6–7 years. There is a potential for a floodwall to be constructed in approximately 10 years; however, at this time it is not certain if this portion of the project would be constructed. Should the floodwall be constructed in the future, it would undergo additional environmental analysis.

As previously mentioned, this document is a Supplemental EA intended to supplement the existing 1999 EIR/EIS for the Upper Guadalupe River Flood Control Project. A supplement to the 1999 EIR/EIS is required because the current design proposal for Reach 12 is different from the design proposal selected in the Record of Decision (ROD) and because the affected environment has changed since preparation of those documents. The construction activities associated with the current design proposal would be considerably less than described in the 1999 document. In addition, riparian vegetation has grown since 1999 and the resulting impacts to riparian forest in this reach area expected to be greater than described in the 1999 EIR/EIS. Most of the impacts of the proposed would be due to habitat restoration actions, including: channel reconfiguration, installation of habitat structures, removal of exotic plant species, and slope stabilization.

The purpose, need, and goals of the proposed Reach 12 project have not changed since the 1999 EIR/EIS was published. Similar to the current proposal, in the 1999 EIS/EIR, Reach 12 served as a mitigation reach to mitigate impacts to riparian forest, SRA cover, and wetlands from construction of the overall Upper Guadalupe River Flood Control Project. The 1999 document identified three project alternatives, including the No-Project Alternative, Minimize Vegetation Impacts Alternative, and the preferred project. The preferred project proposed to achieve flood protection in the Upper Guadalupe River area through channel widening, modifications of levees, and the construction of bypass channels. The minimize vegetation impacts alternative proposed a bypass channel in some reaches to provide flood protection and, therefore, minimize impacts to riparian vegetation. For Reach 12, the preferred project proposed levees and re-vegetation and the Minimize Vegetation Impacts Alternative proposed a bypass channel to reduce impacts to vegetation.

The currently proposed Reach 12 design proposes to leave the channel in its current location; however, it would excavate existing steep slopes and high benches in some areas to create floodplain benches that would be inundated during bankfull flows. To the maximum extent practicable, native riparian vegetation would be preserved; however, in areas where excavation is proposed, riparian vegetation would be removed. Non-native woody vegetation with invasive characteristics would also be removed and generally replaced with native riparian vegetation.

Riparian forest affected by construction would be mitigated for at the same ratio proposed in the 1999 EIR/EIS.

1.6 Scope of Alternatives

As mentioned, the 1999 EIR/EIS provides alternatives to the proposed Upper Guadalupe River Flood Control Project, including a no-action alternative. Impacts of these alternatives are detailed in that document.

The design for Reach 12 in the 1999 EIR/EIS assumed continuation of the seasonal instream percolation ponds which had been used for many years by the SCVWD, and development of an off-stream facility west of the river which would include new percolation ponds as well as emergent aquatic and riparian forest mitigation areas. However, neither of these assumptions could be met. The spreader dams required for instream percolation ponds required permits from the California Department of Fish and Wildlife (CDFW) which were no longer granted after 1994. The offstream percolation and mitigation facility required a large area of land, which due to financial reasons could not be acquired by the SCVWD.

Two other factors also came into play. Cessation of the seasonal instream percolation ponds resulted in substantial vegetation re-growth along the river, and created opportunity for planting of additional mitigation areas within the river's riparian corridor instead of offstream. In addition, increased interest in fluvial geomorphic consideration led to a geomorphic re-evaluation of the reach and a determination that its fluvial geomorphic conditions are suboptimal.

Therefore, the design for Reach 12 was revised to reflect these changed conditions. The prior project elements were dropped and were replaced with revised creation of new floodplains, placement of coarse sediment, installation of woody structures in the channel for fish habitat, and planting of riparian forest where allowed by hydraulic constraints.

Variations to the revised design of Reach 12 were considered during reevaluation of the proposed project (USACE 2014). Variations included two alternatives to the deferred floodwall were considered—the Widen Channel Alternative and Levee Alternative. The floodwall alternative was selected for the design because it provides the least environmental impact of the three alternatives considered. However, construction of a floodwall is uncertain at this time and any construction would be deferred to approximately 10 years from the preparation of this Supplemental EA and environmental effects of that action would be re-evaluated at that time.

Because the 1999 EIR/EIS describes in detail the impacts of alternatives to the proposed action, including the no-action alternative, the scope of this Supplemental EA is limited to a discussion of the impacts of the proposed action.

1.7 Unresolved Issues

At the time of the publication of the draft Supplemental EA, two unresolved issues that remain, including:

Water Quality: There is a concern that water from the adjacent percolation ponds may flow via subsurface flow into the channel once it is dewatered. While the likelihood of this occurring is unknown, the percolation ponds are located at an elevation higher than the river; therefore, water may flow along the least resistive path back to the channel. The USACE is currently working with the RWQCB to determine what measure should be taken to ensure that receiving water quality is not significantly affected. One potential solution is that water that leaks back into the channel would not be returned to the river, or it would be diverted to holding basins and sampled to ensure compliance with the project Waste Discharge Requirement (WDR) prior to being returned to the river or groundwater basin. This issue will be resolved prior to dewatering the channel and existing water quality standards would not be exceeded during construction.

Land Use: Real estate interests on seven parcels have not yet been obtained for the proposed project. The USACE and SCVWD are currently working with the land owners to obtain easements. This issue is expected to be resolved prior to construction of the proposed project.

2.0 Proposed Action

This section discusses the agency preferred alternative (proposed action or project). The proposed action was developed to meet the objectives of providing mitigation for the overall Upper Guadalupe River Flood Control Project and protect the adjacent percolation ponds. The proposed action consists of:

- Channel modifications, including flood bench excavation, gravel augmentation, and installation of instream structures to improve river morphology and improve fish habitat,
- Raising existing berms that separate the SCVWD percolation ponds from the river,
- Constructing maintenance access roads,
- Removal of non-native and invasive plant species,
- Planting riparian vegetation to mitigate for loss of shaded stream aquatic (SRA) cover in other river reaches,
- Installing fencing along a portion of the SCVWD property line,
- Maintaining plantings for a period of 4 years after construction to ensure establishment,
- Create a connection to the recreation existing trail at the northern terminus of Blossom River Drive, and

Hydraulic modeling of Reach 12 indicates that the downstream portion of the existing channel, as well as the modified channel resulting from the proposed action, would not meet the USACE risk and uncertainty standard for providing a 1 percent annual level of protection from floods. Meeting this standard would require additional flood risk reduction work beyond that included in the proposed action.

Floodwall installation on the downstream part of the west bank in Reach 12 was investigated to address this issue. However, construction of flood risk reduction measures in upstream parts of the project (such as Reach 12) prior to completion of all downstream flood risk management work would shift flood risks from current patterns to new patterns. This could result in increased flood risk for certain areas (induced flooding) which is contrary to USACE policy.

Therefore, construction of this floodwall or some alternate flood risk management measure is not included in the proposed action. This issue will be reconsidered as completion of the project approaches (expected in approximately 9–10 years), and will be addressed in appropriate environmental documentation at that time.

The proposed action would not require construction of this floodwall and is not dependent upon it. Upon implementation of the proposed action, the floodwall would remain a discretionary action for future consideration should all downstream flood risk management work be funded and completed.

An overview of the project features are shown in Figure 3 and Figure 4. Site preparation and construction activities associated with the above-mentioned project features are detailed in the following subsections. Vegetation removal is expected to begin in 2014. Other construction activities are expected to being in 2015 and are expected to be completed within 1 year. Maintenance activities would persist for 4 years post-construction.

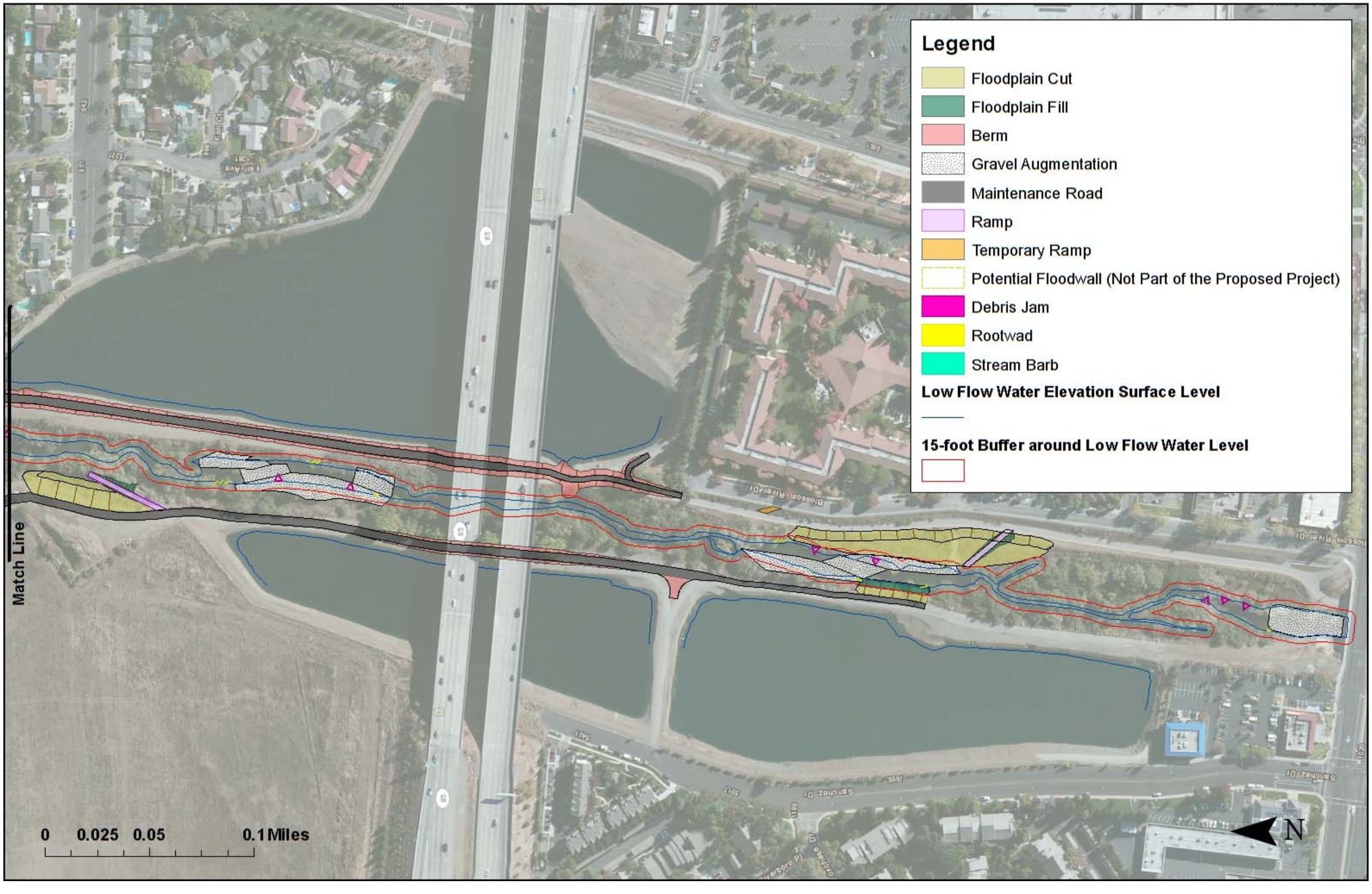

Figure 3. Reach 12 Proposed Project Components – Upstream

This page is intentionally left blank.

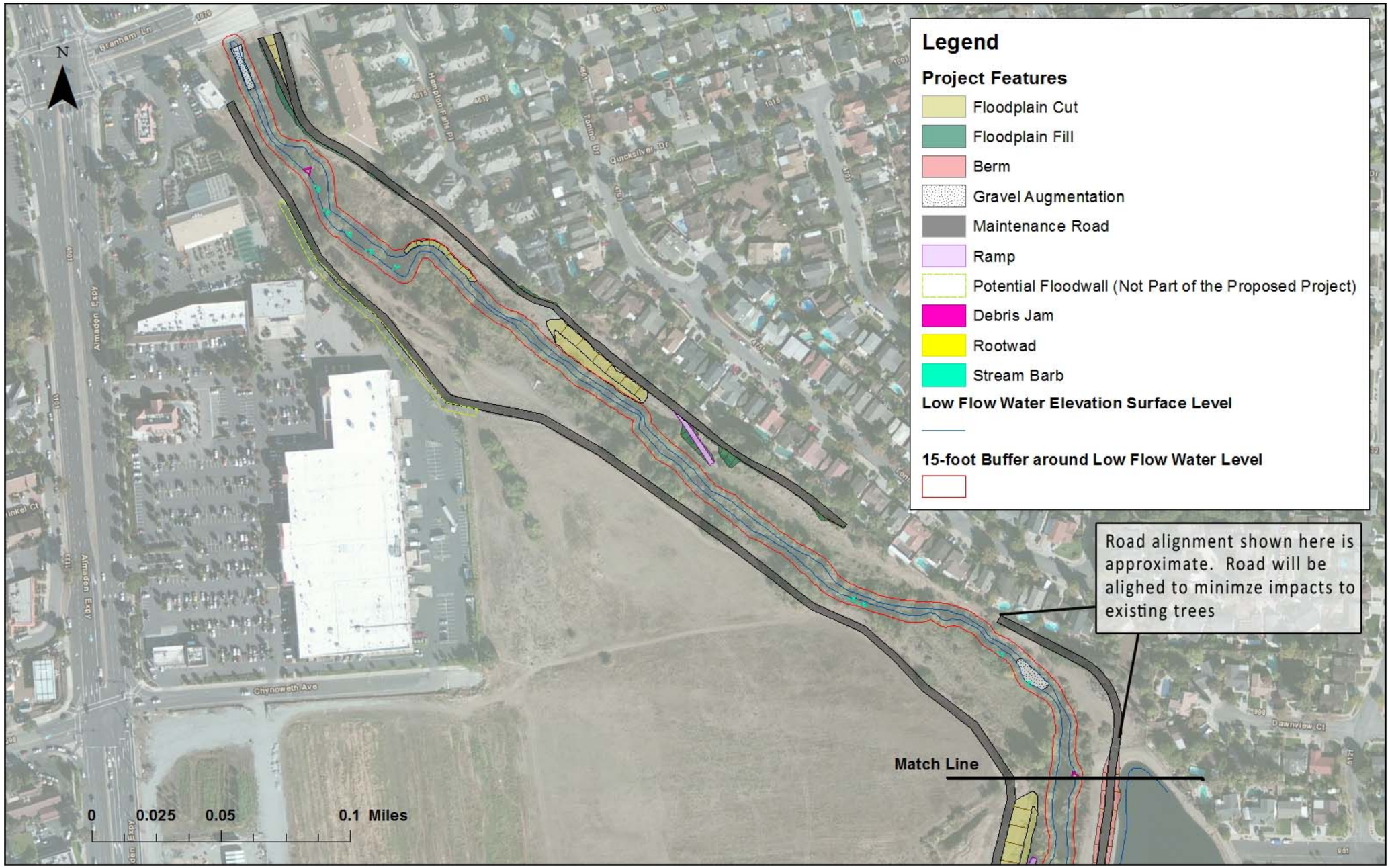

Figure 4. Reach 12 Proposed Project Components – Downstream

This page is intentionally left blank.

2.1 Site Constraints

The design of the proposed project was constrained by several physical, biological, and environmental factors. These factors were considered during the revision of the 1999 design plan. Constraints include:

- Percolation ponds adjacent to the river that should be protected;
- Existing soil characteristics which limit engineering design and future mitigation plantings;
- Limited deep water availability for riparian plantings in the downstream portion of the reach
- Very limited coarse sediment supply due to existing upstream reservoirs and urbanization;
- Limited right of ways in some locations;
- Existing non-native invasive species that should be removed to protect habitat functions of the reach;
- Existing native vegetation to remain to the maximum extent practicable; and
- Mercury levels of the existing on-site soil; and
- Frequent use of the area by transients and associated risk of theft and vandalism to fixed irrigation equipment.

2.2 Site Preparation

Site preparation consists of clearing and grubbing vegetation and other debris, and diverting (dewatering) the reach. These activities, and subsequent construction, would be constrained by the need to protect existing utilities, storm drains and outfalls, and San Jose Water Company groundwater wells that are present in the project area, but are not to be altered during the project.

Existing Utilities: An existing 42-inch diameter storm drain outfall on the east side (near the intersection of Blossom River Drive and Blossom River Way) has rock riprap protection. The riprap would be removed to re-grade the channel (creating a low bench for floodplain functions and riparian vegetation). The rock material would be saved and re-installed in the same location following the required grading. The grading was designed to ensure that the existing outfalls would continue to function.

An existing 36-inch storm drain outfall on the east side under Branham Lane Bridge would remain. The existing gabion-lined slope under the bridge would be modified to accommodate the maintenance road passing under the bridge and keep the exiting storm drain outfall unaltered. All other existing storm drain and outfall structures would remain and be protected from construction impacts.

Installing Erosion Control: Erosion control materials would be installed in certain project areas to prevent runoff and other pollution from entering storm drains and the channel water prior to construction. Erosion control that would be installed during site preparation includes installation

of silt fencing and bales around storm drains and in areas adjacent to the river. Erosion control blankets, hydroseed, and willow cutting will be long-term erosion control methods.

Clearing and Grubbing: Clearing and grubbing would occur in approximately 5 acres of the 30-acre project area. This process would involve removing unwanted trees, shrubs, stumps and roots in areas where earthwork would occur. Herbaceous plants would be removed by grading. Holes resulting from removal of stumps and roots would be backfilled. Areas where clearing and grubbing occur would be left at a grade creating flood benches at bankfull elevation. Clearing and grubbing would result in up to 12,300 cubic yards of grub material and 4,100 cubic yards of soil that would require removal from the site. This debris and rubbish would be removed from the entire project site and transported to a suitable site for disposal or recycling. Transport of debris and rubbish would be conducted in a manner that prevents spillage on streets or adjacent areas. Equipment required for clearing and grubbing activities include loaders, excavators, dozers, chippers, and transport trucks.

Soils in portions of the reach have relatively high concentrations of mercury. The San Francisco District Regional Water Quality Control Board (RWQCB) has provided guidance on reusing mercury-laden sediment in the project area. These requirements are discussed in detail later in this document (see sections) and summarized here. In areas within 20 feet of the low flow channel, sediment with concentrations of mercury ranging from 2.3–5.0 ppm can be reused only if it is buried under 2 feet of clean material. Sediment with mercury concentrations ranging from 5.0–20.0 ppm can be used anywhere within the project area beyond 20 feet from the low flow channel.

Dewatering: Prior to in-channel activities (i.e., gravel augmentation and installation of instream structures) the surface water would be diverted around construction activities and these locations would be dewatered. The footprint of dewatering would be approximately 1.5 acres which would encompass only portions of the length of the low-flow channel. Dewatering would involve installation of a cofferdam upstream of construction activities, rerouting the flow downstream of in-channel activities, and pumping water out of the dewatering area as needed. Once the segment of the river is dewatered, trash would be removed from the river bed and transported to a suitable site for disposal or recycling. Dewatering would be conducted during the work windows already established for the Upper Guadalupe River Flood Risk Management Project—June 1 through October 15. Prior to construction, a dewatering plan would be prepared and submitted to the RWQCB and National Marine Fisheries Service (NMFS) for review and approval. The RWQCB Order R2-2003-0115 and the NMFS Biological Opinion allow dewatering as early as May 1 if two conditions are met: average water temperature exceeds 64 degrees F., and fish surveys find no steelhead. This provision may be utilized to start construction early if the stated conditions are met.

As part of the dewatering process, a qualified fish biologist would remove all native vertebrate organisms in the section of river being dewatered. These would be safely transported to river sections upstream or downstream of the dewatered section for release.

2.3 Removal of Non-native and Invasive Plant Species

Non-native and some native vegetation would be removed in certain areas within the project area. In areas where earthwork is proposed to create flood benches, existing vegetation would be removed during clearing and grubbing. In other areas, non-native and invasive woody plants would be removed to allow for planting native species. In several areas where native vegetation would be preserved, removal of non-native vegetation could occur by hand to ensure the native vegetation is preserved. Some non-native trees would be retained where they are not invasive or provide important visual resources as well as some habitat value. Vegetation eradication methods would include:

- Non-herbaceous plants (i.e., trees, shrubs) would be cut down and stumps painted with herbicide.
- Invasive herbaceous weeds would be sprayed with herbicides; after they are dead, the vegetation would be cleared and removed. Herbicide application would only be allowed within 20 feet of the river from June 1 through October 15, the existing work window.
- If noxious weeds are observed during times when herbicide applications are not allowed per the Upper Guadalupe Project's WDR (San Francisco Bay RWQCB WDR, 2003), they would be removed manually or mechanically.

Prior to construction, the vegetation proposed for preservation would be clearly marked, thereby ensuring that the vegetation removed around it does not cause harm. Table 1 shows the existing or potential non-native and invasive plants proposed for removal or control. The decision as to whether eradication or control will be the goal will depend on the invasiveness and practicality of eradication for each species.

Table 1 Non-native and Invasive Plants Proposed for Eradication or Control

Common Name	Scientific Name
Acacia	*Acacia spp.*
Tree of heaven	*Ailanthus altissima*
Italian alder	*Alnus cordata*
Giant reed	*Arundo donax*
Yellow mustard	*Brassica campestris*
Black mustard	*Brassica nigra*
Yellow-star thistle	*Centaurea solstitialis*
Poison hemlock	*Conium maculatum*
Field bindweed	*Convolvulus arvensis*

Table 1 Non-native and Invasive Plants Proposed for Eradication or Control	
Common Name	**Scientific Name**
Jubata grass	*Cortaderia jubata*
Pampas grass	*Cortaderia selloana*
Bermuda grass	*Cynodon dactylon*
Cape ivy	*Delairea odorata*
Stinkwort	*Dittrichia graveolens*
Veldt grass	*Ehrharta erecta*
Blue gum	*Eucalyptus globulus*
Ash (nonnative species)	*Fraxinus spp.*
Black walnut	*Juglans hindsii*
Rice cutgrass	*Leersia oryzoides*
Sweetgum	*Liquidamber styraciflua*
Perennial pepperweed	*Lepidium latifolium*
Japanese privet	*Ligustrum lucidum*
Olive	*Olea europaea*
Harding grass	*Phalaris aquatica*
Common reed	*Phragmites australis*
Bristly ox-tongue	*Picris echioides*
Smilo grass	*Piptatherum miliaceum*
London plane tree (including hybrids with native sycamore)	*Plantanus x acerifolia*
Holly oak	*Quercus ilex*
Wild radish	*Raphanus sativus*
Italian buckthorn	*Rhamnus alternus*
Castor bean	*Ricinus communis*
Black locust	*Robinia pseudoacacia*
Himalayan blackberry	*Rubus armeniacus*
Weeping willow	*Salix babylonica*
Corkscrew willow	*Salix matsudana*
German ivy (syn=Delairea mikanioides)	*Senecio milkanioides*
Red sesbania	*Sesbania punicea*
Tamarisk	*Tamarix spp.*
Elm	*Ulmus spp.*

Table 1 Non-native and Invasive Plants Proposed for Eradication or Control	
Common Name	**Scientific Name**
Greater periwinkle	*Vinca major*

2.4 Channel Modification

The purpose of the channel modifications (i.e., flood bench creation, laying back steep banks, gravel augmentation, and installation of instream structures) is to improve river morphology and provide more and better riparian habitat. These activities were designed to stabilized over-steeped slopes, attain better floodplain elevations, and improve the geomorphology and physical and biological functioning of the river. The changes would not affect the overall gradient of this reach. However, locally the channel profile would be adjusted via gravel placement to convert short steep riffles into longer, low gradient riffles and/or pool-riffle sequences.

Grading adjacent banks to create flood benches would not require dewatering the channel; however, dewatering would be required during gravel augmentation and installation of instream structures. It is anticipated that dewatering would only occur during one construction year (2015); however, should instream activities not be completed, additional dewatering may be required the next construction year (2016).

2.4.1 Flood Bench Creation

Approximately 1.2 acres of flood benches would be created along the banks of portions of the river by excavating steep banks adjacent to the channel to bankfull elevation (Figure 5). The flood benches were designed to be inundated only during bankfull or higher flood events; during lower-flow events, waters would be contained within the river's bankfull channel. Prior to excavation, the channel would be protected from sedimentation and other construction activities by silt fence, coir log, and hay bales.

Areas within 20 feet of the low-flow channel that contain sediments with mercury concentrations greater than 2.3 ppm would be over excavated by 2 feet. It is anticipated that approximately 1,500 cubic yards of soil would be excavated to accommodate the 2-foot cover requirement. Clean soil (approximately 1,500 cubic yards) would be imported to the site to backfill over-excavated areas. Approximately 150 trucks would be required to import clean sediment to the site. Over excavation would only occur when the river is dewatered.

The total estimated volume of clearing and grubbing excavation for the reach is approximately 15,600 cubic yards of material. This includes 1,500 cubic yards of over-excavation in selected areas. The estimated volume of fill is approximately 12,361 cubic yards. All sediment proposed for

excavation is suitable for use within various portions of the project. Therefore, approximately 12,361 cubic yards of sediment excavated would be reused somewhere on the project site in accordance with the RWQCBs reuse requirements for sediment containing mercury (see Table 14 in Section 4.3). Sediment suitable for construction would be immediately transported to fill areas (e.g., areas where berms would be raised) or stockpiled for future use. The remaining 6,322 cubic yards of sediment would be transported to an approved disposal site (currently identified as Kirby Canyon Landfill or Guadalupe Landfill). Approximately 632 truck loads would be required to transport this sediment to disposal sites.

When excavation is complete, coconut fiber erosion control blanks would be installed and disturbed areas would be replanted with native riparian vegetation or hydroseeded. Section 2.8 provides a discussion on replanting.

2.4.2 Gravel Augmentation

Reach 12 was historically a braided channel with a high volume of gravel in the stream bed. The upstream half of the reach was used as a gravel quarry starting in the 1930s and the river was realigned in the 1970s. This portion of the reach has very little aquatic habitat variability and the channel is degraded. At the approximate halfway point of the reach, the channel bends. Downstream from this point, the low-flow channel morphology provides better habitat than the upstream portion. Approximately 1,300 feet upstream of this reach is the Alamitos Drop Structure, which helps create Lake Almaden a short distance upstream of the drop structure. The backwater upstream of the drop structure and the deep lake traps most of the gravel transported by Guadalupe Creek and Alamitos Creek, respectively. Therefore, reaches immediately downstream of the drop structure are starved of course sediment, and Reach 12 is a priority reach to augment large volumes of gravel that can slowly migrate to the downstream reaches.

The overall approach for gravel augmentation in this reach is to 1) establish long-term gravel augmentation locations at the upstream end of the reach in a location where hydraulic conditions are favorable for downstream distribution during high flow events, 2) redistribute elevation drop in two long flat pools by creating a more natural pool-riffle sequence in pools, and 3) supplement gravel in the proposed realignment location.

The gravel augmentation is intended to be hydraulically subtle and would not change the flood conveyance, require over-excavation, or result in short-term alterations of riparian vegetation or low flow water surface elevation. This augmentation would be integrated with the proposed installation of large instream structures discussed in Section 2.4.3. However, as gravel is routed downstream, local deposition may result in establishment of gravel bars and may cause local changes in downstream reaches. Changes may include gravel deposition along the channel margins (bars) in existing riparian vegetation and small changes in riffle elevations.

Gravel used for augmentation would be free of fine sediment. Fine bed load sand supply is likely to be lower in Reach 12 due to partial trapping behind Alamitos Drop Structure. As a result, bars that

develop would likely be less prone to riparian encroachment for the first few years following construction. Over time, riparian encroachment on the bars may occur if high flows do not scour and redeposit gravel bars and if fine sediment from upstream sources infiltrates the bars.

Three sites are identified for gravel augmentation in Reach 12 (Figure 6). Note that these sites are generally located on this figure; actual placement would only be within the low-flow channel. Site 1 is located from station 1019+00 to 1001+00, site 2 is from 997+00 to 981+50, and site 3 is located immediate upstream of Branham Land Bridge at station 962+30 to 961+50. Site 1, particularly upstream, is the highest priority of all sites because it is the furthest upstream augmentation site and the most gravel starved. This site has convenient access and can accommodate large volumes of gravel. The downstream portion of site 1 and all of site 2 are considered medium priority; they have smaller volume capacities and would require access development to access them. Currently, site 3 is the lowest priority; however, once the floodway widths in downstream reaches (particularly 11C) are increased and resulting residence times increased, gravel augmentation priority would increase. There is an eroding gravel/sand bank at the near station 963+00 (upstream end of gravel augmentation site 3), which provides small gravels to the channel for downstream transport and deposition. This area may naturally supplement augmented gravel as the bank continues to erode.

The total footprint of gravel augmentation activities is approximately 1 acre. It is anticipated that approximately 6,080 cubic yards of gravel would be required to facilitate gravel augmentation. Gravel would be trucked to the site and stored at staging areas until ready for use. Transport of the gravel to the site would require approximately 608 truck loads.

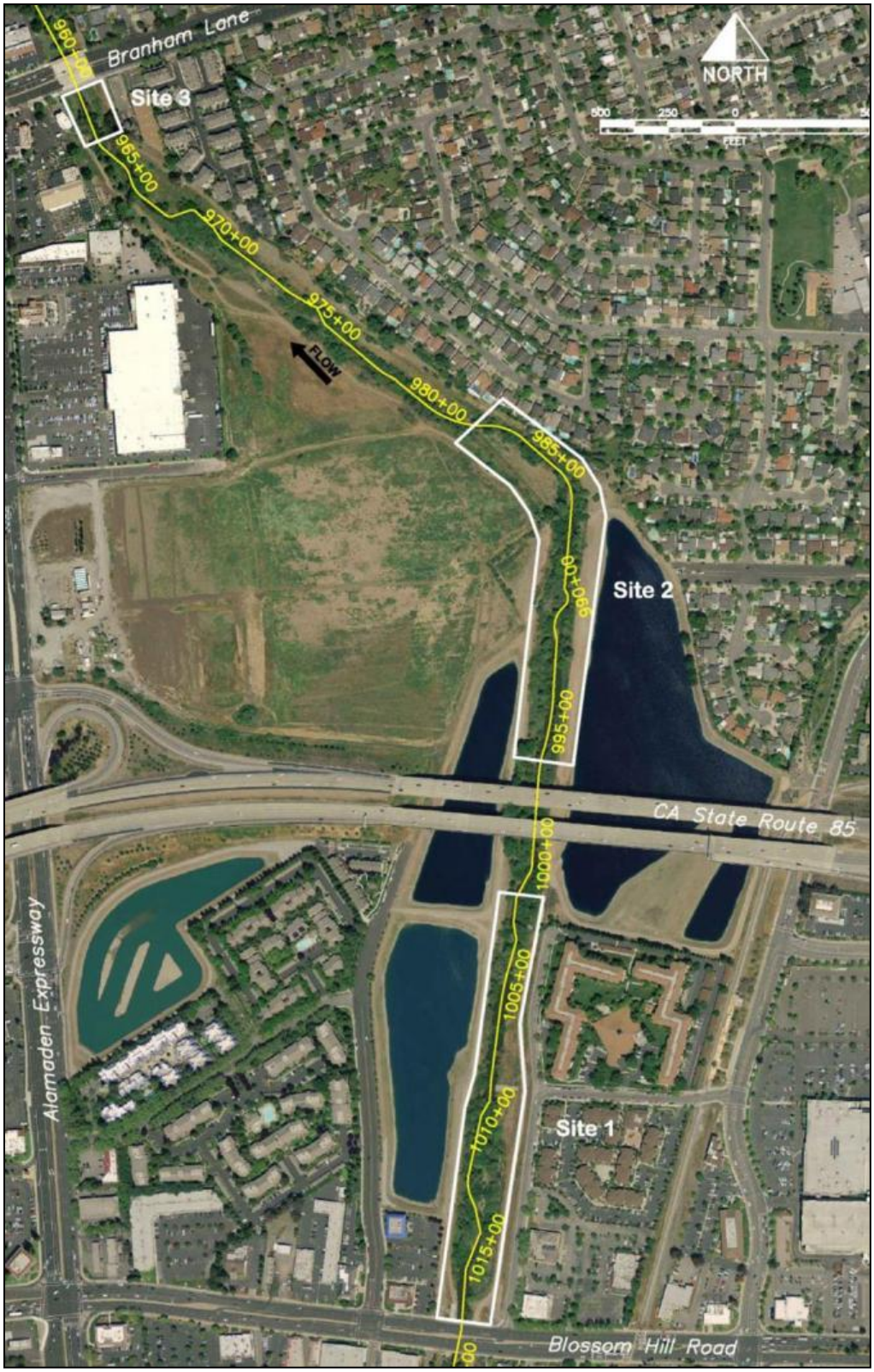

Figure 5. Reach 12 Generalized Sites for Gravel Augmentation

Site 1: Gravel augmentation in site 1 has two components. Component 1 involves redistributing the slope by filling the long pool, augmenting the pool tail at Station 1016+00, and creating a new riffle crest located at station 1018+00 (downstream side of Blossom Hill Road Bridge) (Figure 7, Figure 8, and Figure 9). The elevation of the new riffle crest at station 1018+00 would be slightly lower than the elevation of the riffle crest at station 1020+00, causing a low flow backwater up to station 1020+00. This area would gently slope down in elevation over the next 200 feet to station 1016+00 (Figure 8 and Figure 9). The gravel would be placed entirely within the low flow channel with no exposed bars.

Component 2 involves gravel augmentation to create a more natural channel morphology in the long flat pool between stations 1009+25 and 1040+50 (Figure 9 and Figure 10). An alternative bar sequence and new riffle is proposed in the existing long flat pool. The new riffle would increase the low flow water surface elevation by approximately 0.5 to 1 foot, backing water into the upstream riffle and thereby redistributing this elevation drop through the long flat pool. This minor increase in low flow water surface elevation is not expected to impact flood conveyance or existing riparian vegetation along the channel margin. Table 2 provides details of the implementation features, stations where they would be located, area of impact, depth, and volume of gravel proposed.

Table 2 Site 1 Proposed Gravel Augmentation and Channel Modification

Implementation Feature	Upstream Station	Downstream Station	Area (square feet)	Depth (feet)	Volume (cubic yard)
Pool tail augmentation	1018+00	1016+30	10,680	3	1,190
East bank bar augmentation	1009+25	1006+30	4,220	4.5	700
Riffle augmentation	1007+50	1006+00	2,800	3	410
West bank bar augmentation	1007+00	1004+50	5,640	4.5	940
				Total Gravel Volume	***3,240***

Source: USACE 2014.

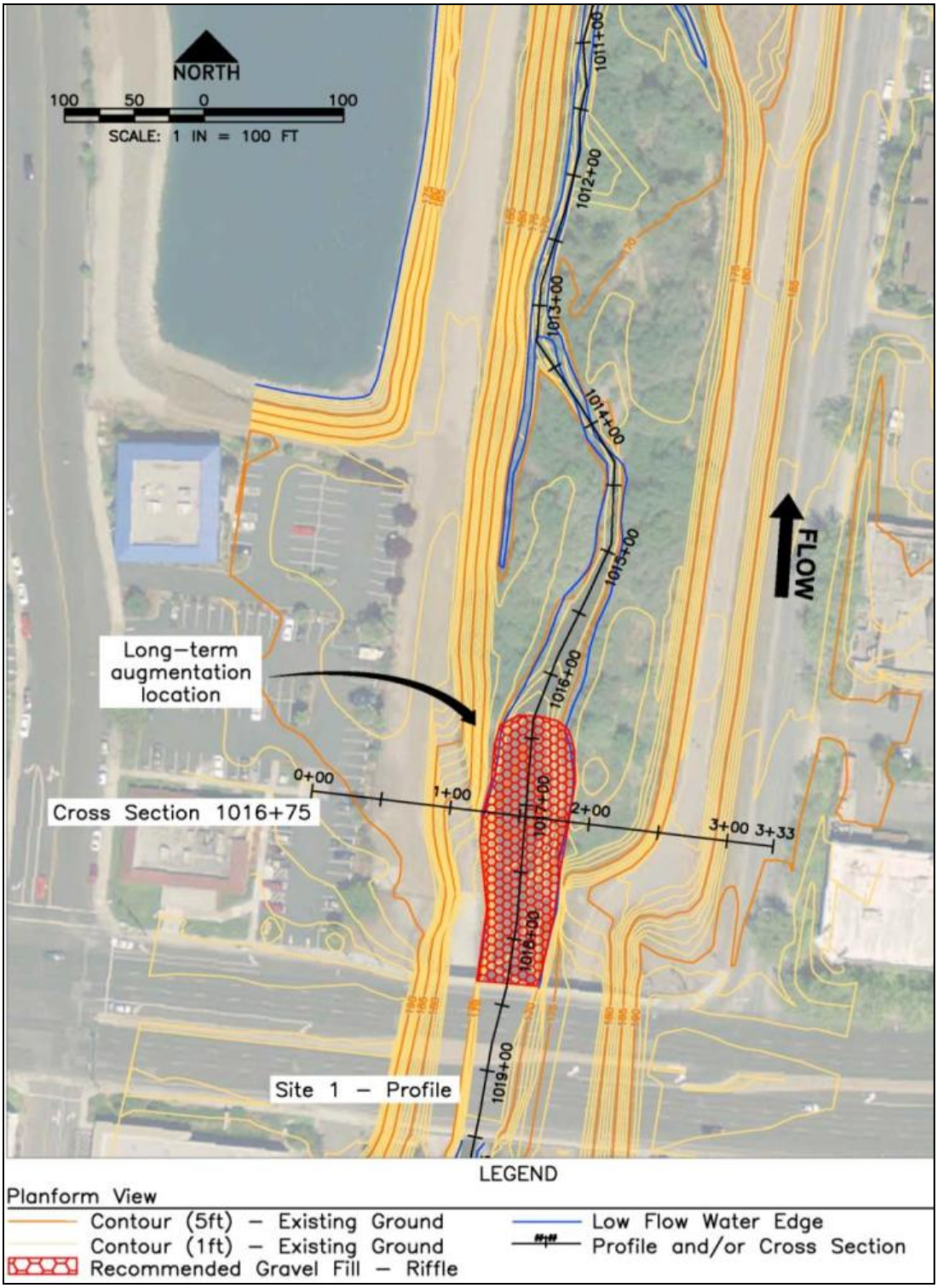

Figure 6. Site 1 Proposed Gravel Augmentation from Stations 1018+50 to 1016+40

Figure 7. Site 1 Proposed Gravel Augmentation from Stations 1009+00 to 1004+30

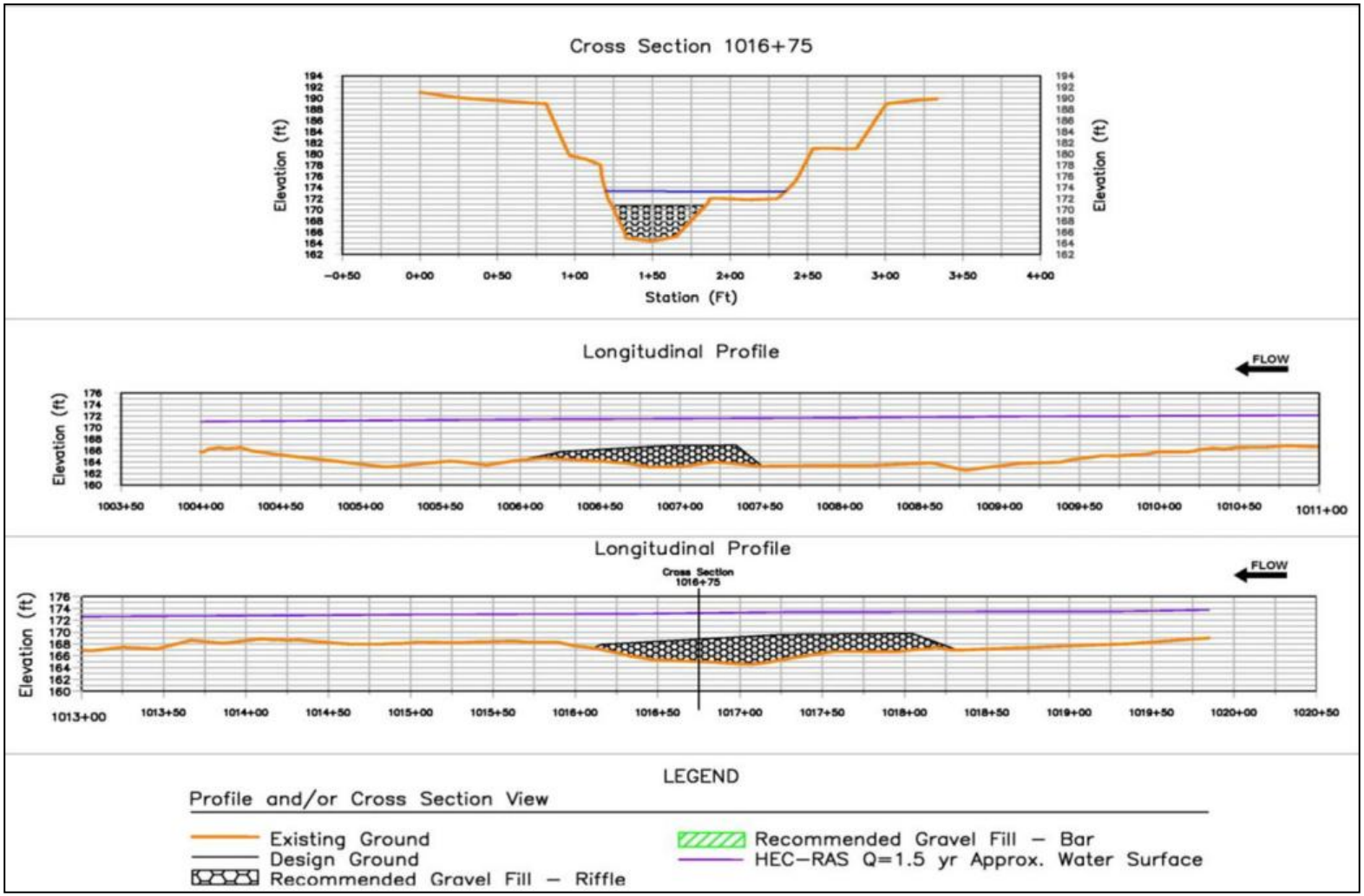

Figure 8. Site 1 Thalweg Profile and Cross Sections from Stations 1018+50 to 1044+30

Figure 9. Site 1 – Gravel Augmentation Site from Stations 1018+00 to 1004+00
(Looking downstream at backwater pool. Proposed conversion to a low gradient riffle)

Site 2: Site 2 has two construction components. Component one is to redistribute the slope by filling in another long flat pool, thereby creating a more natural pool-riffle sequence with alternate bars (Figure 11, Figure 12, and Figure 13). The first pool is located immediately off Highway 85 Bridge and extends from stations 996+40 to 991+70 (Figure 12). Similar to site 1, the elevation drop at the upstream riffle would be redistributed into a new pool-riffle sequence downstream, lowering the gradient of upstream riffle and creating new low gradient riffles and bars. The elevation of the upstream riffle crest (station 996+40) would not be altered and gravel augmentation would begin at the riffle crest and extend downstream (Figure 11).

The second component is to construct the low flow channel from station 985+90 to 983+60 using gravel augmentation (Figure 11 and Figure 13). The channel in this area is in good geomorphic condition, the existing west bank point bar consists of stable gravels and small cobbles and the gradient through this reach is well distributed as natural pools and riffles. Because there is a naturally formed bar here, and gravel from upstream augmentation would likely deposit here.

Table 3 shows the gravel augmentation proposed for site 2, including the feature the gravel augmentation is intended to create, as well as the up- and downstream station locations of each feature, the footprint (area), gravel depth, and volume of gravel fill required to create each feature.

Table 3 Site 2 Proposed Gravel Augmentation and Channel Modification					
Implementation Feature	**Upstream Station**	**Downstream Station**	**Area (square feet)**	**Depth (feet)**	**Volume (cubic yard)**
Riffle augmentation	996+40	995+50	3,080	4	456
West bank bar augmentation	996+40	993+00	5,250	6	1,167
Riffle augmentation	994+00	993+00	2,530	2.5	234
East bank bar augmentation	994+00	991+90	4,340	4	643
Riffle augmentation	985+90	985+50	360	1	12
West bank bar augmentation	985+90	984+60	810	2	60
Riffle augmentation	985+00	974+60	330	1	12
East bank bar augmentation	985+00	983+60	1,240	2	92
Riffle augmentation	983+90	983+60	270	1	10
West bank bar augmentation	983+90	982+90	640	2	47
Riffle augmentation	983+25	982+90	420	2	23
East bank bar augmentation	983+00	982+00	690	2	51
			Total Gravel Volume		***2,807***
Source: USACE 2014.					

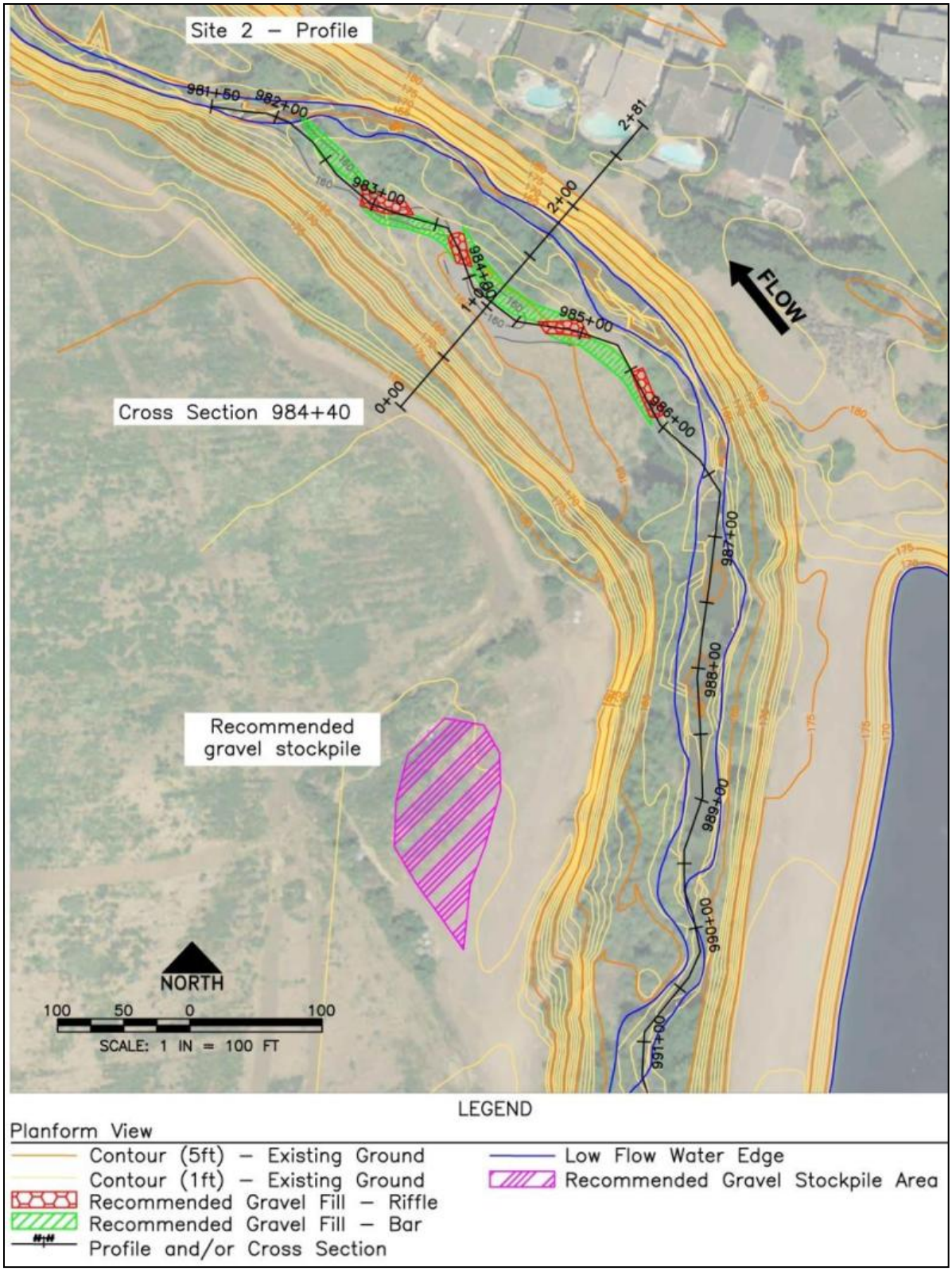

Figure 10. Site 2 Proposed Gravel Augmentations and Stockpile Site from Stations 996+50 to 991+50

Figure 11. Site 2 Proposed Gravel Augmentation and Gravel Stockpile from Station 986+00 to 982+00

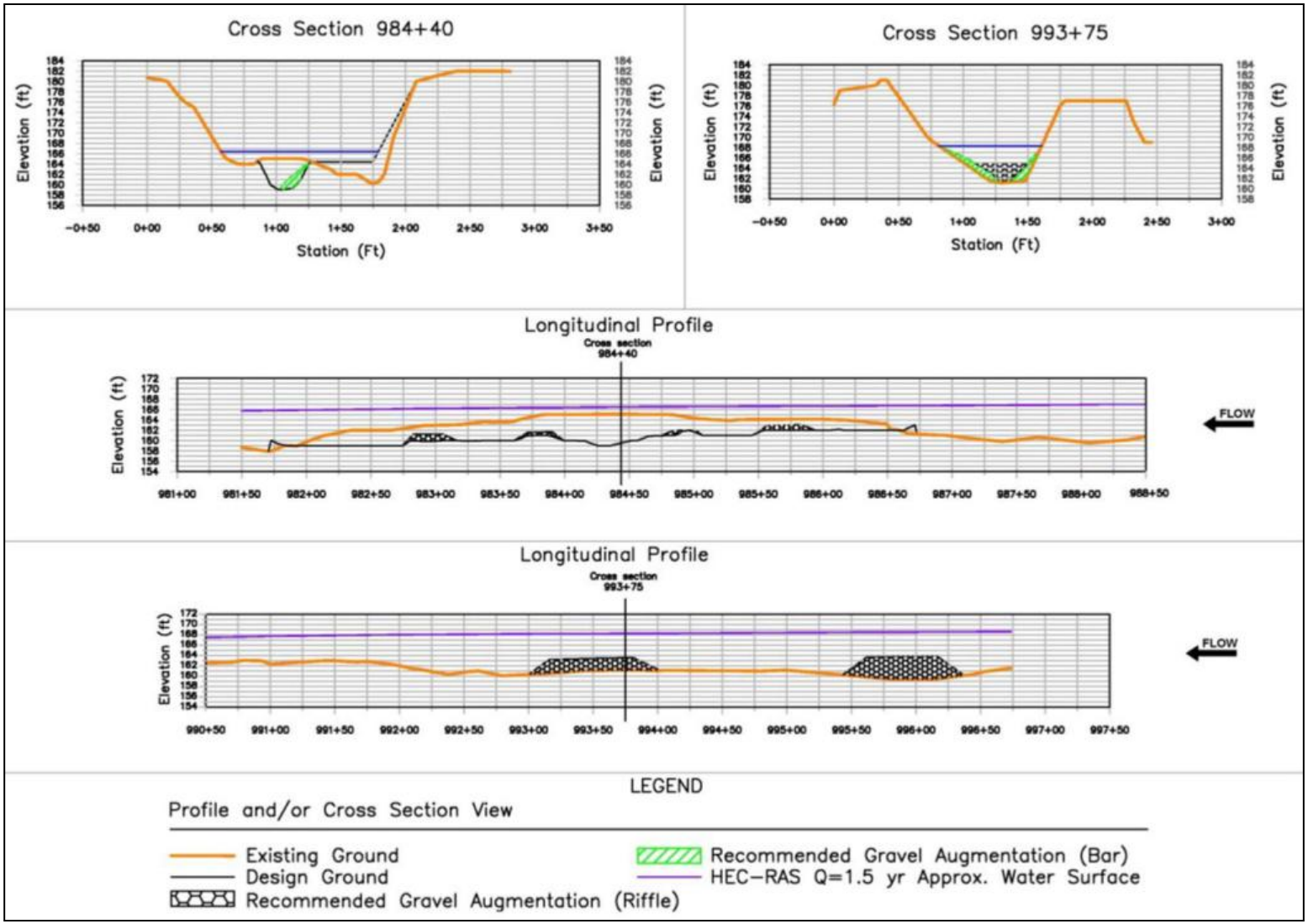

Figure 12. Site 2 Thalweg Profile and Cross Sections from Stations 996+50 to 982+70

Site 3: Gravel augmentation in site 3 involves supplementing the pool tail at station 962+00 with gravel up to the riffle crest on the upstream side of Branham Lane Bridge, adding an average depth of 2.5 feet of gravel (Figure 14). This gravel also prevents erosion and undercutting of the Branham Lane box culvert. Table 4 provides the details of gravel augmentation for site 3.

Table 4 Site3 Proposed Gravel Augmentation and Channel Modification

Implementation Feature	Upstream Station	Downstream Station	Area (square feet)	Depth (feet)	Volume (cubic yard)
Pool tail augmentation	963+00	961+00	1,540	2.5	140
				Total Gravel Volume	***140***

Source: USACE 2014.

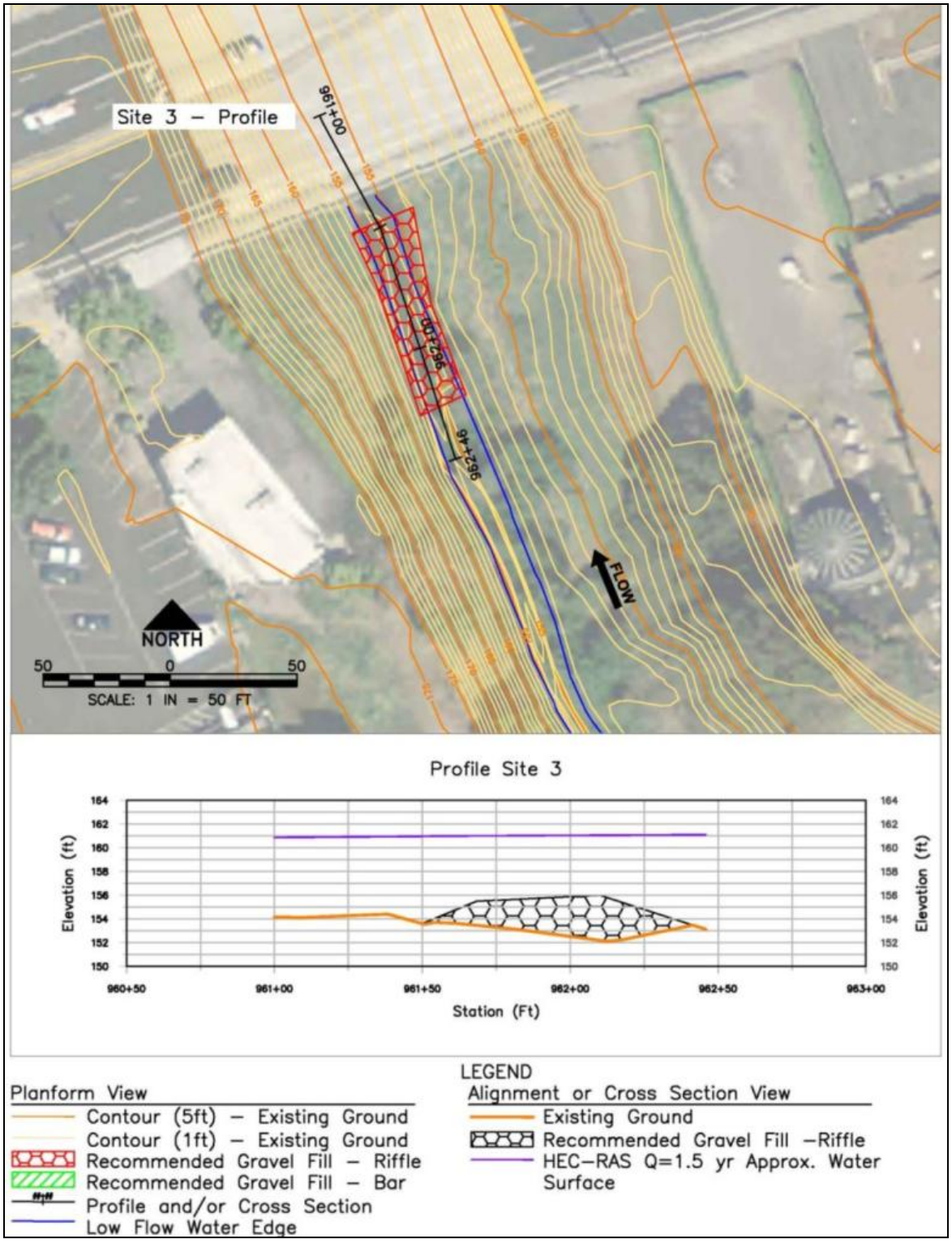

Figure 13. Site 3 Proposed Gravel Augmentation and Thalweg Profile from Stations 963+00 to 961+00

2.4.3 Installation of Instream Structures

Instream woody structures would be installed in the channel to provide increased low-flow channel sinuosity and stability, SRA cover, and enhanced fish habitat. In addition to gravel augmentation, there are four types of instream structures: debris jams, log toe structures, rootwad bank structures, and undercut bank structures.

Installation of the instream structures would require localized excavation. The undercut bank structures would require approximately 77 cubic yards of excavation and the rootwads would require approximately 120 cubic yards (8 cubic yards each). The structures would be anchored with cables to the river bank at the low-flow level. Excavation for and installation of instream structures would only occur when the reach is dewatered.

The locations of instream structures were determined based on the desired function of individual structures. The entire reach was surveyed for adequacy of instream structure placement. Table 5 summarizes where these structures would be placed and the desired hydraulic, geomorphic and ecological benefits of the structures.

Table 5 Instream Structures, Type, Location and Purpose

Instream Structure	Number	Type	Location	Purpose
Debris jam	9	Instream flow redirection technique	Along edges of low-flow channel in the widest sub-reaches	Increase hydraulic complexity by inducing deposition on upstream end of structure and locally inducing scour to establish pools on downstream end Provide suitable material for the establishment of new riffles downstream of the structure Provide refugia near bank Provide instream cover Provide bank stabilization Decrease low-flow width
Stream barb structure	9	Instream flow redirection technique	Toe of steep banks	Redirects flow from the toe of the stream bank to reduce the potential for scour and bank failure upstream of the structure Increases scour downstream to create a deep pool
Rootwad	15	Structural bank	Upstream and	Encourages undercut banks and

Table 5 Instream Structures, Type, Location and Purpose				
Instream Structure	**Number**	**Type**	**Location**	**Purpose**
bank structure		protection techniques and instream flow redirection technique	downstream of gravel augmentation	cover for fish habitat Tied into shoaling effect of upstream logs and gravel bar
Undercut bank structure	7	Habitat structure	Left bank between Stations 976+00 and 977+00	Provides instream cover with discontinuous undercut bank Provides refugia near bank
Source: USACE 2014.				

2.5 Raising Existing Berms

Existing berms would be raised to protect the SCVWD's percolation ponds from sediment and pollution in river water during large flood events. Some portions of the existing berm that separates the river from three adjacent percolation ponds are not high enough to contain the 100-year flood flow within the river and these areas would be overtopped during flood events of this size and somewhat small. These berms would be raised between the river and the existing percolation pond No. 2 on the west side and No. 3 on the east side. The purpose of the raised berm is to meet the USACE criteria for containing the 100-year flood flow within the channel and not allow the water to overtop the raised berms and flow to the ponds. It is intended to protect the percolation ponds from suspended solids and hazardous materials conveyed by the river during large storm events. The existing overbank areas around the percolation ponds already provide the 100-year level of protection to surrounding urban development with adequate freeboard.

Approximately 1,220 linear feet of berms would be raised on the west bank and 1,560 linear feet would be raised along the east bank, for a total of 2,780 linear feet. The top of berm elevation would range between 180 and 190 feet on the west side and 178 and 181 on the east side with an approximately 1 foot of freeboard. Raising the berms would require excavation of approximately 250 cubic yards of sediment and 8,805 cubic yards of fill. Fill material would come from suitable (less than 20 ppm of mercury) onsite material excavated in the project area. The approximate limits of where the berms would be raised (up- and downstream stations and elevations) and excavation and fill requirements and other construction aspects are shown in Table 6.

Table 6 Berm Raising Locations, Lengths, and Elevation Data							
Berm Location	**Upstream - Downstream Stations**	**Linear Feet**	**Excavation (cubic yards)**	**Fill (cubic yards)[1]**	**Top of Berm Elevation (feet) (downstream – upstream)**	**Water Surface (feet) (downstream – upstream)**	**Freeboard (feet) (downstream – upstream)**
West bank	1001+50 – 996+00	1,220	186	2,689	180.00 – 180.80	178.78 – 17960	1.10 – 1.21
East bank	1002+40 – 987+00	1,560	64	6,116	178.70 – 180.70	177.69 – 179.60	1.01 – 1.10
	TOTAL	**2,780**	**250**	**8,805**	**--**		
Source: USACE DDR, 2012							

The raised berms would have an 18-foot-wide crest to accommodate maintenance access roads on top, except in areas where existing site conditions require a narrower crest. In these areas, the minimum crest width would be 12 feet (see Section 2.6 for information on maintenance access roads). The top of the berm would have a cross slope of 2 percent towards each side. Fill slopes would be 2 horizontal to 1 vertical (2H:1V) for the percolation pond side and 2.5H:1V for the river side.

The raised berm crest would provide a 1-foot freeboard plus the required camber (overbuild). Geotechnical studies have recommended overbuild to accommodate the anticipated settlement of the raised berm fill. The required overbuild is 2-3 inches on the east side and 1-5 inches on the west side; both sides would require up to 5 feet of fill. Material to raise berms would come from clean sediment excavated from the banks (sediment with mercury concentrations less than 20 ppm).

The raised berm alignment would generally follow the alignment of the existing trail and maintenance road. The alignment would be defined by work point, bearing, distance, stations and curvature properties in the same manner as the maintenance access road. The alignment would be located such that the minimum road width can be accommodated without encroaching into the existing percolation ponds. In the vicinity of the Highway 85 overcrossings, the alignment would be designed so that there would be no filling adjacent to the existing concrete columns supporting the overcrossings.

Prior to construction of each raised berm, an inspection trench would be excavated along the length of the berm to locate any shallow buried pipes or roots, and also serve to improve the bond

between the existing material and the fill material for the raised berm. The total length for the inspection trenches would be 1,740 feet, and they would be 2.5 feet deep and 8 feet wide. Each trench would start and end where the raised berm is more than 2 feet in height. Approximately 1,300 cubic yards of sediment would be excavated to construct the trenches. After inspection of the trench determines that there are no buried pipes or roots under the proposed berm, the trench would be filled with compacted soil as part of construction of the berm. If buried pipes or roots are found, they would be removed or relocated prior to construction of the berm. This excavated material would either be reused to backfill the trench.

To monitor the elevation of the raised berms, settlement monuments would be installed. The location of the monuments would be at approximately 500-foot intervals or as recommended by a geotechnical engineer.

2.6 Maintenance Road and Ramp Construction

Maintenance access roads are proposed along each side of the river along the top of the banks. Approximately 8,500 linear feet of road will be located on top of the existing berms, once they are raised, and 600 feet of new maintenance road will be constructed, for a total of 9,100 linear feet of road. The maintenance road would provide access for personnel and equipment to the stream channel for inspection and maintenance of this reach. The approximate limits of the roads are shown in Table 7.

Table 7 Maintenance Access Road Limits

Access Road Location	Upstream Station	Downstream Station
West Bank	1008+50	962+50
East Bank 1	1002+50	984+00
East Bank 2	979+50	961+50

The west side maintenance roads would be located on the top of the raised berm along most of its length. At the upstream end, it would connect to an existing gravel-surfaced trail. This trail is located on top of the existing berm that separates the river from percolation pond No. 1 and No. 2. The downstream end would be at the paved parking lot near Branham Lane on the west bank slope.

The east side maintenance roads would not be continuous and the road would be constructed in two portions due to the very narrow width of part of the top of bank which prohibits construction of an access road. The upstream portion (east bank 1) would start at a connection to the existing asphalt trail along the east side of the river adjacent to Blossom River Drive. It would continue downstream to the bend in the river where it would stop approximate 200 feet after the bend. The

downstream portion (east bank 2) would start approximately 700 feet downstream of the bend in the river and continue downstream where it would split in two. At the split, one road would ramp up towards the existing access gate at Branham Land and the other would ramp down towards the river and lead to an underpass beneath Branham Lane Bridge. A portion of the road approximately 600 feet in length and located 300 feet upstream of Branham Lane Bridge is within San Jose Water Company property; the San Jose Water Company has already provided permission for construction of this portion of the project. The SCVWD is in the process of obtaining two additional easements to construction portions of the maintenance roads.

The roads would be 18 feet wide, except where the existing site conditions require a narrower road width. The locations where an 18-foot-wide road cannot be accommodated would be a minimum of 12 feet wide. On the existing berm between the river and the percolation pond, the crest width is narrow and therefore a 12-foot width would be used for the access road and this would also be the crest width for the raised berm. At the downstream portion of the east access road, where it would be within the San Jose Water Company property, the road would only be 12 feet wide as this is what San Jose Water Company will allow in their property.

The horizontal and vertical alignments would generally follow the alignment and grade of the existing trail and maintenance road. The vertical alignment would have a maximum 5 percent grade. The alignment would be located such that the minimum road width as discussed below can be accommodated without encroaching into the existing percolation pounds and also minimize impact on the existing channel.

The road would have cross slope of 2 percent towards each side where the road is located between the river and the percolation pond. Where the road is located along the river's natural top of bank, the 2 percent cross-slope would be sloping down towards the river.

There would be a ramp on the east side to provide continuous access underneath the existing Branham Lane Bridge. Site constraints at this location involves an existing 36-inch diameter storm drain outfall, limited vertical clearance as imposed by the bridge deck soffit elevation, and existing gabion slope protection for the bridge abutment. The vertical clearance for this ramp would be 10.75 feet and the width of the ramp shall be 12 feet.

The access roads would have a minimum 6 inches of aggregate surfacing over compacted fill (raised berm fill) or they would be scarified and compacted sub-grade. Approximately 1,530 cubic yards of aggregate fill would be required for the maintenance roads (1,400 for the west road and 1,130 for the east). Approximately 230 trucks loads would be required to transport gravel to the project site. If necessary, gravel would be stockpiled at an existing staging area on the west bank just south of the bend (station 990+00).

Three access ramps would be constructed to provide inspection and maintenance access to the river's low-flow channel, and for future gravel augmentation, if necessary. The purpose of each access ramp is discussed below.

Access Ramp E4: This ramp is on the east side and it will provide access to the upstream end of the gravel augmentation area at this location. It will serve as access for future placement of material as needed for gravel augmentation. It will also serves as access for SCVWD maintenance staff for removal of any debris on the river and for vegetation maintenance work.

Access Ramp W3: This ramp is on the west side and it is an existing ramp that will be resurfaced. This ramp is located immediately downstream of the existing Caltrans storm drain outfall. The existing outfall is a concrete structure. The ramp currently provides access to the outfall for maintenance operations by Caltrans. It will also serve as access for SCVWD maintenance staff for removal of debris in the river that comes with the flow from the outfall and also to facilitate maintenance of vegetation.

Access Ramp E2: This ramp is on the east side and it will provide access for SCVWD maintenance staff to remove debris and facilitate vegetation maintenance work. It is the only access ramp connecting the east maintenance road from Branham Lane to the thalweg of the river. The east maintenance road is discontinuous and it ends near this ramp. Without this ramp, there will be no access to the thalweg for removal of debris.

In total, approximately 530 linear feet of ramp will be constructed. These ramps would be 12 feet wide with a 4-inch thick gravel surfacing and have a 10–15 percent grade. They would have a 2 percent cross slope in one direction (sloping down towards the river side) and be located strategically to avoid vegetation (both existing and proposed). Approximately 74 cubic yards of aggregate surface would be imported to the site in 7 truck loads. Table 8 and Figure 3 and Figure 4 show the location of the proposed ramps and the volume of aggregate surface material required.

Table 8 Proposed Channel Maintenance Access Ramps

Access Road Location	Upstream Station	Downstream Station	Aggregate Surface (cubic yards)
East Bank (E4)	1010+00	1008+00	29
West Bank (W3)[1]	992+50	990+60	27
East Bank (E2)	976+40	975+00	18

[1] The east bank ramp between 992+50 and 990+60 already exists, but would be reconstructed as part of the proposed project.

2.8 Planting Vegetation

The primary objective of Reach 12 is to maximize the area riparian forest, SRA cover, and upland forest. This habitat is mitigation for the potential impacts of the proposed Reach 12 project and for other reaches of the overall Upper Guadalupe River Flood Risk Management Project. The vast majority of existing woody vegetation would be preserved. In areas where woody vegetation would be removed, it would generally be replaced with native woody vegetation. New woody vegetation would be planted in areas which are not constrained by hydraulic and other limitations. The combination of existing vegetation, newly planted vegetation, and flood bench construction would increase riparian forest habitat areas and complexity. Based on the USFWS habitat evaluation, the habitat value of the reach would increase above current values. In addition, to achieve the habitat goals of this project, some existing stream banks would be graded to create elevations suitable for establishment and long-term viability of riparian plantings. The plant palette for each planting zone was developed using the constraints of the post-project hydraulic capacity limitations and soil moisture conditions (USACE 2014). It is anticipated that plant installation would occur starting in late fall and continuing to early winter in 2015 and 2016. Figure 25 (Section 3.5) shows the locations of proposed vegetation plantings.

The Reach 12 planting design was based on the results of the hydraulic and geomorphic analyses conducted to support the design process (USACE 2014). Several factors were considered when determining the locations and types of plantings, including the river morphology of the reach—both before and after implementation of flood risk management improvements—soil conditions, depth to groundwater, slope, hydraulic capacity, planting zone location relative to floodplain surfaces and bank location, and characteristics of reference sites (in Reach 12) with similar hydrogeomorphic and soil conditions. Based on these factors, as well as the density of the existing riparian forest in Reach 12, it was determined that riparian forest would be restored where feasible on the following landforms:

- Natural bank and terrace surfaces capable of supporting riparian vegetation but currently lacking woody plant cover,
- Graded bench-cuts,
- A portion of the areas where non-native woody vegetation would be removed, and
- Other surfaces created for flood conveyance or mitigation purposes.

Shaded stream aquatic (SRA) cover plantings are a subset of the riparian forest plant palette and would be primarily located in the streamside and lower floodplain planting zones. Shaded stream aquatic cover mitigation plantings are those that are located within 15 feet of a stream bank. This habitat would be planted on both the east and west stream banks where space is available. Plant material installed would be provided from container stock, cuttings, acorns, and seeds (Table 9 and Table 10). All plant material would be obtained from parent material in Reach 12, other reaches of the Upper Guadalupe River, the nearby Guadalupe Creek mitigation site, and other locations within Guadalupe River watershed.

The planting design developed for the proposed action includes six planting zones. A brief description of these zones is provided below. Figure 15 depicts the general structure of the streamside, upper floodplain, and lower floodplain planting zones; instream structure and upland planting zones are not shown. Table 9 and Table 10 present the plant palettes for each of the planting zones.

- *Streamside Planting Zone.* This zone would be planted along selected areas of the stream bank to provide SRA cover. The streamside planting zone would be located on lower floodplain surfaces adjacent to or in the vicinity of the channel margin. Vegetation would be supported by seasonal precipitation, seasonal floodplain inundation, surface water and groundwater. Shaded aquatic riverine cover would contribute to moderating water temperatures, providing instream cover (e.g., exposed roots, low-hanging branches, and scour holes) and increased organic matter input. The plant palette for this zone includes native riparian trees, shrubs, and vines (Table 9).

- *Instream Structure Planting Zone*. This zone consists of the large woody debris structures that would be placed in specific locations to enhance aquatic habitat. The structures would be located on the channel margin and would extend into the channel. Vegetation would primarily be supported by seasonal precipitation, seasonal floodplain inundation and surface water. The plant palette for this zone is primarily composed of native willows (Table 10).

- *Lower Floodplain Seeding and Planting Zone.* This zone would be planted on lower floodplain surface that would be seasonally inundated. The distance of this zone from the channel varies by location. The floodplain elevations would also be variable based on existing or graded conditions; therefore, the extent and depth of inundation would vary based on water surface elevations associated with each rainfall event. Vegetation would be supported by seasonal precipitation, seasonal floodplain inundation, surface water and groundwater. The species selected for this zone would have growth forms and planting densities that are more open and less restrictive to conveyance of high water events but would still provide multistory habitat zones to benefit terrestrial species. Because of post-project hydraulic capacity limitations and soil moisture conditions, the plant palette for this zone is primarily composed plants that are most drought tolerant (Table 9).

- *Upper Floodplain Seeding and Planting Zone.* This zone would be planted on upper floodplain surfaces and low channel bank elevations. This zone would only be inundated during high flow events. The distance of this zone from the channel varies by location. The floodplain elevations would also be variable based on existing or graded conditions; therefore, the extent and depth of inundation would vary based on water surface elevations associated with each rainfall event. Vegetation would be supported by seasonal precipitation, occasional floodplain inundation and groundwater, if available. The species

selected for this zone would have a growth form that is less restrictive to high water events but would still provide multistory habitat zones to benefit terrestrial species. Because of post-project hydraulic capacity limitations and soil moisture conditions, the plant palette for this zone is primarily composed of native trees, shrubs, vines, and herbs that are drought tolerant (Table 9).

- *Upland Planting Zone.* This zone would be planted on upper banks and on the high terrace, beyond the top of channel bank. This zone would not be inundated, with the possible exception of the flood protect design surface elevation. The distance of this zone from the channel varies by location. Vegetation would be supported by seasonal precipitation and groundwater, if available. The plant palette for this zone is primarily composed of native trees, shrubs, and herbs found in relatively xeric riparian areas, such as valley oak (Table 9). Because these areas are not intended to convey water efficiently, planting density would only be limited by natural water availability.

- *Hydroseed Zone.* This zone is limited to hydroseeding newly constructed berm slopes and other disturbed sites for erosion control. Because of post-project hydraulic capacity limitations, this zone can only be seed. No woody plants or vines would be planted in this zone.

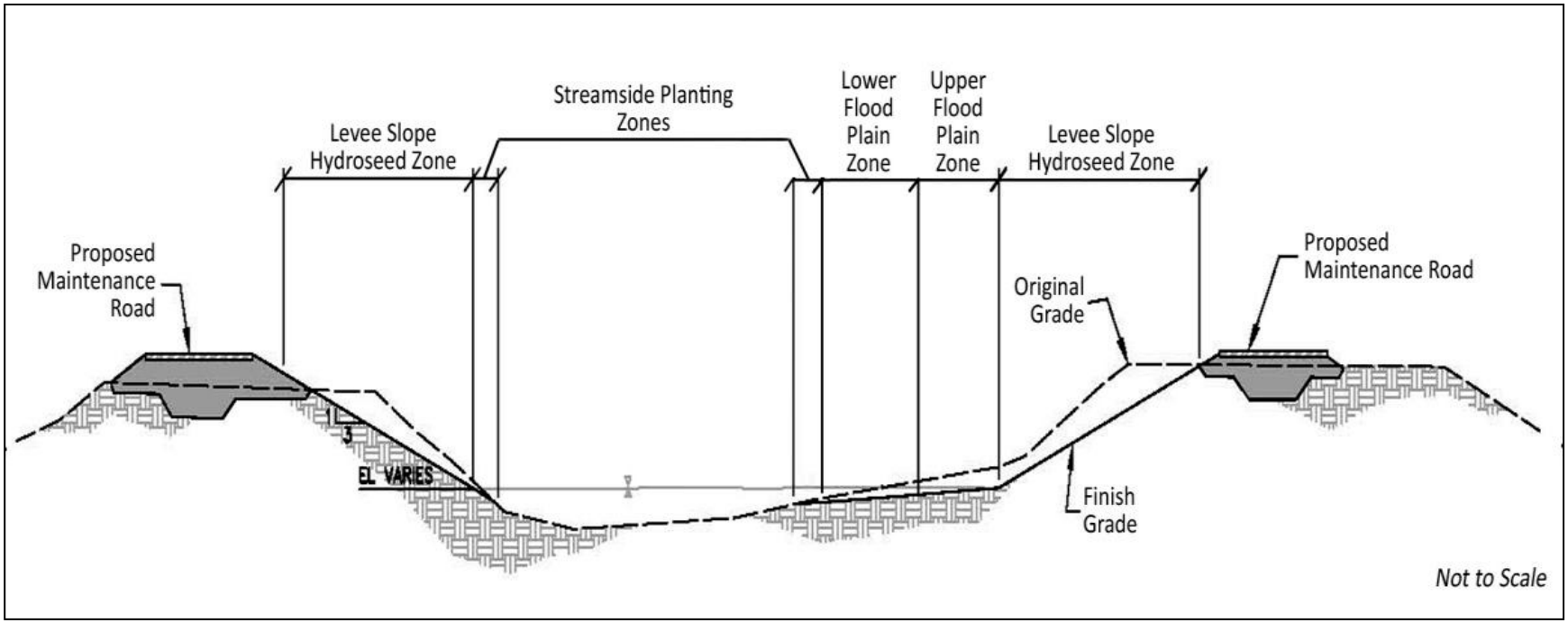

Figure 14. Typical Planting Zones

Table 9	Reach 12 Planting Zone Palette		
Growth Form	**Species**		**Propagule Type**
	Scientific Name	**Common Name**	
Streamside Planting Palette			
Tree	*Alnus rhombifolia*	White alder	Container
	Populus fremontii	Fremont cottonwood	Cutting
	Quercus lobata	Valley oak	Acorn
	Salix laevigata	Red willow	Cutting
	Salix lasiolepis	Arroyo willow	Cutting
Shrub	*Baccharis salicifolia*	Mule fat	Container
	Rosa californica	California wild rose	Container
	Rubus ursinus	California blackberry	Container
	Salix exigua	Narrow-leaved willow	Cutting
Vine	*Clematis ligusticifolia*	Virgin's bower	Container
Lower Floodplain Seeding and Planting Zone Palette			
Tree	*Populus fremontii*	Fremont cottonwood	Cutting
	Quercus lobata	Valley oak	Acorn
	Salix laevigata	Red willow	Cutting
	Salix lasiolepis	Arroyo willow	Cutting
Shrub	*Salix exigua*	Narrow-leaved willow	Cutting
Herbaceous	*Artemisia douglasiana*	Mugwort	Container
	Heterotheca oregona var. scaberrima	Oregon false goldenaster	Container
	Leymus triticoides	Creeping wildrye	Container
	Marah fabaceus	California man-root	Container
Upper Floodplain Seeding and Planting Zone Palette			
Tree	*Aesculus californica*	California buckeye	Large seed
	Quercus agrifolia	Coast live oak	Acorn
	Quercus lobata	Valley oak	Acorn
Herbaceous	*Artemisia douglasiana*	Mugwort	Container
	Heterotheca oregona var. scaberrima	Oregon false goldenaster	Container

Table 9 Reach 12 Planting Zone Palette			
Growth Form	**Species**		**Propagule Type**
	Scientific Name	**Common Name**	
	Leymus triticoides	Creeping wildrye	Container
	Marah fabaceus	California man-root	Container
Upland Planting Zone Palette			
Tree	*Aesculus californica*	California buckeye	Large seed
	Quercus agrifolia	Coast live oak	Acorn
	Quercus lobata	Valley oak	Acorn
Shrub	*Artemisia california*	California sagebrush	Container
Herbaceous	*Bromus carinatus*	California brome	Container
	Stipa pulchra	Purple needlegrass	Container
Source: USACE 2014.			

Table 10 Reach 12 In-Stream Planting Palette				
Structure Type	**Growth Form**	**Species**		**Propagule Type**
		Scientific Name	**Common Name**	
Debris jam	Tree	*Salix lasiolepis*	Arroyo willow	Cutting
	Shrub	*Baccharis salicifolia*	Mule fat	Container
		Salix exigua	Narrow-leaved willow	Cutting
Rootwad bank	Tree	*Salix laevigata*	Red willow	Cutting
	Shrub	*Baccharis salicifolia*	Mule fat	Container
		Salix exigua	Narrow-leaved willow	Cutting
Stream barb	Tree	*Salix lasiolepis*	Arroyo willow	Cutting
	Shrub	*Salix exigua*	Narrow-leaved willow	Cutting
Undercut bank	Tree	*Salix laevigata*	Red willow	Cutting
	Shrub	*Baccharis salicifolia*	Mule fat	Container
		Salix exigua	Narrow-leaved willow	Cutting
Source: USACE 2014.				

2.9 Installation of Fencing

Approximately 3,000 linear feet of permanent chain link fence would be installed in portions of the reach. An additional but unknown amount of temporary fencing would be installed around the construction trailer and storage areas. This may amount to 500-1,000 feet of additional fencing.

Temporary Fence: Temporary protective fencing would be installed between construction activities and riparian vegetation proposed for preservation where needed to protect the vegetation.

Permanent Chain Link Fence: Permanent chain link fence would be installed along the SCVWD property line on or near the top of the west bank. The fence would begin at approximately station 966+25 and run south along the top of bank to station 995+50. At approximately 987+75, the fence would turn southeast for approximately 300 feet before turning south again. The fence would be approximately 6 feet high with posts installed every 10 feet or less.

2.10 Plant and Reach Maintenance

Plant and reach maintenance would occur for a period of 4 years following planting. Maintenance would include:

- Weed control,
- Corrective pruning,
- Hand watering,
- Replacement planting,
- Maintaining mulch and plant protection cages,
- Maintaining all project signs,
- Maintaining erosion control blankets, and
- Policing the project area.

Plant watering would generally occur between March and October of each year, but may be modified based on seasonal conditions. All mitigation plants would be hand-watered using a low-pressure standard garden hose connected to a watering truck. The watering truck would use the constructed maintenance roads to access the plantings.

Performance standards and success criteria of all plantings would conform to the 1999 Mitigation Monitoring Plan (MMP; SCVWD and USACE 1999), RWQCB Order R2-2003-0115, and the 2005 Supplemental Biological Opinion unless approved changes are agreed upon. In general, these documents provide that riparian forest mitigation acres would need to be at a 2:1 ratio to riparian forest losses, and emergent aquatic wetland habitat would need to be mitigated at a 1:1 ratio to losses. For purposes of this supplemental EA, the riparian forest mitigation used is from the 2007

congressionally-authorized Upper Guadalupe River Flood Control Project Local Preferred Plan (LLP). The LPP authorized by Congress provides for riparian forest mitigation at a ratio of 1 : 1.85.

Since development of the 1999 MMP flood control improvements and habitat mitigation have been implemented on other reaches of the Upper Guadalupe River. Each of these projects has been monitored following implementation. Monitoring required includes measuring the survival and health and vigor, natural recruitment, cover, non-native species, and wildlife use of riparian forest and SRA cover. Additionally, undercut bank is monitored to determine the amount of undercut (at least 10 centimeters) and fish passage improvements are inspected to determine if they are impeding fish passage.

The Adaptive Management Team (ATM) for the Guadalupe River composed of representatives of the USACE, SCVWD, federal and state agencies and others may be reevaluating and revising the Upper Guadalupe MMP in spring 2014. The AMT's decisions would apply to Reach 12 as well. As a result, specification information on the monitoring program is not available at this time. Following completion of the Reach 12 project, the USACE and SCVWD would develop an operations and maintenance manual that would identify the maintenance requirements for the reach. This manual would identify specific requirements developed by the AMT.

2.11 Summary of Construction Activities

This section provides a summary of the major construction activities, construction equipment, and timing necessary to construct the proposed project. Table 11 provides a summary of the details.

Table 11	**Summary of Reach 12 Construction Activities** [a]									
Construc-tion Activity	**Footprint** (acre, linear feet, etc.)	**Excava-tion and Clearing** (cubic yards)	**Total Fill** (cubic yards)	**Reuse of Excavated Material for Fill**	**Gravel or Aggregate Fill** (cubic yards)	**Truck Loads Required to Import Material**	**Truck Loads Required to Dispose of Material**	**Construction Equipment**	**Construc-tion Duration** (months)	**Construc-tion Years**
Clearing and grubbing	5 acres	12,300[b] (grub material) 4,100 (soil)	--	--	--	--	1,640	Loader, excavator, dozer, chippers	2	2014-2015
Dewatering segments of the river	1.5 acres cumulative for reach	--	--	--		--	--	Pump, pipes/hoses, sandbags, plastic sheeting	2-4 weeks dewatered per location. 2 days to dewater, 1 day to re-water per location.	2015
Gravel augmentation	1 acre	--	--	--	6,080	608	--	Dozer, grader, water truck	3	2015
Flood bench	1.2 acres	7,900	52	Yes	--	5	632 [d]	Excavator, dozer, crane, grader, roller, soil stabilizer, water truck	7	2015
Flood bench backfill within 20 feet of low flow channel	0.45 acre	1,500	1,500[c]	No	--	150				
Installation of instream structures	15 rootwads 9 debris jams 9 stream barbs 7 undercut banks	198	198[c]	Yes	--	20		Excavator, crane	4	2015
Raising berms	2,780 linear feet	250	8,805	Yes	--	--		Excavator, dozer, grader,	1.5	2015

Table 11	**Summary of Reach 12 Construction Activities** [a]									
Construc-tion Activity	**Footprint (acre, linear feet, etc.)**	**Excava-tion and Clearing (cubic yards)**	**Total Fill (cubic yards)**	**Reuse of Excavated Material for Fill**	**Gravel or Aggregate Fill (cubic yards)**	**Truck Loads Required to Import Material**	**Truck Loads Required to Dispose of Material**	**Construction Equipment**	**Construc-tion Duration (months)**	**Construc-tion Years**
Inspection trenches (trenches will be backfilled)	1,740 linear feet	1,288	1,288	Yes	--	--		roller, soil stabilizer, water truck		
Maintenance roads	9,100 linear feet (8,500 on existing berms; 600 new)	280	--	Yes	2,530	253				
Ramps	530 linear feet	15	516	Yes	74	7				
Riparian forest removal	1.16 acres	--	--	--	--	--	--	--	--	--
Riparian habitat re-vegetation	1.97 acres	--	--	--	--	--	--	Loader	2.5	2015
SRA cover removal	387 linear feet	--	--	--	--	--	--	--	--	--
SRA cover replacement	658 linear feet	--	--	--	--	--	--	--	--	--
Fencing	3,000 Linear feet	--	--	--	--	--	--	Loader	1	2014
TOTAL		29,283	12,361	10,661	8,684	1,043	2,272	--	21	2014 – 2015
						Total truck loads = 3,315				

Notes:

[a] Plant and site maintenance is not included in this table. Maintenance would continue for approximately 8 months each year for 4 years.

Table 11	Summary of Reach 12 Construction Activities [a]									
Construc-tion Activity	**Footprint (acre, linear feet, etc.)**	**Excava-tion and Clearing (cubic yards)**	**Total Fill (cubic yards)**	**Reuse of Excavated Material for Fill**	**Gravel or Aggregate Fill (cubic yards)**	**Truck Loads Required to Import Material**	**Truck Loads Required to Dispose of Material**	**Construction Equipment**	**Construc-tion Duration (months)**	**Construc-tion Years**

[b] It is anticipated that approximately 12,300 cubic yards of debris will be removed from clearing and grubbing the project site.

[c] Clean sediment would be imported to backfill over excavated areas within 20 feet of the low flow channel.

[d] Sediment sampling and analysis shows that all excavated sediment has mercury concentrations less than 20 ppm and could be used somewhere within the project area. Approximately 16,983 cubic yards of sediment is proposed for excavation and the fill requirement is 10,661 cubic yards; therefore, 6,322 cubic yards are in excess and would be disposed at an approved facility.

e Includes cleared and grubbed vegetation and other debris.

3.0 Existing Conditions and Consequences of the Proposed Action

This section discusses the existing conditions of the Reach 12 project area and effects of the proposed action. The 1999 EIR/EIS detail impacts of the overall Upper Guadalupe River Flood Control Project alternatives, including the no-action alternative. Impacts resulting from the no-action alternative have not changed since the publication of the 1999 EIR/EIS. While some of the environmental conditions have changed since then (e.g., riparian vegetation has grown), the EIR/EIS analyzed these changes. The impacts resulting from implementation of the alternatives to the proposed action, including the no action alternative, are provided in the original 1999 EIR/EIS and this document only discloses the impacts of the proposed design changes that are not disclosed in the 1999 document. Resources that were adequately addressed in the EIS/EIR include: geology, soils, and seismicity (soil quality is addressed in this EA, however); mineral resources; energy consumption or generation, environmental justice, growth inducing impacts, and hazardous and toxic materials. The reader is referred to the 1999 EIS/EIR for details about potential impacts to these resources.

Table 12 provides an overview of the environmental resources analyzed in this supplemental EA, the potential impacts of the propose project on the respective resource, and avoidance, minimization and mitigation measures to ensure impacts are reduced to less than significant.

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
Flood Risk Management	**Impact H&H–1:** *Result in significant flooding downstream of the project area.*	***Less than significant***	None
Flows, Currents, and Circulation	**Impact H&H–2:** *Result in significant adverse effects on flows, currents, and circulation.* It	***Less than significant*** *during construction* ***Beneficial*** *following construction*	None
Ground Water (Aquifer recharge)	**Impact H&H–3:** *Result in substantial depletion of groundwater or interfere with groundwater recharge.*	***Less than significant*** *during construction.*	None
Soil Quality	**Impact SQ–1:** *Degrade sediment quality during construction or after construction.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure SQ–1:** *Comply with the San Francisco Bay RWQCB's requirements for reuse of mercury-laden sediment* (see Table 14). **Avoidance and Minimization Measure SQ–2:** *Utilize erosion control measures to ensure that mercury-laden sediment does not erode into the adjacent river.* **Avoidance and Minimization Measure SQ–3:** *Utilize construction techniques (i.e., berms during excavation) to ensure that mercury-laden sediment*
	Impact SQ–2: *Expose water or biological receptors to concentrations of mercury that would violate standards*	***Less than significant*** *with Avoidance and Minimization Measures*	

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
			does not erode into the adjacent river. Excavate protective berms only after dewatering. **Avoidance and Minimization Measure SQ–4:** *All stockpiling of sediment shall be conducted in such a manner that prevents sediment from eroding into adjacent areas or streams.* **Avoidance and Minimization Measure SQ–5:** *Dispose mercury-laden sediment at approved upland facilities.*
Water Quality	**Impact WQ-1:** *Violate any water quality standard or waste discharge standard set by the RWQCB or substantially degrade water quality.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure WQ-1:** *Comply with erosion control measures identified in the Construction General National Pollution Discharge Elimination System (NPDES) permit.* **Avoidance and Minimization Measure WQ-3:** *Comply with the mercury and diazinon TMDLs for Guadalupe River and ensure that concentrations of*
	Impact WQ-2: *Increase the concentration of any CWA 303(d) substance identified for Guadalupe River (mercury, diazinon, or trash) or violate the river's TMDLs (mercury and diazinon).*	***Less than significant*** *with Avoidance and Minimization Measures*	

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Impact WQ-3: *Substantially contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems.*	***Less than significant*** *with Avoidance and Minimization Measures*	*CWA 303(d) constituents listed for Guadalupe River (mercury, diazinon, and trash) are not increased.* **Avoidance and Minimization Measure WQ-1:** *Comply with erosion control measures identified in the Construction General National Pollution Discharge Elimination System (NPDES) permit.*
Biological Environment	**Impact BIO-1:** *Result in a substantial loss of riparian forest or SRA cover that would not reestablish within 10 years following construction.*	***Less than significant*** *with Avoidance, Minimization, and Mitigation Measures*	**Avoidance and Minimization Measure BIO-1:** *Vegetation not proposed for removal will be protected during construction.* **Mitigation Measure BIO-2:** *Replant vegetation according to the planting designs for the project.* **Avoidance and Minimization Measure BIO-3:** *Update and revise the 1999 MMP.*

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Impact BIO-2: *Result in permanent loss of wetlands or other waters of the United States.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-3:** *Update and revise the 1999 MMP*
	Impact BIO-3: *Result in fish and wildlife avoiding the project area following establishment of riparian forest and SRA cover.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-3:** *Update and revise the 1999 MMP 3*
	Impact BIO-4: *Result in take of listed species that could not be mitigated.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-4:** *Monitor and relocate native fish during dewatering activities.*
	Impact BIO-5: *Result in take of protected birds or their nests.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure BIO-5:** *Conduct bird surveys prior to construction.*
Air Quality	**Impact AQ-1:** *Estimated emissions exceed General Conformity de minimis thresholds.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure AQ-1:** *Utilize Tier-4 off-road equipment.*
	Impact AQ-2: *Estimated emissions exceed applicable BAAQMD construction emissions thresholds.*	***Less than significant*** *with Avoidance and Minimization Measures*	
Historic and Cultural Resources	**Impact HIST-1:** *Adversely affect a resource that is listed or has the potential to be listed on the National Register.*	***None***	None

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
Noise	**Impact NOISE-1:** *Expose sensitive receptors to nuisance noise (i.e., nuisance noise within 500 feet of residential uses or 200 feet of commercial or office uses).*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure NOISE-1:** *Limit construction hours* **Avoidance and Minimization Measure NOISE-2:** *Implement best management practices*
Recreation	**Impact REC-1:** *Temporary closure of a portion of the Guadalupe River Recreational Trail*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure REC-1:** *Implement detour around the closed section of trail*
	Impact REC-2: *Degrade the condition of the existing paved recreation trail*	***Less than significant*** *with Avoidance and Minimization Measures*	**Mitigation Measure REC-2:** *Repair and/or re-pave trail to existing condition after construction*
Transportation and Traffic	**Impact TT-1:** *Substantially interfere with surrounding traffic which would result in major delays.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure TT-1:** *Prepare and implement a traffic control plan.* **Avoidance and Minimization Measure TT-3:** *Minimize interference with existing traffic.*
	Impact TT-2: *Damage roads or highways.*	***Less than significant*** *with Mitigation Measures*	**Mitigation Measure TT-4:** *Repair and rehabilitate roads damaged by construction vehicles*

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Impact TT-3: *Result in injury or harm to other drivers, pedestrians, bikers, or others using any form of transportation in the project area.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure TT-1:** *Prepare and implement a traffic control plan.* **Avoidance and Minimization Measure TT-2:** *Utilize traffic control safety measures.*
Land Use Classification	***Impact LU-1:*** *Conflict with the adopted General Plan designations, land uses, or physical arrangement of the community.*	***Less than significant***	None
Aesthetics	**Impact VR-1:** *Losses of vegetative cover in limited portions of the river channel and the west bank due to construction activity and selective removal of non-native trees and shrubs.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure VIS-1:** *Retain native vegetation to the maximum extent practicable.* **Mitigation Measure BIO-2:** *Replant vegetation according to the planting designs for the project.*
	Impact VR-2: *Temporary views of construction activities and materials.*	***Less than significant***	None
	Impact VR-3: *New berms along the percolation ponds.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure VIS-1:** *Retain native vegetation to the maximum extent practicable.* **Mitigation Measure VIS-3:** *Hydroseed areas where vegetation will be removed.*

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Impact VR-4: *Loss of trees behind houses on the east bank, downstream portion of the reach.*	***Less than significant***	**Avoidance and Minimization Measure VIS-2:** *Retain non-invasive non-native native trees in this area to the extent practicable.*
Public Utilities, Facilities, and Services.	**Impact PUS-1:** *Potential interference with Police and Fire protection services.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Minimization Measure PUS-1:** *Notify Police and Fire protection services regarding construction and implement site security patrol.*
	Impact PUS-2: *Potential interference with utility service.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Mitigation Measure PUS-2:** *Identify and coordinate relocation or protection of utilities.* **Avoidance and Minimization Measure PUS-3:** *Avoid placement of trees in locations that could interfere with utilities.*
Public Health and Safety	**Impact PHS-1:** *Potential public safety impacts due to unauthorized entry to the construction area or the reach after construction is complete.*	***Less than significant*** *with Avoidance and Minimization Measures*	**Avoidance and Mitigation Measure PHS-1:** *Provide warning signs, install fencing and barricades, and implement site security patrol at construction site.* **Avoidance and Mitigation Measure PHS-2:** *Install permanent access control measures post-construction.*
	Impact PHS-2: *Construction Hazards to*	***Less than significant*** *with Avoidance and*	**Avoidance and Mitigation Measure PHS-3:** *Identify truck routes and construction zones prior*

Table 12 Potential Effects and Proposed Avoidance, Minimization, and Mitigation Measures			
Environmental Resource	**Summary of Potential Impact(s)**	**Impact Analysis**	**Mitigation**
	Vehicles and Pedestrians.	*Minimization Measures*	*to project commencement.* **Avoidance and Mitigation Measure PHS-4:** *Notify residents of construction schedule and proposed traffic detours.*
	Impact PHS-3: *Displacement of Homeless Persons Occupying the Reach.*	***Less than significant***	None

3.1 Hydrology and Hydraulics

The Guadalupe River watershed drains approximately 171 square miles. The headwaters drain the eastern Santa Cruz Mountains near the summit of Loma Prieta in heavily forested unincorporated county land with pockets of low-density residential developments. The Guadalupe River begins at the confluence of Alamitos and Guadalupe creeks. From here it flows north approximately 14 miles until it discharges to the South San Francisco Bay. The approximate 19-mile-long river flows through the cities of San Jose and Santa Clara. Its three main tributaries Ross, Canoas, and Los Gatos Creek all join the mainstem of the Guadalupe River.

Flow and sediment supply to the Upper Guadalupe River are affected by the operation of several reservoirs in the upper watershed, including Almaden Reservoir on Alamitos Creek, Calero Reservoir Arroyo on Calero Creek, and Guadalupe Reservoir on Guadalupe Creek. Constructed in the 1930s and 1950s, these dams and reservoirs have a combined storage capacity of 15,360 acre-feet and regulate runoff from 24.8 square miles of the upper watershed, or 47 percent of the drainage area to Reach 12. In 1997, new reservoir operating strategies were implemented to reduce flood damage while minimizing impact to water supply. These three reservoirs are kept below their maximum capacity due to seismic stability concerns and this limits their flood-control capacity.

In addition, Lake Almaden, a former gravel pit through which Alamitos Creek flows, removes all coarse sediment from that creek, further diminishing the downstream supply of this sediment. During the dry season, flashboards on top of the Alamitos Drop Structure back water up through this lake and provide a small amount of storage and increased groundwater recharge. During the wet season, the flashboards are removed and the drop structure no longer backs water up to the lake.

The presence of these dams in the watershed affects channel-forming flow magnitude and channel function by: (1) reducing flood peaks, especially for smaller, more frequent floods and thus reducing the magnitude of the channel-forming discharge, and (2) eliminating coarse sediment supply from the upper watershed to the project reaches. In addition to the dams and reservoirs, the Alamitos Drop Structure may also reduce sediment supply to the river. This structure, located 1,300 feet upstream of Reach 12, serves primarily as a point of flow diversion to nearby percolation ponds. The drop structure and the backwater it creates upstream (including Lake Almaden) have minimal storage capacity and are too small to affect flood magnitude, but they likely trap nearly all coarse sediment and a portion of fine sediment in transport from upstream reaches, and likely prevents coarse sediment routing to the downstream reaches. Sediment from upstream of the drop structure is removed annually and is not returned to the river due to its mercury content.

Urbanization also affects both flow and sediment supply to the river. Urbanization increases the area of impervious surface area in the watershed and, thus, decreases infiltration and increases runoff volume and magnitude (Dunne and Leopold 1978). As the impervious area in the watershed

increases to 10–20 percent, runoff volume doubles, at 35–50 percent impervious area runoff increases threefold, and at 75–100 percent impervious area runoff increases fivefold (Paul and Meyer 2001). In the Guadalupe River watershed, the magnitude of urban development and relative area of the watershed covered by impermeable surfaces increases in a downstream direction. In the upper elevations (i.e., upstream of reservoirs), the watershed is free of urban development with virtually no impervious surface. Moving downstream into Santa Clara Valley, impervious surface area increases to 5–24 percent in the middle watershed (i.e., from the dams downstream to the Alamitos Creek/Guadalupe Creek confluence) and to 48-60 percent from the Alamitos Creek/Guadalupe Creek confluence to the downstream end of the river. Urbanization also reduces sediment supply in the long-term (after the land-clearing and construction phases are complete). In response to increased flow and reduced sediment supply, urban low flow channels typically incise and widen. In such incised or widening channels, bankfull depth often does not correspond to the tops of banks or other indicators that are likely artifacts of past hydrologic and sediment supply conditions.

3.1.1 Flood Risk Management

The overall purpose of the Upper Guadalupe River Flood Control Project is to reduce the risk of the river from the 1 percent storm. The Reach 12 channel has enough capacity to contain these floods within its channel and the percolation pond area adjacent to the creek; therefore, construction of the proposed action is not for flood risk management. This reach is intended to be a mitigation reach to compensate for the impacts to riparian forest and SRA cover from the overall Upper Guadalupe River project. Changes to Reach 12 following construction of the proposed action would not change this reach's capacity to convey floods. However, flood benches, channel modifications, and placement of in-stream structures would provide better habitat for fish.

Significance Criteria: The project would have a significant effect on the environment if it would result in significant increase in flood risk downstream or in the adjacent areas.

3.1.1.1 Potential Impacts and Mitigation

Reach 12 has adequate capacity to convey flood flows and this portion of the overall Upper Guadalupe River Flood Control Project is not intended to increase flow conveyance capacity or enhance flood protection to adjacent urban areas. As such, potential downstream flooding is not expected to result from construction of the proposed project.

Impact H&H–1: *Result in significant flooding downstream of the project area.* Based on the above assessment, potential for downstream or adjacent flooding resulting from the proposed Reach 12 project is expected to be ***less than significant***. No mitigation is required.

3.1.2 Flow, Currents, and Circulation

Flows, currents, and drainage in Reach 12 vary. Water in the upstream portion of the reach, upstream of the bend, flows very slowly and tends to create large, slow flowing pools that can become stagnant. Downstream of the bend, water flows more quickly through riffles and smaller pools. The current design of the proposed project is intended to change the geomorphology of the river such that water throughout the river flows more similarly to the downstream portion of the reach. The project proposes to augment gravel in some areas creating additional riffles and fill in large, stagnant pools and install instream structures to stabilize the river bed and allow water to flow, rather than collect in pools.

Significance Criteria: The project would have significant effects on river flows, currents, or circulation that would adversely affect overall flows, currents, or circulation of the Upper Guadalupe River.

3.1.2.1 Potential Impacts and Mitigation

Dewatering Reach 12 would have a temporary and local effect to the reach as water is removed from the channel. The water would be returned to the river downstream, thereby offsetting impacts to the Upper Guadalupe River. Following construction, water in Reach 12 would flow in riffles through smaller pools, which would improve in-water fish and wildlife habitat in the reach. Over time, some coarse sediment would move downstream into lower reaches, creating some of the same benefits in those reaches.

Impact H&H–2: *Result in significant adverse effects on flows, currents, and circulation.* It is expected that impacts to flows, currents, and circulation during construction would be ***less than significant.*** Following construction, the river morphology would be somewhat more natural. This would result in a ***beneficial*** effect on the Upper Guadalupe River. No mitigation is required.

3.1.3 Ground Water (Aquifer Recharge)

The Upper Guadalupe River project is located in the approximate 240 square mile Santa Clara subbasin, which is part of the Santa Clara Valley groundwater basin. The subbasin is bounded by the Diablo Range to the east and Santa Cruz Mountains to the east (DWR 2004). The subbasin is approximately is divided into two areas, the forebay area where groundwater occurs in a single unconfined aquifer, and a confined area consisting of two aquifer zones—an upper and lower zone—separated by a regional aquitard. The forebay area is generally located at the base of the mountain range to the east, south, and west of the Santa Clara Valley. The confined aquifer is located in the central and northern portion of the valley. Reach 12 is located in the forebay region (USACE and SCVWD 1999a).

Beneficial uses of the Santa Clara Valley groundwater basin include municipal and domestic water supply, industrial service, and agricultural water supply. The forebay is the primary recharge area

for the entire groundwater basin. Natural recharge occurs as infiltration from streams flowing from the mountain ranges to the basin and from direct percolation of precipitation that falls on the basin floor (DWR 2004). The SCVWD also artificially recharges groundwater through its recharge program. Upstream or imported water is released to in-stream and off-stream facilities to recharge groundwater resources (USACE and SCVWD, 1999a). The percolation ponds No. 1, No. 2, and No. 3 adjacent to Reach 12 are part of the SCVWD's groundwater recharge program.

Significance Criteria: The Reach 12 project could a have a significant effect on groundwater resources if it resulted in substantial depletion of groundwater resources or interfered with groundwater recharge.

3.1.3.1 Potential Impacts and Mitigation

As mentioned, Reach 12 is located in the forebay region where natural groundwater recharge occurs. During year 2 (and possibly year 3 of construction), Reach 12 would be dewatered between June 1 and October 15 (4.5 months) to place instream structures and hydraulically connect the excavated flood benches with the river channel. Water would be re-routed around the approximate mile long reach and released downstream of the reach in Reach 11. Dewatering the reach has the potential to temporarily lower the water table in the surrounding area. Any lowering of the water table would be temporary, occurring in the immediate vicinity of Reach 12. Water release downstream of Reach 12 would be released into Reach 11, which is also located in the forebay region. Once released, the water would begin percolating into the groundwater. In addition, the percolation ponds adjacent to the reach would continue to recharge the surrounding groundwater such that any lowering of the water table would be negligible.

Impact H&H–3: *Result in substantial depletion of groundwater or interfere with groundwater recharge.* Impacts to groundwater recharge are expected to be ***less than significant***. No mitigation is required.

3.2 Geology, Soils, and Seismicity

This section summarizes the existing geology, soils, and seismicity of the project area and the potential effects of the proposed action on these resources. With respect to soils, this section is limited to the physical effects of the project on soils (e.g., the potential for slope instability and failure). Sediment in the project area are known to contain elevated levels of mercury and the project proposes to excavate and either reuse or dispose of the mercury-laden sediment. Existing conditions and potential impacts related to mercury-laden sediment are discussed in Section 3.3—Soil Quality.

Existing geology, soils, and seismicity in the project area have not changed since the 1999 EIR/EIS. Reach 12 is still situated in the general vicinity of several major regional faults zones, including the San Andreas Fault Zone to the west and the Hayward and Calaveras Fault Zone to the East. The soils in the Guadalupe River watershed have not changed and Reach 12 soils are still comprised of

two soil associations: Sunnyvale-Castro-Clear Lake, Clear Lake-Campbell, and Yolo (USDA 1968, as cited in the 1999 EIR/EIS). As described in the 1999 EIR/EIS, these soil associations generally refer to the upper 60 inches of material. Soils in Reach 12 are located in the Sunnyvale Castro-Clear Lake and Yolo associations. The Sunnyvale-Castro-Clear Lake Association (SCCA) consists of poorly-drained, calcareous silty-clay soil and calcareous clay subsoils. It has very low permeability, high runoff rates, low percolation rates, high shrink-swell potential, and a moderate erosion potential. The Yolo Association consists of well-drained, coarsely textured silty loam soils and loam subsoils. This association has high percolation rates, low runoff rates, low shrink-swell capacity, and low erosion potential (USACE and SCVWD 1999a).

The 1999 EIR/EIS, discusses the potential effects of the proposed project on geology and soils, as well as the potential for seismic activity to adversely affect the project components. Specifically, the document discusses the potential for: 1) the proposed project to expose people or structures to major geological hazards; 2) earthquake activity to adversely affect the project components—e.g., stream bank erosion or failure may result from land sliding or liquefaction-induced lateral spreading following an earthquake; 3) the potential for geology and soils to be adversely affected by slope instability or other components of the project.

Because the baseline conditions of soils, geology and seismicity have not changed in the project area and the potential effects of the project on these resources have not changed, potential impacts to these resources are not further discussed in this document. The original 1999 EIR/EIS provides sufficient assessment of the impacts to geology, soils and seismicity and the reader is directed to Section 4.1 of the 1999 EIR/EIS for further discussion of these resources.

3.3 Soil Quality

In 2012, Reach 12 sediment was sampled and analyzed to evaluate the suitability of reusing material as fill within the reach. The results of the sampling and analysis indicate that the primary concern regarding sediment reuse in the project area is mercury. The Guadalupe River watershed is in the general vicinity of the New Almaden mines. Located 4.5 miles upstream of Reach 12, the mines were mining mercury from 1847 to 1976. As a result of the mining and processing activities at New Almaden, mercury-laden soils were transported to the Guadalupe River watershed and are found throughout Reach 12. Details of the sediment sampling methods and locations are provided in the sediment sampling and analysis report (Appendix A). The results of the analysis are summarized below.

Physical and chemical analysis was performed on all composite (6 samples) and individual (16 samples) sediment samples. Sediment samples were chemically analyzed for mercury only and physically analyzed for total solids, total organic carbon and grain size. Gravel and sand were the predominant grain types in the sediment sampled. Grain size ranged from approximately 13–66 percent gravel and 87–34 percent sand. Total organic carbon ranged from about 0.16–1.39 percent and total solid content ranged from 81–98 percent.

The mercury content of sediment samples were screened against the San Francisco Bay RWQCB's environmental screening levels for residential and commercial/industrial use scenarios where sediment is less than 3 meters below grade (San Francisco Bay RWQCB 2013, as cited in USACE 2013). The screening levels are the same regardless of whether groundwater use occurs in this area. The RWQCB's environmental screening levels for residential and commercial/industrial use are 6.7 and 10.0 milligrams per kilogram (mg/kg), respectively. Results indicate that in general, the samples from Reach 12 had higher levels of mercury than samples taken in the downstream reaches of the Upper Guadalupe River. Of the 22 samples, 12 met the RWQCB's environmental screening levels for residential mercury concentrations and 10 did not. Of the samples that did not meet the RWQCB's environmental screening level, three exceeded the residential screening level (6.7 mg/kg) and 7 exceeded the commercial/industrial screening level (10.0 mg/kg). Two of the samples had concentrations of mercury greater than 15 mg/kg, which represents the highest concentrations in the project area. Table 13 and Figure 16 summarize the results of the sampling and analysis.

Table 13 Upper Guadalupe River Reach 12 Sediment Sampling and Analysis Results

Sample	Sample Type	Grain Size (%)		Total Organic Carbon (%)	Total Solids (%)	Mercury [1, 2, 3] (mg/kg)
		Gravel	Sand			
UGR-R12-2012-1-1	Individual	28.1	71.0	1.39	91.6	0.9
UGR-R12-2012-1-2	Individual	22.2	77.8	0.42	95.7	14.2
UGR-R12-2012-1-3	Individual	43.3	56.7	0.50	89.9	6.8
UGR-R12-2012-1-4	Individual	27.1	72.9	0.83	89.9	11.6
UGR-R12-2012-1-5	Individual	59.5	40.5	0.16	90.8	0.4
UGR-R12-2012-1-6	Individual	--	--	--	98.3	3.03
UGR-R12-2012-1	Composite	49.6	50.4	0.77	91.3	3.60
UGR-R12-2012-1Z	Z-layer composite	43.1	56.9	0.86	91.2	13.5
UGR-R12-2012-2-1	Individual	87.2	12.8	0.24	97.5	1.49
UGR-R12-2012-2-2	Individual	42.8	57.2	0.61	97.8	13.7
UGR-R12-2012-2-3	Individual	20.9	79.1	0.84	92.0	4.1
UGR-R12-2012-2-4	Individual	15.5	83.5	0.60	90.9	18.8
UGR-R12-2012-2-5	Individual	3.4	96.6	0.70	89.0	0.6
UGR-R12-2012-2-6	Individual	43.9	56.1	0.42	90.9	10.2
UGR-R12-2012-2	Composite	66.4	33.6	0.73	94.0	6.6
UGR-R12-2012-2Z	Z-layer composite	17.8	82.2	0.89	90.0	4.5
UGR-R12-2012-3-1	Individual	46.9	53.1	0.42	93.5	9.1
UGR-R12-2012-3-2	Individual	51.3	48.7	0.17	87.3	3.4
UGR-R12-2012-3-3	Individual	57.9	42.1	0.26	88.5	6.1
UGR-R12-2012-3-4	Individual	13.0	87.0	0.85	93.2	17.2
UGR-R12-2012-3	Individual	50.5	49.5	0.40	88.6	3.7
UGR-R12-2012-3Z	Individual	44.6	55.4	0.54	81.2	7.5

Notes:

[1] Green indicates sample above the San Francisco Bay RWQCB environmental screening level for residential use (6.70 mg/kg).

[2] Pink indicates sample above the San Francisco Bay RWQCB environmental screening level for commercial/industrial use (10.00 mg/kg).

[3] Concentrations of mercury are provided in mg/kg; however, mg/kg and ppm are equal and can be used interchangeably

Table 13 Upper Guadalupe River Reach 12 Sediment Sampling and Analysis Results

Sample	Sample Type	Grain Size (%)		Total Organic Carbon (%)	Total Solids (%)	Mercury [1, 2, 3] (mg/kg)
		Gravel	Sand			

RWQCB's mercury requirements for reusing excavated sediment for fill material (mg/kg = ppm):

- 2.3–5.0 ppm (or mg/kg) at a depth equal to or greater than 2 feet below finish grade within 20 feet of the low flow channel, or at any depth if more than 20 feet from the low flow channel
- 5.0–20.0 ppm (or mg/kg) can be reused anywhere greater than 20 feet from the low flow channel. Sediment within the 50-year water surface elevation must be covered with erosion control blankets and hydroseeded. Sediment on top of berms do not require erosion control blankets or hydroseeding.

Source: Upper Guadalupe River Reach 12 Sampling and Analysis Report (USACE 2013).

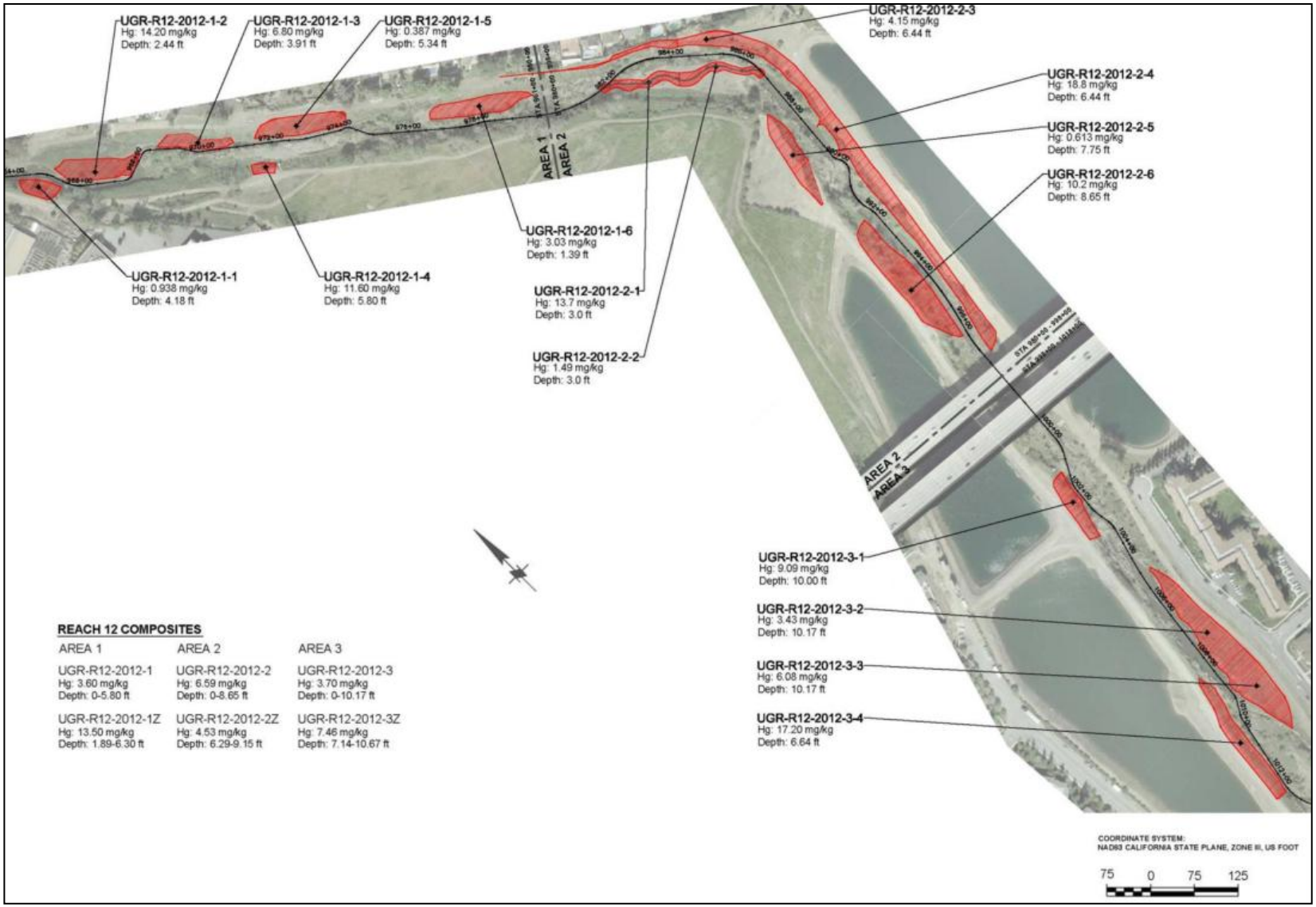

Figure 15. Sediment Mercury Sampling Locations, Depths, and Results *

Significance Criteria: The project would have a significant effect on sediment quality if it would degrade sediment quality during construction or leave exposed sediment with mercury concentrations that could harm organisms or violate water quality standards.

3.3.1 Potential Impacts and Mitigation Measures

As part of the project, approximately 10,200 cubic yards of sediment would be excavated to create flood benches, maintenance roads, and ramps. The project also requires approximately 12,400 cubic yards of fill, of which 1,700 cubic yards needs to be clean cover material. The remaining 10,700 cubic yards would come from excavated sediment. Some of the sediment proposed for excavation is shown to contain mercury-laden sediment. Depending on the concentrations of mercury, this sediment could be either reused in various areas of the project. The USACE and SCVWD worked closely with the San Francisco RWQCB to determine how mercury-laden soils can be reused in the project area. Table 14 and Figure 17 and described below.

Table 14 Requirements for Reusing Soil with Mercury

Location	Mercury Concentration (ppm)	Reuse Requirements
Within 20 feet of the low flow channel	2.3–5.0	Soil must be buried under 2 feet of clean sediment
Between 20 feet of the low flow channel landward to 50-year water surface elevation (e.g. slopes of the berms facing the water)	5.0–20.0	Soil must be covered with coconut fiber erosion control blanket and hydroseeded.
Anywhere above the 50-year water surface elevation (e.g. top of berms)	5.0–20.0	No requirements – soil does not have to be buried or hydroseeded.

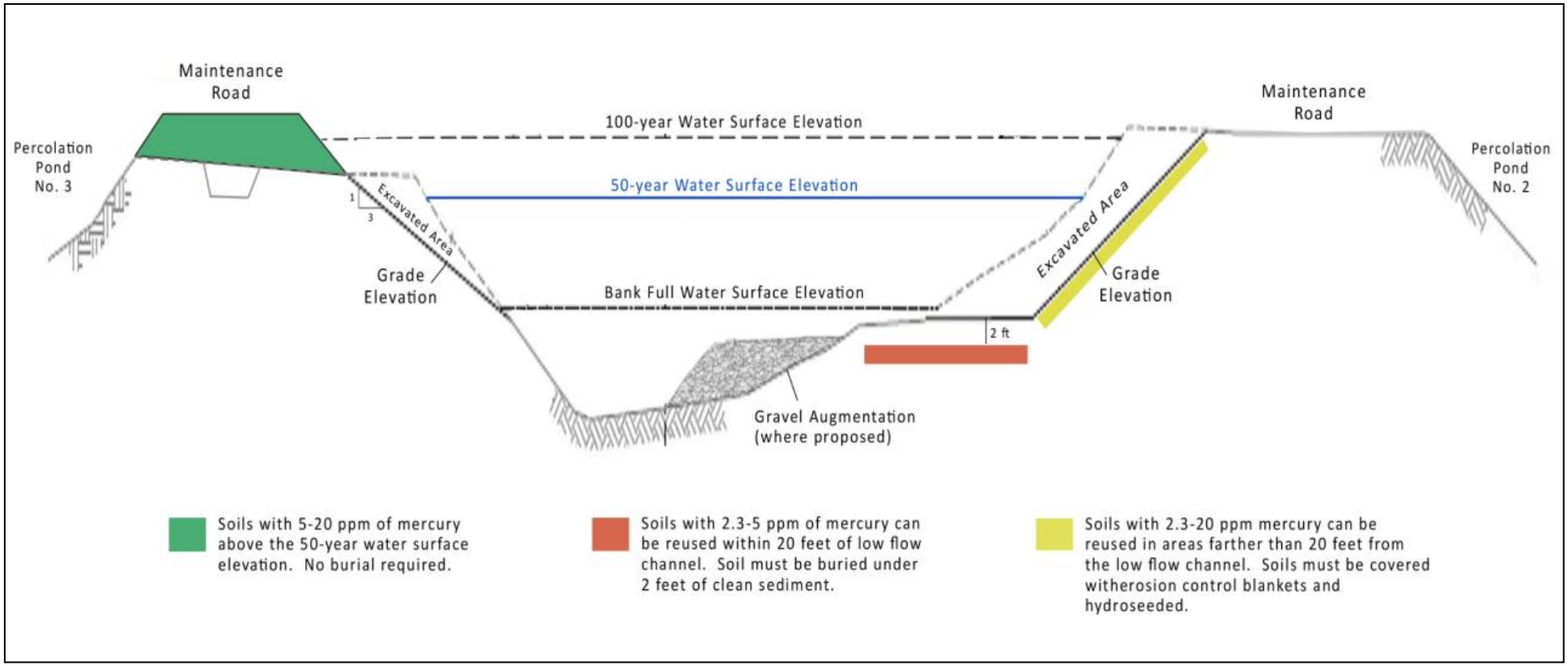

Figure 16. Requirements for Reusing Sediment Containing Mercury in the Project Area

As shown in Table 15 approximately 18,000 cubic yards of sediment would be excavated to create flood benches. In areas within 20 feet of the low flow channel, an additional 1,500 cubic yards would be excavated to necessitate the required 2-foot backfill. Approximately 1,500 cubic yards of clean backfill material will be imported to the project site to cover mercury-laden soils within areas 20-feet from the low flow channel (imported material will require approximately 150 trucks). The estimated volume of fill in areas outside of the 20-foot low flow channel area is approximately 9,400 cubic yards. The material excavated in the flood bench areas will be used as fill material and no additional material would be trucked in (beyond the 1,500 cubic yards of clean backfill material). The remaining 8,600 cubic yards of excavated material would either be directly placed into trucks for disposal at an authorized facility or stockpiled into areas for later disposal. Stockpile areas would be constructed to isolate stored mercury-laden sediment from the environment. The stockpile area would be lined with a chemically resistant geomembrane liner to prevent precipitation from entering the stockpile. The liner system will be sloped to allow collection any leachate. Additionally, berms at least 12 inches in height will be constructed around the stockpile.

Table 15 Reach 12 Excavation, Fill and Aggregate Requirements

Construction Element	Proposed Excavation (cubic yards)	Proposed Fill (cubic yards)	Aggregate Surface (cubic yards)	Required Truck Loads
Flood benches	7,900	52	--	0
Backfill[1]	1,500	1,500	--	150
Maintenance Roads	280	--	2,530	253
Ramps	15	516	74	7
Total	15,600	10,073	591	209

[1] Backfill areas are within 20 feet of the low flow channel to excavate and cover sediment with mercury concentrations of 2.3–5.0 ppm. Soil for backfill material will be imported.

Excavating sediment containing mercury and using it for fill could expose biological receptors or water to elevated concentrations of mercury. Preventing erosion of mercury-laden soils into the river would prevent mercury from adversely affecting water quality. In addition, in-situ sediment within 20 feet of the low flow with mercury concentrations greater than 2.3 ppm would be excavated and backfilled with clean sediment, thereby removing the potential for mercury to affect water quality following construction.

As mentioned, soils containing concentrations of mercury between 2.3–20 ppm can be reused for fill in certain areas of the project area. Any soil reused will comply with the requirements set forth by the San Francisco Bay RWQCB as described in Table 14 and Figure 17. Recent sediment testing

has shown that the sediment proposed for excavation and fill has mercury content of less than 20 ppm. This concentration of sediment is not expected to result in adverse effects to biological receptors.

Impact SQ–1: *Degrade sediment quality during construction or after construction.* The proposed project is designed to avoid degrading sediment quality during construction. The project proposes to remove the upper 2 feet of sediment with concentrations of mercury above 2.3 ppm from all areas within 20 feet of the low flow channel and back fill these areas with clean sediment (see *Avoidance and Minimization Measure SQ–1*). This would result in a ***beneficial*** effect on sediment quality in the project area following construction. Sediment reused in upland areas would not have concentrations of mercury higher than 20 ppm. Additionally, *Avoidance, Minimization, and Mitigation Measure SQ-2, 3, 4, and 5* would ensure that construction related sedimentation would not erode into the river. As such, this impact is anticipated to be ***less than significant.***

Impact SQ–2: *Expose water or biological receptors to concentrations of mercury that would violate standards.* The USACE and SCVWD have worked closely with the San Francisco Bay RWQCB to ensure that construction of the project would comply with the requirements of the Upper Guadalupe River Flood Control Project WDR and NPEDS permit. The following avoidance and minimization measures (*Avoidance, Minimization, and Mitigation Measure SQ-1, 2, 3, 4, and 5*) will be employed to ensure that impacts to water quality or biological receptors resulting from exposure of mercury-laden sediment are ***less than significant***.

Avoidance, Minimization, and Mitigation Measures:

Avoidance and Minimization Measure SQ–1: *Comply with the San Francisco Bay RWQCB's requirements for reuse of mercury-laden sediment* (see Table 14).

Avoidance and Minimization Measure SQ–2: *Utilize erosion control measures to ensure that mercury-laden sediment does not erode into the adjacent river.*

Avoidance and Minimization Measure SQ–3: *Utilize construction techniques (i.e., berms during excavation) to ensure that mercury-laden sediment does not erode into the adjacent river.* Excavate protective berms only after dewatering.

Avoidance and Minimization Measure SQ–4: *All stockpiling of sediment shall be conducted in such a manner that prevents sediment from eroding into adjacent areas or streams.*

Avoidance and Minimization Measure SQ–5: *Dispose mercury-laden sediment at approved upland facilities.*

3.4 Water Quality

Water quality is regulated by the State and Regional Water Quality Control Boards, and the Guadalupe River is within the jurisdiction of the San Francisco Bay RWQCB. The RWQCB is responsible for implementing state and federal water quality regulations; specifically, they implement the Water Quality Control Plan (Basin Plan) for the region. The Basin Plan establishes the beneficial uses of water bodies. The Guadalupe River is subject to requirements of the San Francisco Bay Basin Plan. This plan identifies the following beneficial uses of Guadalupe River: warm freshwater habitat, wildlife habitat, and non-contact water recreation.

The hydrology of the watershed and whether the season is dry (summer) or wet (winter) affects water quality parameters. During the dry season, the water flow is low, water temperatures are higher, dissolved oxygen is low, and increased nutrients, bacteria, and algae growths are present. During the wet season, increased precipitation and corresponding stormwater runoff result in higher stream flows the river can be adversely affected by eroded sediment and other constituents of concern.

The water quality in the Guadalupe River is also influenced by both past and current land use activities in the surrounding watershed. The river's water quality is designated as impaired under the CWA Section 303(d) by urban pesticides (diazinon), mercury, and trash (USEPA 2010). Diazinon impairment is likely a result of urban runoff from the surrounding watershed; illegal dumping and other spills have resulted in trash impairment; and mine tailings from the New Almaden mines has resulted in mercury impairment (USEPA 2010). A mercury total maximum daily load (TMDL) was included in the Basin Plan under Resolution Number R2-2008-0089 in 2008 and approved by the USEPA in 2010. A TMDL also exist for diazinon.

Waste Discharge Requirement (Order No. R2-2003-0015): The RWQCB has issued a Waste Discharge Requirement for the federal Upper Guadalupe River Flood Control Project (RWQCB, 2003; Orders No. R2-2003-0115). The water quality characteristics which require monitoring include pH, settleable matter, dissolved sulfide, temperature, dissolved oxygen, turbidity, and other characteristics determined by visual or olfactory senses (e.g., oil and odor). Table 16 provides details of the limits of each constituent. Order No. R2-2003-0115 is available in Appendix F.

Guadalupe River Water Quality: Historic water quality data from years 1946 through 1994 are summarized in the 1999 EIR/EIS in Section 4.3. These data show that river water and sediment contained mercury, lead, copper, zinc, and other trace pollutants (USACE and SCVWD 1999a). Although water quality monitoring has not been recently conducted in Reach 12, water quality data exists for Reaches 10B and 6. Morning and evening water quality measurements were taken both upstream and downstream of water diversions in 2012 (Reach 10B) and 2011 (Reach 6) during the in-channel work windows (June 1–October 15). Water quality monitoring was conducted in these reaches during construction to comply with the WDR. Measurements upstream of water diversions are considered ambient conditions (i.e., measurements were taken in waters that were not

impacted by diversion or other construction-related activities). Measurements taken downstream of diversions indicated the effects of the diversion on water quality (i.e., receiving waters).

Table 16	**WDR Order No. R2-2003-0115 Water Quality Limitation Measurements**	
Effluent Limitations		
pH	0.5 pH units above or below ambient levels	
Settleable matter	1.0 milliliters per liter per hour (ml/l/hr)	
Dissolved sulfide	0.1 milligrams per liter (mg/l)	
Temperature	2.8 °C (5 °F) maximum increase above ambient levels	
Receiving Water Limitations [1]		
pH	Variation in ambient pH by more than 0.5 pH units	
Dissolved oxygen	7.0 mg/l minimum (when ambient is less, no further reduction)	
Temperature	2.8 °C (5 °F) maximum increase above ambient levels	
Turbidity	***Background***	***Incremental Increase***
	<50 units	5 NTU
	≥50 units	10% of background, maximum
Visible Observations	At any place more than 100 feet downstream from the point of discharge no: floating, suspended or deposited macroscopic particular matter or foam; alteration of apparent natural color; visible floating, suspended, or deposited oil; toxic or other deleterious substances.	

NOTES:

[1] Per the self-monitoring plan, receiving water is measured 100 feet downstream from the point of discharge.

Source: WDR R2-2003-0115 (San Francisco Bay RWQCB 2003) (available in Appendix F).

Reach 6 and 10B water quality parameters measured are summarized below in Table 17 (Reach 10B) and Table 18 (Reach 6). Detailed water quality monitoring data are provided in Appendix B. While these areas are further downstream from Reach 12, they do present some information of the quality of water within the entire river. Further, it is anticipated that impacts resulting from construction of Reach 12 would be similar to those that occurred during the construction of Reaches 10B and 6.

Reach 10B monitoring occurred both up and downstream of diversions from September 8-21, 2012 (approximately 1.5 miles downstream of Reach 12). A total of 27 measurements were taken over a

period of 14 days. Measurements included low, pH, conductivity, turbidity, dissolved oxygen, temperature, salinity, and total dissolved solids. During construction, no objectionable odors or visual floating, suspended sediment, foam, alteration of color, oil, or other toxic or deleterious substance was observed. Table 17 summarizes the minimum, maximum, and average water quality measurements for each parameter. Table 17 is followed by an assessment of any exceedances of WDR limitations.

Table 17 Water Quality Measurements taken during Construction of Reach 10B (2012)

Parameter Measured	Upstream (ambient conditions)			Downstream (receiving waters)		
	Minimum	Maximum	Average	Minimum	Maximum	Average
Temperature (°C)	17.54	24.33	20.75	16.69	23.70	20.66
Turbidity (NTU) [b]	2.90	19.40 [c] (10.70)	8.97	1.10	24.20 [c] (11.10)	6.04
Dissolved Oxygen (mg/L) [d]	6.92	10.83	8.84	5.74	10.30	8.15
TDS	0.28	0.39	0.29	0.26	0.31	0.29
pH	6.77	8.53	7.95	7.18	8.43	8.09
Salinity	0.20	0.20	0.20	0.20	0.20	0.20
Conductivity	0.43	0.46	0.45	0.42	0.48	0.45

NOTES:

[b] Turbidity requirements:

- Upstream turbidity is between 0 and 50 NTUs, downstream turbidity cannot have an increase of more than 5 NTUs.
- Upstream turbidity is greater than 50 NTUs, downstream turbidity cannot have an increase of more than 10 percent.

[c] The highest measured turbidity occurred the day the channel was re-watered (September 19). The measurement was higher compared to all other measurements. The highest measurement was 10.70 NTU (upstream) and 11.10 NTU (downstream). Both measurements are provided in the table.

[d] DO requirements: minimum of 7.0 mg/L.

Source: USACE 2012. Reach 10B construction water quality monitoring.

Reach 10B (2012)

- ***Temperature:*** Temperature upstream of the diversion ranged from 17.45–24.33 degrees Celsius (°C), while downstream temperatures ranged from 16.69–23.70 °C. Data show that the change in water temperature between up- and downstream measurements were not consistently higher or lower. Eight (8) receiving water measurements showed a slight increase in temperature from upstream to downstream and 19 measurements showed a slight decrease (Appendix B). The largest change was an increase of 2 °C; the largest temperature decrease was 1.58 °C. These measurements indicate that the temperature changes did not exceed the WDR limitation of a rise of 2.8 °C above ambient conditions.

- ***Turbidity:*** Turbidity ranged from 2.9 to 10.7 Nephelometric Turbidity Units (NTU) upstream of the diversion, and rose as high as 19.4 NTU during re-watering of the channel. Turbidity ranged from 1.10 to 11.1 NTU downstream of the diversion, and rose to 24.2 NTU during re-watering of the channel. Seven (7) of the receiving water measurements showed a downstream increase in turbidity and 20 showed a decrease (Appendix B). According to the WDR, if background turbidity is less than 50 NTU, the incremental increase cannot be more than 5 NTU. Six (6) of the 27 monitoring results showed that an increase of 5 NTU; these measurements were taken on September 12, 14, 15, 17, and 19. During re-watering of the channel, downstream turbidity measurements showed an increase in turbidity of 5.8 and 4.8 NTU (upstream and downstream, respectively), compared to upstream turbidity.

- ***Dissolved Oxygen:*** Dissolved oxygen ranged from 6.92 to 10.83 mg/L upstream and 5.74 to 10.30 mg/L downstream. Eight (8) measurements showed an increase in receiving water dissolved oxygen concentrations and 19 showed a decrease (Appendix B). The WDR limitations require that dissolved oxygen levels do not drop below 7.0 mg/L. If ambient conditions are already below 7.0 mg/L, no further reduction is allowed. Only one measurement showed a drop below 7.0 mg/L (September 17). The ambient condition (upstream) was 6.92 mg/L; the downstream concentration was 5.74 mg/L—a decrease of 1.8 mg/L.

- ***pH:*** Upstream pH ranged from 6.77 to 8.53 and downstream pH ranged from 7.18 to 8.43. Nine (9) receiving water measurements showed an increase in pH and 18 showed a decrease (Appendix B). The WDR allows for only a 0.5 pH unit change in receiving waters. Only one measurement exceeded this limitation—on September 9, downstream pH increased by 1 unit.

Reach 6 monitoring up and downstream of construction in 2011 (approximately 4 miles downstream). Monitoring includes visual observations (particulate matter, foam, color, oil or petroleum, and other toxics), temperature, turbidity, pH, and dissolved oxygen (Table 18). Sixty-two (62) measurements were taken over a period of 31 days (June 22 through July 23Following).

Results of all measurements are provided in Appendix B. Table 18 is followed by an assessment of exceedances of the WDR limitations.

Table 18 Water Quality Measurements taken during Construction of Reach 6

Parameter Measured	Upstream			Downstream		
	Minimum	Maximum	Average	Minimum	Maximum	Average
Virginia Avenue Diversion						
Temperature (°C)	20.20	26.60	22.77	19.70	26.10	22.69
Turbidity (NTU) [b]	24.80	94.20	37.32	26.50	104.00	39.13
Dissolved Oxygen (mg/L) [c]	5.15	10.70	7.84	5.81	10.60	7.88
pH	7.30	8.82	8.30	7.32	8.75	8.32
North End Diversion						
Temperature (°C)	19.60	26.10	22.60	19.80	26.40	22.61
Turbidity (NTU) [b]	28.40	62.60	43.13	31.70	61.60	43.03
Dissolved Oxygen (mg/L) [c]	5.73	9.54	7.84	5.57	9.99	8.09
pH	8.12	9.47	8.82	8.02	9.45	8.83

NOTES:

[b] Turbidity requirements:

- Upstream turbidity is between 0 and 50 NTUs, downstream turbidity cannot have an increase of more than 5 NTUs.
- Upstream turbidity is greater than 50 NTUs, downstream turbidity cannot have an increase of more than 10 percent.

[c] DO requirements: minimum of 7.0 mg/L.

Source: SCVWD 2011. Reach 6 water quality monitoring.

Reach 6—Virginia Avenue (2011)

- ***Temperature:*** Temperature upstream of the diversion ranged from degrees °C, while downstream temperatures ranged from 20.20 to 26.60 °C. Data show that the change in water temperature between up- and downstream measurements were not consistently higher or lower. Thirty-one (31) of the receiving water measurements showed a slight increase in temperature from upstream to downstream, 20 showed a slight decrease, and

11 showed no change (Appendix B). The largest change was a drop of 2.6 °C (July 6); the largest temperature increase was a rise of 0.08 °C (July 21). These measurements indicate that the temperature changes did not exceed the WDR limitation of a rise of 2.8 °C above ambient conditions.

- ***Turbidity:*** Turbidity ranged from 24.8 to 94.2 NTU upstream of the diversion and 26.5 to 104.0 NTU downstream of the diversion. The maximum measured turbidity occurred on June 29; this is due to a rain event that occurred. Thirty (30) measurements showed a decrease in measured turbidity downstream of the diversion, 26 showed an increase, and 6 showed no change (Appendix B).

  According to the WDR, if background turbidity is than 50 NTU, the incremental increase cannot be more than 5 NTU and if turbidity is greater than 50 NTU, the change cannot be greater than 10 percent of ambient conditions. Three (3) of the ambient turbidity measurements were greater than 50 NTU (two measurements on June 29 and one on June 30). One of these measurements exceeded the WDR limitation of 10 percent. The measurement taken on the morning of June 29 showed that downstream turbidity increased by 10.4 percent—from 94.2 to 104.0 NTU. Another exceedance occurred on July 26 when the downstream measurement showed an increase of 6.5 NTU—from 41.6 to 35.1 NTU. All other turbidity measurements were below the WDR limitations (Appendix B).

- ***Dissolved Oxygen:*** Dissolved oxygen ranged from 5.15 to 10.70 mg/L upstream and 5.81 to 10.60 mg/L downstream. Twenty-eight (28) measurements showed an increase in receiving water dissolved oxygen concentrations, 32 showed a decrease, and 2 showed no change (Appendix B). The WDR limitations require that dissolved oxygen levels do not drop below 7.0 mg/L and if ambient conditions are already below 7.0 mg/L, no further reduction is allowed. Six (6) receiving waters showed that dissolved oxygen concentrations dropped below 7.0 mg/L (June 22 and 24 and July 5, 7, 9, 12, 13 and 21); these were the only measurements that exceeded the WDR limitations. Seven (7) measurements showed increases in dissolved oxygen concentrations from upstream values of below 7.0 mg/L. The largest receiving water increase in dissolved oxygen concentrations was a rise of 4.42 mg/L; the largest decrease was 3.02 mg/L.

- ***pH:*** Upstream pH ranged from 7.30 to 8.30 and downstream pH ranged from 7.32 to 8.75. Thirty (30) of the receiving water measurements showed a increase in pH from upstream to downstream, 31 showed a decrease, and 2 did not change (Appendix B). None of the receiving water measurements showed a change in pH 0.5 units above or below ambient conditions. The WDR allows for only a 0.5 pH unit change in receiving waters.

Reach 6—North End (2011)

- ***Temperature:*** Temperature upstream of the diversion ranged from degrees °C, while downstream temperatures ranged from 19.60 to 22.60 °C. Data show that the change in water temperature between up- and downstream measurements were not consistently higher or lower. Fifty (50) of the receiving water measurements showed a slight increase in temperature from upstream to downstream, 37 showed a slight decrease, and 8 showed no change (Appendix B). The largest change was a drop of 3.5 °C (August 19); the largest temperature increase was a rise of 1.4 °C (September 10). These measurements indicate that the temperature changes did not exceed the WDR limitation of a rise of 2.8 °C above ambient conditions.

- ***Turbidity:*** Turbidity ranged from 28.4 to 62.6 NTU upstream of the diversion and 31.7 to 61.6 NTU downstream of the diversion. Thirty-eight (38) measurements showed a decrease in measured turbidity downstream of the diversion, 54 showed an increase, and 3 showed no change (Appendix B).

  According to the WDR, if background turbidity is than 50 NTU, the incremental increase cannot be more than 5 NTU and if turbidity is greater than 50 NTU, the change cannot be greater than 10 percent of ambient conditions. The maximum increase in turbidity was 5.0 NTU (47.4 NTU upstream and 52.4 NTU downstream), measured on August 22. All turbidity measurements were within the WDR limitations (Appendix B).

- ***Dissolved Oxygen:*** Dissolved oxygen ranged from 5.73 to 9.54 mg/L upstream and 5.57 to 9.99 mg/L downstream. Fifty-four (54) measurements showed an increase in receiving water dissolved oxygen concentrations, 40 showed a decrease, and 1 showed no change (Appendix B). The WDR limitations require that dissolved oxygen levels do not drop below 7.0 mg/L and if ambient conditions are already below 7.0 mg/L, no further reduction is allowed. Ambient conditions (upstream measurements) showed that dissolved oxygen concentrations were consistently above 7.0 mg/L. Receiving water (downstream) measurements indicated that dissolved oxygen concentrations fell below 7.0 mg/L seven (7) times (July 7, 8, 20, 21, 25, and 26); these were the only measurements that exceeded the WDR limitation.

- ***pH:*** Upstream pH ranged from 8.12 to 9.47 and downstream pH ranged from 8.02 to 9.45. Fifty-four (54) measurements showed an increase in measured turbidity downstream of the diversion, 38 showed a decrease, and 3 showed no change (Appendix B). The maximum change was a 0.48 increase in pH on September 20. None of the receiving water measurements showed a change in pH 0.5 units above or below ambient conditions. The WDR allows for only a 0.5 pH unit change in receiving waters.

In addition to water quality being measured during construction, continuous temperature monitoring of the Guadalupe River is required by both the WDR and Biological Opinion for the federal Upper Guadalupe River Flood Control Project. Continuous temperature monitoring data represent ambient conditions in the river. This EA includes 2011, 2012, and 2013 data from temperature monitors located in immediately upstream of Reach 12 and in Reach 10B (1.5 miles downstream). As shown, temperatures generally are lower in the winter months (December through February), increase throughout March through August, and minimally decrease in September and October.

Comparing September 2012 continuous temperature taken in Reach 10B with temperature measurements taken up- and downstream of dewatering during September 2012 (Table 17) indicates:

- Minimum continuous temperature (ambient) was higher than both the minimum measured temperatures of the upstream water (ambient) and downstream water (receiving water)—1.16 °C and 2.01 °C, respectively.

- Maximum continuous temperature (ambient) was lower than the maximum measured temperatures of the upstream water (ambient) and downstream water (receiving water)—1.10 °C and 1.90 °C, respectively.

- Average continuous temperature (ambient) was lower than the average measured temperatures of the upstream water (ambient) and downstream water (receiving water)—0.31 °C and 0.26 °C, respectively.

These data indicate that the receiving water was within 2.8 °C of the continuous monitoring ambient conditions. Reach 10B was reconstructed in 2012; as such, the area had limited riparian forest and shaded aquatic riverine cover which helps to reduce water temperatures. However, comparing the Reach 10B and upstream Reach 13 (which has riparian forest and shaded aquatic riverine cover) show that the temperatures between the two reaches are similar throughout the year.

Significance Criteria: The project would have a significant impact on water quality if it would:

- Violate any water quality standard or waste discharge standard set by the RWQCB or substantially degrade water quality.
- Substantially contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

Table 19 Continuous Temperature Monitoring												
Measure	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Immediately Upstream												
2013												
Min	7.3	8.8	11.8	14.2	17.1	19.3	21.7	21.4	18.9	17.4	--	--
Max	13.5	15.8	16.5	24.1	21.7	25.4	26.1	25.0	24.6	20.9	**--**	**--**
Ave	9.9	11.5	14.1	18.9	19.2	21.6	23.2	23.1	21.9	18.9	**--**	**--**
2012												
Min	--	--	--	16.2	16.8	18.0	21.3	21.2	19.8	17.5	13.2	9.2
Max	**--**	**--**	**--**	23.5	22.9	24.2	25.1	25.2	23.2	22.3	18.0	15.2
Ave	**--**	**--**	**--**	19.1	19.3	21.0	22.8	22.9	21.3	19.6	15.3	15.4
2011												
Min	--	--	--	15.3	15.1	16.1	19.9	21.3	20.0	20.3	--	--
Max	--	--	--	17.1	19.7	22.9	25.5	24.0	23.1	21.7	**--**	**--**
Ave	--	--	--	16.1	17.2	19.6	22.1	22.5	21.7	21.0	**--**	**--**
Downstream (Reach 10B)												
2013												
Min	--	--	--	14.8	17.1	18.9	21.0	20.4	17.0	14.2	--	--
Max	--	--	--	21.2	21.4	25.4	25.9	24.1.	23.2	19.7	--	--
Ave	--	--	--	18.3	19.2	21.3	22.7	22.1	20.6	16.4	--	--
2012												
Min	--	--	--	16.6	16.8	18.1	20.8	20.2	18.7	16.4	--	--
Max	--	--	--	20.8	20.8	23.6	24.4	24.3	21.8	31.2	--	--
Ave	--	--	--	18.6	19.1	20.8	22.2	22.1	20.2	18.9	--	--
2011												
Min	--	--	--	15.8	14.4	15.6	19.9	20.8	19.7	20.1	--	--
Max	--	--	--	17.1	20.4	23.6	24.4	23.3	22.8	21.0	--	--
Ave	--	--	--	16.4	17.3	19.9	22.3	22.2	21.4	20.5	--	--
Source: SCVWD continuous temperature monitoring (2011-2013).												

3.4.1 Potential Impacts and Mitigation Measures

The redesign of Reach 12 is intended to excavate steep banks adjacent to the river channel thereby creating flood benches. Lowering the steep banks has the potential to reduce sedimentation and

erosion into the stream bed. Other construction activities, such as installing instream structures and gravel augmentation have the potential to adversely affect Guadalupe River water quality by creating sedimentation and erosion into the river. Dewatering the channel also has the potential to adversely affect water quality should groundwater seep from the percolation ponds (located at a higher elevation than the river) leak into the dewatered channel.

Impact WQ-1: *Violate any water quality standard or waste discharge standard set by the RWQCB or substantially degrade water quality.* Dewatering the channel could adversely affect receiving water. As discussed above, monitoring up- and downstream of dewatering activities in Reaches 6 and 10B did not show that the receiving water was adversely affected. At times individual measurements exceeded the WDR limitations for the project (see Table 16 for WDR limitations); however, overall the data show variability above and below ambient conditions for each parameter measured. Therefore, changes to receiving water may be a result of various factors, some of which may not be related to construction activities.

Prior to in-channel work being conducted, the reach or portions of the reach would be dewatered, thereby routing the flow of the river around construction activities. The river would be also protected by erosion control best management practices during construction in upland areas (areas above low-flow), thereby protecting water quality. Specific erosion control measures are discussed in the *Avoidance, Minimization, and Mitigation Measures* below. Implementation of *Avoidance and Minimization Measure WQ-1, W2-2, and WQ-3* would ensure that impacts to water quality are anticipated to be ***less than significant***.

A remaining unresolved concern is that water from the adjacent percolation ponds may flow back into the channel once it is dewatered. While the likelihood of this occurring is unknown, the percolation ponds are located at an elevation higher than the river; therefore, water may flow along the least resistive path back to the channel. The USACE is currently working with the RWQCB to determine what measure should be taken to ensure that receiving water quality is not significantly affected. One potential solution is that water that leaks back into the channel would not be returned to the river, or it would be diverted to holding basins and sampled to ensure compliance with the project WDR prior to being returned to the river or groundwater basin. This issue will be resolved prior to dewatering the channel and existing water quality standards would not be violated.

Impact WQ-2: *Increase the concentration of any CWA 303(d) substance identified for Guadalupe River (mercury, diazinon, or trash) or violate the river's TMDLs (mercury and diazinon).* The proposed project would excavate and reuse sediment known to contain mercury. During planning, sediment mercury content was analyzed to determine the concentrations of mercury in sediment proposed for excavation. Additionally, the USACE worked with the RWQCB to determine how mercury-laden sediment could be reused, if at all. Sediment proposed for reuse in the project area will follow the guidelines provided by the RWQCB—including removing sediment with concentrations of greater than 5.0 ppm from areas within 20 feet of the low flow channel and

burying any sediment between 2.3–5.0 ppm under 2 feet of clean sediment. Sediment reused on the channel-side berm slope will be covered with erosion control fibers and hydroseed to prevent erosion into the water.

Trash is common along the Guadalupe River and is likely a result of illegal dumping. During construction, trash would be removed from the project site—including the channel once it is dewatered—thereby reducing the volume of trash in the reach. During the 4-year maintenance period, trash would be removed from the reach in areas outside of the channel. This would reduce the trash volume in the reach in during the years when construction and maintenance occurs.

Diazinon is transported to the Guadalupe River from runoff. The project would not result in additional diazinon entering the river.

By implementing complying with the sediment-mercury reuse criteria and removing trash from the site (see *Avoidance and Minimization Measure WQ-3),* the project would locally reduce mercury and trash input into the river. As mentioned, the project would have no effect on diazinon. As such, this impact is expected to be ***beneficial***.

Impact WQ-3: *Substantially contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems.* The project is not anticipated to create runoff water that would exceed the capacity of existing or planned stormwater drainage systems. The project would use water trucks to help reduce fugitive dust; however, the trucks would be used in a manner that does not create runoff. Should any runoff be generated during construction, compliance with *Avoidance and Minimization Measure WQ-1* would ensure that impacts are ***less than significant***.

Avoidance, Minimization, and Mitigation Measures

Avoidance, minimization, and mitigation measures were identified to ensure that potential impacts to water quality would be less than significant during construction of the reach. Erosion control measures are identified in the WDR and National Discharge Pollution Prevention Plan (NDPPP); compliance with these measures would ensure that erosion or sedimentation would not affect the river bed. Compliance with the erosion control requirements of the WDR and NDPPP permits would ensure that any impacts to groundwater from construction-related erosion and sedimentation would be less than significant. Avoidance and minimization measures are identified below.

Avoidance and Minimization Measure WQ-1: *Comply with erosion control measures identified in the Construction General National Pollution Discharge Elimination System (NPDES) permit.*

- Erection of barrier fencing and sediment and erosion control systems in the project site—barrier fence and sediment and erosion control systems within and/or around the portion

of the site that will be graded. Erosion control systems may include fiber rolls, straw bales, silt fences, and other acceptable measures.
- Establish and fence the equipment servicing and staging area.
- Isolate and manage stormwater runoff and potential fuel or fluid spills from the equipment service area. As necessary and required for isolation and control of stormwater or other vehicle fluid discharges to adjacent waters/wetlands.
- Designate a supervisor for the equipment service and staging area. This person will be responsible for daily clean-up and maintenance of the service and staging area, for coordination of spill response, and for all communication pertinent to the area and its operation and maintenance.

Avoidance and Minimization Measure WQ-2: *Comply with the water quality limitations provided in the WDR (Order No. R2-2-2003-0115) for the Upper Guadalupe Flood Control Project.*

- Monitor dewatering activities to ensure that water quality objectives are met prior to returning water to the river (water quality objectives are identified in Table 16).
- Provide annual reporting to the San Francisco Bay RWQCB on the results of all monitoring.
- Implement best management practices to prevent erosion and siltation into the river.

Avoidance and Minimization Measure WQ-3: *Comply with the mercury and diazinon TMDLs for Guadalupe River and ensure that concentrations of CWA 303(d) constituents listed for Guadalupe River (mercury, diazinon, and trash) are not increased.*

- Comply with the RWQCB's sediment reuse criteria for mercury laden sediment for the proposed project (see Table 14).
- Remove trash from the project site during construction.
- Remove trash from the channel when following dewatering.
- Remove trash from the reach each year during vegetation maintenance.

3.5 Biological Environment

As previously mentioned, the intent of Reach 12 is to mitigate for impacts of constructing the entire federal Upper Guadalupe River Flood Control Project. This was also the intent of this reach in the 1999 EIS/EIR and Mitigation Monitoring Plan (SCVWD and USACE 1999b). The 1999 mitigation design concept developed for Reach 12 included the restoration of approximately 6.45 acres of riparian forest and 975 linear feet of SRA cover (SCVWD and USACE 1999b).

The original concept was to provide a general plant palette to guide future plant selection at different stream bank locations. The plant palettes would then be further developed and refined during the detailed design phase for Reach 12. The re-vegetation design concept is to attain multiple beneficial environmental objectives while meeting the basic purpose of flood risk management. The 1999 Mitigation Monitoring Plan is incorporated by reference in this document.

At the time the 1999 design was developed, Reach 12 was sparsely vegetated by woody plants. Most woody plants at that time were on sections of the upper channel bank or on the high terrace. Areas of open water and emergent marsh vegetation were also present. However, in the 14 years following development of this initial concept, large parts of Reach 12 have been colonized by native riparian tree species. This growth has reduced the amount of available planting area, and most remaining space that lacks trees has limited water availability. As a result, fewer acres are available for riparian forest planting.

The 1999 design was based on the assumption that permits for seasonal instream spreader dams and associated instream percolation ponds would be restored, and that the bulk of the river channel would be unavailable for habitat restoration. Wetland and riparian forest restoration would be largely placed on the margins of off-stream percolation ponds with stable water levels.

Since then, this plan has become infeasible. The California Department of Fish and Wildlife (CDFW) did not renew permits for instream spreader dams at this location, and the parcel intended for off-stream percolation and mitigation could not be acquired. Meanwhile, most locations in the channel which are suitable for riparian vegetation became naturally revegetated, albeit in some cases with non-native trees and shrubs. Therefore, the new plan seeks to maximize habitat quality within the river channel with mitigation plantings and habitat structures placed in available locations, subject to hydraulic and biological constraints.

The goals of the current plan for which this supplemental EA was prepared have not changed much since the 1999 EIR/EIS was prepared; however the project proposed to attain those goals has changed. To achieve the habitat improvement goals, the proposed project includes laying back steep banks to create flood benches; improving river morphology by creating flood benches, installing instream structures; augmenting gravel; and planting native riparian vegetation.

However, as a result of colonization of riparian vegetation in the reach, the acreage of riparian planting areas under the current design is limited. Hydraulic modeling conducted for the proposed project has verified this and shown that planting zones in the channel would have a negative impact on channel capacity by increasing channel roughness. Therefore, the current design limits instream planting zones to planting vegetation on proposed instream structures (e.g., rootwads and log jams).

3.5.1 Existing Habitat

The Guadalupe River is located in urban San Jose, California. The natural corridor of the river is rather narrow and adjacent to the river's corridor are groundwater recharge ponds, groundwater wells, residential, commercial, and other urban development. However, the corridor does provide riparian and upland habitat for several species of wildlife. Surveys of the site show the following habitat types are present: herbaceous ruderal, oak/sycamore woodland, willow/cottonwood/alder riparian forest, emergent aquatic wetland, and riparian scrub. Exotic trees, pavement, and open

areas were also identified. Very small areas of blackberry were present; however, recent herbicide application has eliminated large bushes. Table 19 and Figure 19 and Figure 20 provide details of the land cover and habitat types surveyed in Reach 12. As shown, the project area has a conservative estimate of 20.64 acres of riparian forest. Additionally, SRA cover is present along most of the channel. SRA cover is defined as riparian forest within 15 feet of the low flow channel.

Table 19 Existing Land Cover Habitat Types

Land Cover Class (Habitat)	Total Existing Area [1] (acre)
Herbaceous Ruderal	8.80
Oak / Sycamore Woodland	1.63
Willow / Cottonwood / Alder Riparian Forest	7.83
Emergent Aquatic	0.415 *
Exotic Trees	0.95
Open	8.44 *
Other Exotic	0.80
Pavement	0.88 *
Riparian Scrub	0.63
Water	1.74 *
Total Riparian Forest	***20.64***

NOTES:

[1] Total habitat mapped includes all habitat types within the project area (including shaded aquatic riverine (SRA) cover.)

* Cover/habitat types are not considered riparian forest or SRA cover and are excluded from the total count.

Figure 17. Existing Land Cover (Habitat) in Reach 12 (upstream portion of the reach)

This page is intentionally left blank.

Figure 18. Existing Land Cover (Habitat) in Reach 12 (downstream portion of the reach)

This page is intentionally left blank.

3.5.2 Existing Fish and Wildlife

Species that utilize Reach 12 include egrets, mallard, Canadian goose, white and golden-crowned sparrows, western scrub jays, amer robins, Brewer's blackbirds, starlings, American Kestral, Black Phoebe, Yellow-rumped warblers, ruby-crowned kinglets, house finch, lesser goldfinch, Anna's humming bird, red-winged blackbird, and song sparrow. At times, hawks can be seen using areas of the river, or flying over the river (Guadalupe River Park Conservancy 2012). These hawks and other migratory birds in the project area are protected under the Migratory Bird Treaty Act (MBTA). Mammals such as skunks, jackrabbits, and squirrels utilize the river and upland habitats. Western fence lizard and bullfrog are also a common species in the project area. Many of these species were observed using Reach 10B during 2012 wildlife monitoring (following construction).

Fish species known to inhabit Guadalupe River include native Sacramento sucker, prickly skulpin, and California roach, and non native common carp, largemouth bass, bluegill, green sunfish, and steelhead. During dewatering of Reach 10B (downstream of Reach 12), a fish biologist was present to relocate fish from upstream of the diversion to downstream in the free-flowing river. The objective of the fish relocation efforts were to 1) transfer any captured juvenile steelhead to the main channel downstream of the construction area with no loss of life; 2) transfer all other captured native fishes to the main channel below the construction reach with minimal loss of life; and 3) remove and kill all nonnative fish from the channel and properly dispose of them. A total of 185 fish removed from this relocation effort, including 107 native fish that were relocated downstream of the construction site and 78 nonnative fish that were killed and disposed of. One juvenile steelhead was caught and released downstream unharmed. Table 20 shows the fish that were caught and relocated.

3.5.2.1 Species Protected Under the Endangered Species Act

The project area is within the United States Geological Survey (USGS) San Jose West, San Jose East, Los Gatos, and Santa Teresa Hills 7.5 minute quadrangle maps. The USFWS' species generator identifies several state and federal Endangered Species Act-protected species that could be present within the area identified in the maps. Table 21 provides a list of all ESA-protected species and critical habitat that have the potential to be present in the above-listed 7.5-minute quadrangle map areas. It also identifies if the proposed project has the potential to affect each species or their critical habitat. Only species that have the potential to be affected by the proposed action are discussed further.

The overall Upper Guadalupe River Flood Control Project currently has a Biological Opinion (NMFS 2005). The proposed Reach 12 project complies with the 2005 BO, as such, it is expected that this project will be covered by that BO. The 2005 BO is summarized in Section 5.0, *Environmental Compliance*, and provided in Appendix E.

Table 20 Reach 10B Fish Removal and Relocation					
Native Species			**Nonnative Species**		
Native Species Captured	**Number Captured**	**Percent of Total Fish Captured**	**Nonnative Species Captured**	**Number Captured**	**Percent of Total Fish Captured**
June 2-3, 2012					
Lamprey *(larva)*	1	<1	***Carp***	3	2
Steelhead *(Juvenile 95mm)*	1	<1	***Goldfish***	2	1
Sacramento Sucker	73	40	***Yellow Bullhead***	1	<1
Prickly Sculpin	16	9	***Mosquitofish***	12	6
California Roach	16	9	***Largemouth Bass***	26	14
Total Native	**107**	**58**	***Bluegill***	14	8
			Green Sunfish	20	11
			Total Nonnative	**78**	**42**
June 7-8, 2012					
Lamprey *(larvae)*	2	4	***Carp***	6	13
Sacramento Sucker	13	28	***Yellow Bullhead***	2	4
Prickly Sculpin	5	6	***Largemouth Bass***	10	21
California Roach	5	11	***Green Sunfish***	4	8
Total Native	**25**	**53**	**Total Nonnative**	**22**	**47**

Table 21 Special Status Species with the Potential to be Present in the Action Area [1]					
Species	**Status**	**Critical Habitat Present in the Action Area**	**Distribution and Habitat Preference**	**Potential to be Present in the Project Area**	**Potential Impacts**
California tiger salamander – Sonoma County Population (*Ambystoma californiense*)	FE, ST, CH	No [2]	California tiger salamander are divided into three distinct population segments (DPS)—Sonoma County, Central California, and Santa Barbara County. Only the Sonoma County DPS is known to inhabit Santa Clara County. California tiger salamanders are restricted to vernal pools and seasonal ponds, including many constructed stock ponds, in grassland and oak savannah plant communities, predominantly from sea level to 2,000 feet, in central California. The Sonoma population appears to be geographically separated from the other California tiger salamander populations (USFWS 2009a). California tiger salamanders are large salamanders that inhabit aquatic habitat free of fish and adjacent wetland and uplands (USFWS 2009a). The project area does not have suitable habitat for California tiger salamander.	No	None
California red-legged frog (*Rana draytonii*)	FT, CH	No [2]	California red-legged frog occurs from sea level to elevations of approximately 5,200 feet. It is primarily found in coastal drainages in the Central California region, including	No	None

Table 21 Special Status Species with the Potential to be Present in the Action Area [1]					
Species	**Status**	**Critical Habitat Present in the Action Area**	**Distribution and Habitat Preference**	**Potential to be Present in the Project Area**	**Potential Impacts**
			Santa Clara County (USFWS 2002). California red-legged frog uses a variety of habitats, including aquatic breeding areas with a matrix of riparian and upland dispersal habitats. Breeding sites include pools and backwaters of streams, creeks, ponds, marshes, springs, and other aquatic sites (USFWS 2002). This species has not been found in the Guadalupe River or within several miles of it for several decades. H.T. Harvey and Associates (1997) concluded that: "The species has essentially disappeared from the urbanized lowland areas of the county..." The combination of non-native bullfrogs and predatory fish, together with degraded habitat conditions found in heavily urbanized areas, is particularly unfavorable to this species. While the project area could provide suitable habitat for California red-legged frog, in the sense of aquatic habitat with riparian forest, it is extremely unlikely that they would be present in the Reach 12 area.		

Table 21 Special Status Species with the Potential to be Present in the Action Area [1]					
Species	**Status**	**Critical Habitat Present in the Action Area**	**Distribution and Habitat Preference**	**Potential to be Present in the Project Area**	**Potential Impacts**
Swainson's hawk (*Buteo swainsoni*)	ST	--	The project area is within the historic range of Swainson's hawk. The current range is limited to the Central Valley, California (UC Davis 2007). Swainson's hawk is not expected to be in the project area.	No	None
Bay checkerspot butterfly (*euphydryas editha bayensis*)	FT	No [2]	The Bay checkerspot butterfly is a medium sized butterfly. Historically, it occurred from the San Bruno Mountains, Mount Diablo, and Coyote Reservoir in the San Francisco Bay region (USFWS 2009b). Currently, it is restricted to areas of Santa Clara County in the coastal hills (USFWS 2009b) outside of the urban project area.	No	None
Zayante band-winged grasshopper (*Trimerotropis infantilis*)	FE, CH	No	The Zayante band-winged grasshopper is is restricted to sandy soils in the Santa Cruz Mountains, Santa Cruz, California (USFWS 1998). The project area does not provide suitable habitat.	No	None
Central California Coastal steelhead DPS (*Oncorhynchus mykiss*)	FT, CH	No	The central California coast steelhead includes coastal populations of winter steelhead from the Russian River south to Aptos Creek in Santa Cruz County. Trout in streams that are tributaries to San Francisco and San Pablo Bays are also included because rainbow trout are considered freshwater	Yes	Yes

Table 21 Special Status Species with the Potential to be Present in the Action Area [1]					
Species	**Status**	**Critical Habitat Present in the Action Area**	**Distribution and Habitat Preference**	**Potential to be Present in the Project Area**	**Potential Impacts**
			steelhead (NMFS 2010). Steelhead are known to be present in the Guadalupe River. One juvenile steelhead was removed and relocated in 2012 during Reach 10B dewatering monitoring and fish removal.		
Metcalf Canyon jewel-flower (*Streptanthus albidus* ssp. *albidus*)	FE	--	Metcalf Canyon jewel-flower is an annual herb in the mustard family. It is pale green leaves with bristly hairs. It flowers from April to June. This plant is only found in the Coyote Valley area, outside of the project area (USFWS 2013).	No	None
Santa Clara Valley dudleya (*Dudleya abramsii ssp. setchellii*)	FE	--	Santa Clara Valley dudleya is a low-growing perennial of the stonecrop family with fleshy leaves. It flowers from May to June and grows roots that are at least 6 inches long and often extend into rock crevices of the serpentine outcrops. It co-occurs with Metcalf Canyon jewel-flower in the Coyote Valley area (USFWS 2013).	No	None
Robust spineflower (*Chorizanthe robusta var. robusta*)	FE, CH	No	Robust spineflower is a short-lived annual plant in the buckwheat family. It has a limited population size and range, occurring in 11 populations over a range of 21 miles in sandy soils along the coast in Santa Cruz	No	None

Table 21 Special Status Species with the Potential to be Present in the Action Area [1]					
Species	**Status**	**Critical Habitat Present in the Action Area**	**Distribution and Habitat Preference**	**Potential to be Present in the Project Area**	**Potential Impacts**
			County, California (USFWS 2010). It is not present in the project area.		
Contra Costa goldfields (*Lasthenia conjugens*)	FE, CH	No	Contra Costa goldfields is an annual flowering plant in the aster family. It grows up to 12 inches tall with branched stems. It has a daisy-like flower that blooms from March through June. It is found in vernal pools, swales, moist flats, and depressions in grassland habitats (USFWS 2008). It is not found in the project area.	No	None

Notes:

[1] A USFWS online listed species query was conducted in April 2014.

[2] USFWS Critical Habitat Mapper. Available at: http://ecos.fws.gov/crithab/. Accessed on 15 April 2015.

FE – federal endangered

FT – federal threatened

SE – state endangered

ST – state threatened

CH – critical habitat

California Coastal Steelhead: Steelhead were historically found throughout the Guadalupe River system (Skinner 1962, as cited in the Leidy, Becker, and Harvey 2005). After completion of the Almaden and Guadalupe Reservoirs in the mid-1930s and Lexington Reservoir in 1952, steelhead migration was restricted to tributaries downstream of the dams. By 1962, the steelhead runs had declined significantly in the Guadalupe River (Leidy, Becker, and Harvey, 2005). Before fall of 1999, steelhead entering the Guadalupe River system were prevented from migrating to upstream spawning and rearing areas on the tributary streams by the Alamitos drop structure, located just upstream of Reach 12. In 1999, a fish ladder was constructed adjacent to the drop structure. Prior to installation of the fish ladder, any steelhead entering the Guadalupe River system were forced to spawn in the Guadalupe River and in Los Gatos and Ross Creek. Results of surveys to determine the presence of rainbow trout in the mainstream Guadalupe River suggest that rainbow trout are much less abundant and less evenly distributed in the river than in the tributary streams; however, it is not known whether or not rainbow trout remain in the Guadalupe River during the summer.

During 2012 dewatering of Reach 10B (approximately 1.5 miles downstream of Reach 12), monitoring and fish relocation, one juvenile steelhead was caught and released unharmed.

Significance Criteria: The project would have a significant impact if it would:

- Result in a substantial loss of riparian forest or SRA cover that would not reestablish within 10 years following construction (e.g., planted riparian forest does not establish within the project site and does not result in recruits of additional riparian vegetation).
- Result in fish and wildlife avoiding the project area following establishment of riparian forest and SRA cover.
- Result in take of listed species that could not be mitigated.
- Result in take of a Migratory Bird Treaty Act (MBTA) protected bird.

3.5.3 Potential Impacts and Mitigation Measures

Clearing (and in some cases grubbing) of approximately 5 acres and excavating approximately 1.2 acres of floodplain benches would remove urban forest, riparian forest, and SRA cover, as well as exotic trees, emergent aquatic vegetation, and other land cover types. Additionally, proposed removal of exotic vegetation would remove some non-native riparian plants within the reach. Table 22 provides an overview of the land cover types and habitat affected by the proposed action. It details the area of the existing land cover and habitat types, existing SRA cover and the total area of construction impacts within the reach. It further breaks down the total impacts into the footprint of impacts within the SRA cover zone (i.e., 15 feet from the low flow channel) and outside of the SRA cover zone. As shown, the propose project would remove approximately 0.51 acre of native riparian forest (oak/sycamore woodland, willow/cottonwood/alder riparian forest, and riparian scrub), 1.02 acres of exotic trees, 0.001 acre of emergent wetland, as well as other exotic shrub and herbaceous species and water. The project would also remove approximately 387 linear feet of

SRA cover. Not all impacts to the various land cover types listed below will require mitigation (e.g., pavement, open space, open water, and some exotics will not require mitigation).

Figure 21 and Figure 22 show the locations of the proposed vegetation removal (i.e., land cover class and habitat impact) within the reach.

Table 22 Impacts to Land Cover (Habitats)

Land Cover Class (Habitat)	Total Existing Area [1] (acre)	Total Habitat Impacts (acre)
Herbaceous Ruderal	8.80	2.07
Oak / Sycamore Woodland	1.63	0.30
Willow / Cottonwood / Alder Riparian Forest	7.83	0.18
Emergent Aquatic	0.415	0
Exotic Trees	0.95	0.44
Open *	8.44	0.29
Other Exotic	0.80	0.58
Pavement *	0.88	0.02
Riparian Scrub	0.63	0.03
Water *	1.74	1.50
SRA cover	--	386.91 linear feet

Notes:

[1] Total existing area includes all habitats within the footprint of the project area.

* Cover/habitat types are not considered riparian forest or SRA cover and will not require mitigation. Emergent aquatic habitat is not included in this note.

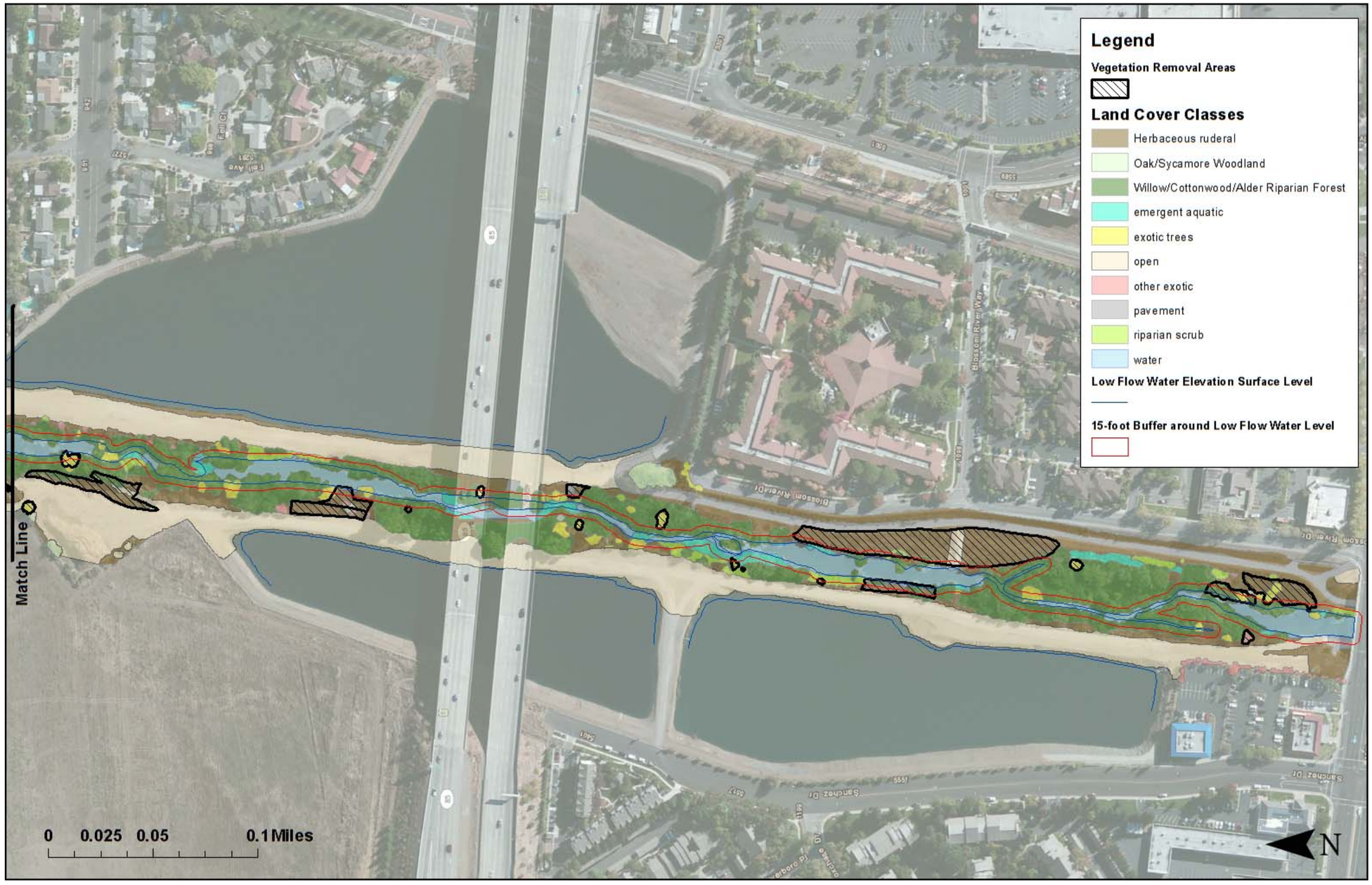

Figure 19. Proposed Vegetation Removal (i.e., land cover and habitat impacts) in the Upstream Portion of Reach 12

This page is intentionally left blank.

Figure 20. Proposed Vegetation Removal (i.e., land cover and habitat impacts) in the Downstream Portion of Reach 12

This page is intentionally left blank.

Table 23 provides details of the impact habitat which will require mitigation. As shown, approximately 387 linear feet of SRA cover and 1.20 acres of riparian forest (approximately 6 percent of the total riparian forest) must be mitigated. Impacts to approximately 0.001 acre of emergent wetland (approximately 0.24 percent of the total aquatic emergent habitat) will not require mitigation because the RWQCB staff has resolved that this loss would be a result of overall habitat improvements, therefore, additional mitigation is not required (pers. comm, Ms. Beth, RWQCB, and Mr. DeJager, USACE, May 6, 2014). Further, following construction some emergent aquatic wetlands would reestablish on the channel margins. As such, mitigation of 0.001 acre of emergent aquatic habitat is not further discussed in this document.

Table 23 Habitat and Vegetation Mitigation Requirements

Land Cover Class (Habitat)	Total Habitat Impacts (acre)	Mitigation Ratio [1]	Total Mitigation Required (acre)
Oak / Sycamore Woodland [1]	0.30	1 : 1.85	0.94
Willow / Cottonwood / Alder Riparian Forest [1]	0.18	1 : 1.85	
Riparian Scrub [1]	0.03	1 : 1.85	
Emergent Aquatic [2]	0.001	1 : 1	0
Exotic Trees	0.44	1 : 0.60	0.26
SRA Cover (linear feet)	386.91	1 : 1	386.91
Total Habitat Mitigation Proposed [3]			
		Riparian Forest [4]	1.20 acre
		SRA Cover	386.91 linear feet

Notes:

[1] Mitigation ratio taken from the 2007 Congressionally-authorized Local Preferred Plan and is for NEPA evaluation of mitigation. Regulatory compliance is a separate issue that will be coordinated with the appropriate agencies.
[2] Discussions with the RWQCB staff has resolved that mitigation of 0.001 acre emergent wetlands is not necessary because the loss would be a result of habitat improvements (pers. comm, Ms. Beth, RWQCB, and Mr. DeJager, USACE, May 6, 2014).
[3] Total habitat mitigation proposed is the mitigation proposed to mitigate for the Reach 12 project.
[4] Riparian forest mitigation is the sum of the oak/sycamore woodland, willow/cottonwood/alder riparian forest, riparian scrub, and exotic trees.

Table 24 describes the vegetation replanting proposed for the project. It discusses the various planting zones proposed (i.e., streamside, instream, lower floodplain, upper floodplain, upland, and hydroseeding zones). It also discusses the planting palette (i.e., species) proposed to be planted within each zone. Finally, it discusses the planting zone equivalent. The planting zone equivalent provides a method of converting each planting zone into one of the impacted existing habitat types. It is the planting zone equivalent area that will be used to determine mitigation for habitat impacts.

Table 24 Proposed Planting Zones and Palettes and Mitigation Equivalent

Planting Zone	Description	Proposed Planting Palette	Planting Zone Equivalent
Streamside planting zone	Plantings within 15 feet of the low follow stream bank. Provides SRA cover.	White alder (*Alnus rhombifolia*) Fremonts cottonwood (*Populus fremontii*) Valley oak (*Quercus lobata*) Red willow (*Salix laevigata*) Arroyo willow (*Salix lasiolepis*) Mule fat (*Baccharis salicifolia*) California wild rose (*Rosa californica*) California blackberry (*Rubus ursinus*) Narrow-leaved willow (*Salix exigua*) Virgin's bower (*Clematis ligusticifolia*)	Streamside planting
Instream planting zone	Plantings on instream structures. Provides SRA cover.	Red willow (*Salix laevigata*) Arroyo willow (*Salix lasiolepis*) Mule fat (*Baccharis salicifolia*) Narrow-leaved willow (*Salix exigua*)	Streamside planting
Lower floodplain planting and seeding zone	Plantings on lower floodplain area that would be seasonally inundated. Distance from channel varies by location.	Fremonts cottonwood (*Populus fremontii*) Valley oak (*Quercus lobata*) Red willow (*Salix laevigata*) Arroyo willow (*Salix lasiolepis*) Narrow-leaved willow (*Salix exigua*) Mugwort (*Artemisia douglasiana*) Oregon false goldenaster (*Heterotheca oregona var. scaberrima*) Creeping wildrye (*Leymus triticoides*) California man-root (*Marah fabaceus*)	Oak / Sycamore Woodland
Upper floodplain planting and	Plantings on upper floodplain surfaces and low channel bank elevations. Areas would only be	California buckeye (*Aesculus californica*) Coast live oak (*Quercus agrifolia*) Valley oak (*Quercus lobata*)	Oak / Sycamore Woodland

Table 24 Proposed Planting Zones and Palettes and Mitigation Equivalent			
Planting Zone	**Description**	**Proposed Planting Palette**	**Planting Zone Equivalent**
sediment zone	inundated during high flow events. Distance from channel varies by location.	Mugwort (*Artemisia douglasiana*) Oregon false goldenaster (*Heterotheca oregona var. scaberrima*) Creeping wildrye (*Leymus triticoides*) California man-root (*Marah fabaceus*)	
Upland planting zone	Plantings on upper banks and high terrace, beyond the top of channel bank. This zone would not be inundated. Due to the width of this reach and the locations of the berms, this zone is limited.	California buckeye (*Aesculus californica*) Coast live oak (*Quercus agrifolia*) Valley oak (*Quercus lobata*) California sagebrush (*Artemisia californa*) California brome (*Bromus carinatus*) Purple needlegrass (*Stipa pulchra*)	Oak / Sycamore Woodland
Hydroseed zone	Limited hydroseeding on newly constructed berm slopes and other disturbed sites for erosion control. No woody plants or vines would be planted here.	Sterile non-invasive grasses	Hydroseeding

Figure 23 shows the location of the various planting zones within the reach. The location of each zone relative to the channel depends on the overall width of the reach in any respective location. Figure 24 and Figure 25 show the locations of the proposed replanting in Reach 12. Upland planting zones are only located in one downstream area where the width of the reach precludes the need for a berm. Upland planting zones are not shown on Figure 23; however, they are identified in Figure 25. Table 25 and Table 26 show the amount of mitigation for each planting zone equivalent. As shown, the proposed planting would result in 1.97 acres of riparian forest and 658.26 linear feet of SRA cover.

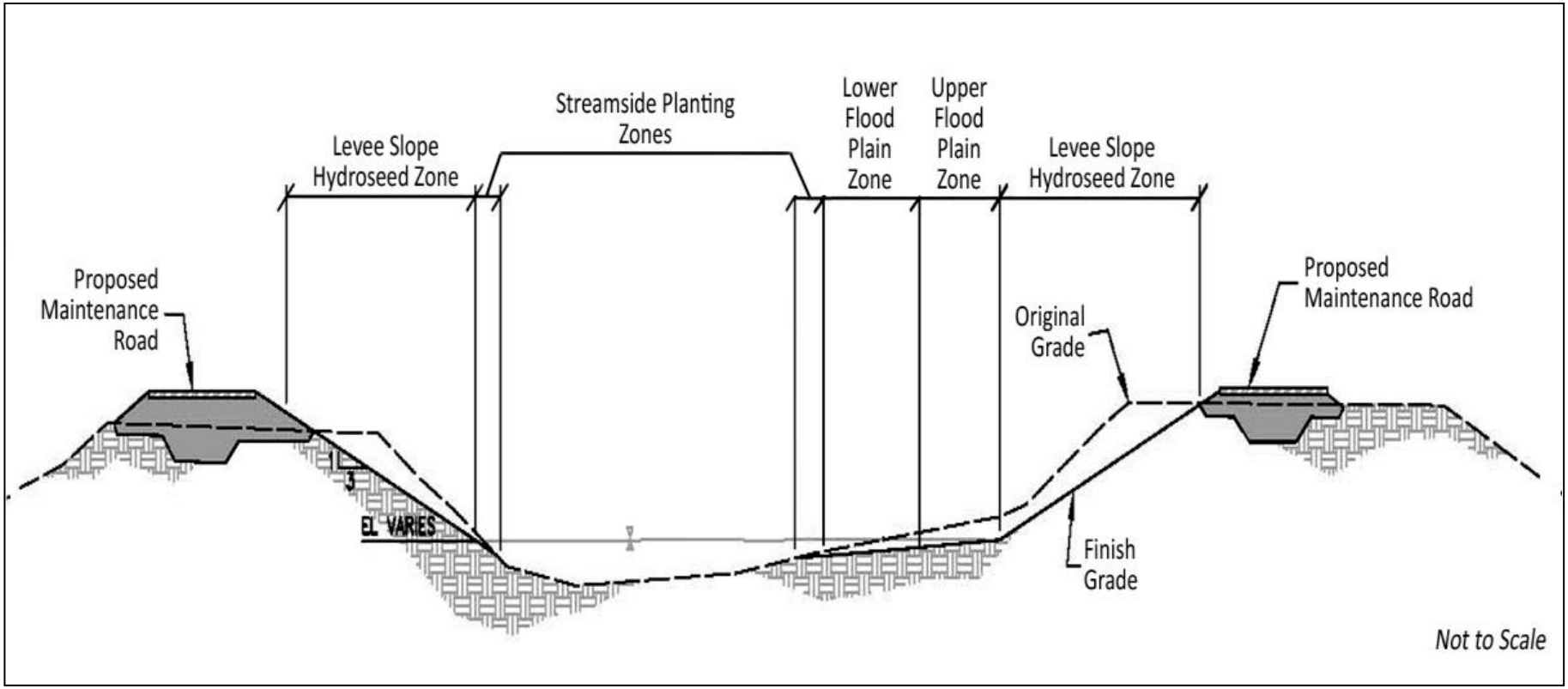

Figure 21. Proposed Planting Zones

Figure 22. Proposed Replanting in the Upstream Portion of Reach 12

This page is intentionally left blank.

Figure 23. Proposed Replanting in the Downstream Portion of Reach 12

This page is intentionally left blank.

Table 25 Proposed Vegetation Replanting Mitigation		
Habitat Type	**Planting Zone Equivalent**	**Total Planting (acre)**
Oak / Sycamore Woodland	Lower floodplain Upper floodplain Upland planting	1.77
Willow / Cottonwood / Alder Riparian Forest	Streamside planting	0.20
TOTAL RIPARIAN FOREST PLANTED		**1.97**
Herbaceous Ruderal [1]	Hydroseeding	2.13
Notes: [1] Herbaceous ruderal (hydroseeding) does not count towards riparian forest. This habitat type will not be discussed further in this document.		

Table 26 Proposed SRA Cover Replanting Mitigation	
Habitat Type	**Total Planting (linear feet)**
Riparian Forest Planting	
Riparian forest planting within 15 feet of low-flow channel	207.26
Instream Structures	
Debris jam (9 total)	225
Root wad (15 total)	192
Undercut bank (7 total)	34
Total	**658.26**

Finally, Table 27shows the habitat impacts and proposed mitigation calculations for the proposed Reach 12 project. It provides total mitigation required for riparian forest loss within the SRA cover zone and outside this zone, and provides the net difference. The table shows that:

- The impact to riparian forest 1.16 acres. The mitigation planting would be 1.97 acres, for a net increase of 0.77 acre.

- The impact to SRA cover is approximately 387 linear feet. The proposed mitigation planting would be 658.26 linear feet, for a net increase of 271.35 linear feet.

Table 27 Habitat Impact and Proposed Mitigation Calculations

Land Cover Class (Habitat)	Total Mitigation Required	Proposed Mitigation Planting	Difference
Riparian Forest Mitigation (riparian habitat) [1] (acre)	1.20	1.97	+0.77
SRA Cover Mitigation [2] (linear feet)	386.91	658.26	+271.35

Notes:

[1] Proposed planting of oak/sycamore woodlands and willow/cottonwood/alder riparian forest is intended as mitigation for riparian forest loss.

[2] SRA cover includes riparian forest within 15 feet of the low-flow channel, measured in linear feet parallel to the channel bank.

Impact BIO-1: *Result in a substantial loss of riparian forest or SRA cover that would not reestablish within 10 years following construction*. Construction of the proposed Reach 12 project would result in a net increase of 0.77 acre of riparian forest and 271.35 linear feet of SRA cover. It is expected that riparian forest and SRA cover protected during construction (*Avoidance and Minimization Measure BIO-1*), as well as vegetation planted within the riparian forest and SRA cover zones (*Mitigation Measure BIO*-2) would, over time, contribute to additional riparian forest and SRA cover. Protected riparian forest and SRA cover would encourage recruitment of trees and shrubs in impacted areas. Planted vegetation would take time to establish and become suitable riparian forest and SRA cover; but, ongoing maintenance and monitoring of the vegetation would ensure that establishment is successful. Further, should planted vegetation not be successful, unsuccessful areas would be replanted and closely monitored. As described in *Avoidance and Minimization Measure BIO-3*, the USACE and SCVWD would also update the 1999 MMP for Reach 12. Mitigation maintenance, monitoring, report would closely follow the revised MMP. Should replanting not meet the success criteria identified in a revised MMP, remediation measures will be taken.

Implementation of the above listed avoidance, minimization, and mitigation measures (*BIO-1, BIO-2, and BIO-3*) will ensure that this impact is ***less than significant***.

Impact BIO-2: *Result in permanent loss of wetlands or other waters of the United States.* The proposed project would result in a temporary loss of 0.001 acre of aquatic emergent vegetation. However, following construction it is expected that aquatic emergent vegetation would reestablish at the margins of the channel. Adding gravel to the river would create additional shallow water habitat that would encourage localized areas of emergent aquatic vegetation in the short term. In the long term, with or without the proposed action, emergent aquatic vegetation will tend to be replaced with SRA cover due to development of continuous shade along the river banks. Therefore, this impact is expected to be ***less than significant.*** Implementing *Avoidance and Minimization Measure BIO-3: Update and revise the 1999 MMP* would provide for monitoring future establishment of aquatic emergent vegetation.

Impact BIO-3: *Result in fish and wildlife avoiding the project area following establishment of riparian forest and SRA cover.* Though unlikely, following construction there is a potential for fish and wildlife to avoid the project area. As previously mentioned, several acres of riparian forest and SRA cover would be protected from construction activities. Fish and wildlife would be able to use this suitable habitat shortly after construction. Following construction, the improved channel morphology and growth of planted vegetation would provide additional suitable habitat for species. As such, it is expected that this impact would be ***less than significant***. Further, wildlife monitoring would be included in the revised MMP (see *Avoidance and Minimization Measure BIO-3*); this would provide information to assess is the project results in fish and wildlife avoiding the area.

Impact BIO-4: *Result in take of listed species that could not be mitigated.* The only listed species that has the potential to be present in the project area is the federally-threatened Central California Coastal steelhead. As previously discussed, one juvenile steelhead was captured and relocated downstream during the 2012 dewatering of Reach 10B for construction. There is the potential that dewatering could result in harm to steelhead that may be present in Reach 12. Prior to dewatering, a qualified and approved biologist will be onsite to capture and relocate native fish downstream of construction activities (see *Avoidance and Minimization Measure BIO-4*). Relocating native fish will likely reduce the potential for take of listed steelhead. Should take of steelhead occur, individuals would be preserved and the NMFS would be contacted immediately. Additionally, a qualified biologist would be onsite to monitor dewatering activities periodically during construction and during re-watering the channel. Monitoring and relocating native fish would ensure that impacts to native fish, including steelhead, are ***less than significant***.

Impact BIO-5: *Result in take of protected birds or their nests.* Several birds inhabit the riparian and aquatic habitat in the project area. Take of birds or their nests could result in adverse effects. Prior to the start of construction, but no earlier than 1 week prior to construction, a qualified biologist would monitor the project site for birds. Additionally, monitoring would be conducted periodically during construction. As discussed in *Avoidance and Minimization Measure BIO-5,* should protected nests be identified, they would be protected by a 50-foot clearance. Swallows nests under bridges would be protected by 50 vertical-feet, should bridges be at least 50 feet above construction

activities. Implementation of *Avoidance and Minimization Measure BIO-5* would ensure that impacts to protected birds are ***less than significant***.

Avoidance and Minimization Measures

Avoidance and Minimization Measure BIO-1: *Vegetation not proposed for removal will be protected during construction.* All vegetation not proposed for removal will be clearly marked and fenced off such that it is protected at all times from construction activities. During construction, an approved arborist will be onsite at all times to monitor the health of the protected vegetation. Should protected vegetation show signs of distress, appropriate measures will be taken to alleviate stressed individuals and restore health.

Mitigation Measure BIO-2: *Replant vegetation according to the planting designs for the project.* The proposed project would involve planting approximately 1.97 acres of riparian vegetation. Of this 658.26 linear feet would contribute to SRA cover. This vegetation would mitigate for all impacts to riparian forest and SRA cover.

Following construction, the planted vegetation would be maintained for a minimum of 4 years. Further it would be monitored annually for a period up to 12 years, depending on the requirements of the revised MMP (see *Avoidance and Minimization Measure BIO-3*).

Mitigation Measure BIO-3: *Update and revise the 1999 MMP.* The USACE and SCVWD would update the 1999 MMP for Reach 12. The updated MMP would identify maintenance that would help ensure success of the planted vegetation as well as goals and success criteria for vegetation and habitats. It would describe monitoring and reporting requirements. Finally, it would prescribe vegetation and habitat rehabilitation and replanting measures, should the goals of the mitigation plantings not be met. The MMP would be designed to coordinate with mitigation and monitoring activities in other reaches. The USACE and SCVWD will work closely with the AMT, RWQCB, and other agencies to in the revision of the MMP.

Avoidance and Minimization Measure BIO-4: *Monitor and relocate native fish during dewatering activities.* Prior and during dewatering activities, a qualified fish biologist would be onsite to monitor for native fish. Should native fish be identified, they would be captured and relocated downstream to areas not affected by dewatering activities. Non-native fish would be disposed of. Should a steelhead be taken during dewatering activities, the biologists would preserve individual fish and contact the USACE and NMFS. All fish monitoring and relocation activities would be recorded and results would be provided to the NMFS.

Prior to the start of any construction (including upland construction), a fish monitoring and relocation plan would be prepared. The plan would detail all monitoring and relocation activities, as well as recording and reporting practices. This plan would be submitted to the NMFS for review

and approval. (Note: this plan would be prepared by the contractor selected to construct the project.)

Avoidance and Minimization Measure BIO-5: *Conduct bird surveys prior to construction.* Construction activities occurring prior to September 1 would require bird surveys prior to construction. A qualified and approved biologist would be responsible for conducting bird surveys and ensuring adequate protection of 50 feet from all construction activities. The biologist would train construction personnel of the 50-foot protection requirement. Additionally, the biologist would periodically monitor bird activity and look for new nests within the project area.

Prior to the start of any construction, a bird monitoring and protection plan would be prepared. The plan would detail all monitoring and relocation activities, as well as recording and reporting practices. The plan would be submitted to the USACE for approval. (Note: this plan would be prepared by the contractor selected to construct the project.)

3.6 Air Quality

The project is located in the South Bay in Santa Clara County, within the San Francisco Bay Area Air Basin (air basin). The air basin covers an area of approximately 5,540 square miles and is characterized by complex terrain of coastal mountain ranges, inland valleys, and the San Francisco Bay. The air basin is generally bounded on the west by the Pacific Ocean, on the north by the Coast Ranges, and on the east and south by the Diablo Range.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell over the northeastern Pacific Ocean. The climate is also affected by the moderating effects of the adjacent oceanic heat reservoir. Mild summers and winters, moderate rainfall, daytime onshore breezes, and moderate humidity characterize regional climatic conditions. In summer, when the high-pressure cell is strongest and farthest north, fog forms in the morning and temperatures are mild. In winter, when the high-pressure cell is weakest and farthest south, occasional rainstorms occur.

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. When a warm layer of air traps cooler air close to the ground, an inversion layer is produced. Such temperature inversions hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground. During summer's longer daylight hours, plentiful sunshine provides the energy needed to fuel photochemical reactions between nitrogen oxides (NOx) and reactive organic gases (ROG), which result in ozone formation.

In the winter, temperature inversions dominate during the night and early morning hours but frequently dissipate by afternoon. At this time, the greatest pollution problems are from carbon monoxide (CO) and NOx. High CO concentrations occur on winter days with strong surface inversions and light winds. CO transport is extremely limited.

The federal Clean Air Act (CAA) established the National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. These criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), lead (Pb), and sulfur dioxide (SO_2). California Clean Air Act (CCAA) also established the California Ambient Air Quality Standards (CAAQS) for criteria pollutants. In general, CAAQS are more stringent than the NAAQS.

The CAA requires states to classify air basins as either *attainment* or *nonattainment* with respect to quantitative thresholds in the NAAQS, and prepare State Implementation Plans (SIPs). SIPs articulate emission reduction strategies to maintain the NAAQS for those areas designated as attainment and to attain the NAAQS for those areas designated as nonattainment.

The project area is within the geographical jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The attainment status of NAAQS and the CAAQS are shown in Table 28. Since the BAAQMD is not in attainment for all pollutants, the BAAQMD has adopted emission threshold guidelines required to attain federal and state ambient air quality standards in the Bay Area as part of the SIP. BAAQMD has daily construction emission thresholds for ROG, NOx, PM10 and PM2.5. Furthermore, BAAQMD has annual construction emission threshold for green house gasses (GHGs). The applicable construction emission guidelines are shown in Table 29.

Table 28 Ambient Air Quality Attainment Status

Criteria Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone (O_3)	8 Hour	0.070 ppm	Nonattainment	0.075 ppm	Nonattainment
	1 Hour	0.09 ppm	Nonattainment		
Carbon Monoxide (CO)	8 Hour	9.0 ppm	Attainment	9 ppm	Attainment
	1 Hour	20 ppm	Attainment	35 ppm	Attainment
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm	Attainment	0.100 ppm	Unclassified
	Annual Arithmetic Mean	0.030 ppm	--	0.053 ppm	Attainment
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	1 Hour	0.25 ppm	Attainment	0.075 ppm	Attainment
	Annual Arithmetic Mean	--	--	0.030 ppm	Attainment

Table 28 Ambient Air Quality Attainment Status					
Criteria Pollutant	**Averaging Time**	**California Standards**		**National Standards**	
		Concentration	**Attainment Status**	**Concentration**	**Attainment Status**
Particulate Matter (PM10)	Annual Arithmetic Mean	20 ug/m^3	Nonattainment	--	--
	24 Hour	50 ug/m^3	Nonattainment	150 ug/m^3	Unclassified
Particulate Matter (PM2.5)	Annual Arithmetic Mean	12 ug/m^3	Nonattainment	12 ug/m^3	Attainment
	24 Hour	--	--	35 ug/m^3	Nonattainment
Sulfates	24 Hour	25 ug/m^3	Attainment	--	--
Lead (Pb)	30 day Average	1.5 ug/m^3	--	--	--
	Calendar Quarter	--	--	1.5 ug/m^3	Attainment
	Rolling 3 Monthly Average	--	--	0.15 ug/m^3	
Hydrogen Sulfide	1 Hour	0.03	Unclassified	--	--
Vinyl Chloride	24 Hour	0.010 ppm	--	--	--
Visibility Reducing Particles	8 Hour (10:00 to 18:00 PST)	--	Unclassified	--	--

NOTES:
[1] Source: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.html

Table 29 BAAQMD Construction Emissions Thresholds	
Criteria Pollutants, Precursors, Odors and GHGs	**BAAQMD Construction Emission Thresholds**
VOC	54 (lb/day)
NO_2	54 (lb/day)
PM10	82 (lb/day)

Table 29 BAAQMD Construction Emissions Thresholds	
Criteria Pollutants, Precursors, Odors and GHGs	**BAAQMD Construction Emission Thresholds**
PM2.5	54 (lb/day)
Pb	None (Implement BMPs)
CO	None (Implement BMPs)

Furthermore, all federal actions in nonattainment or maintenance areas that have the potential to emit criteria pollutants or their precursors for which the area is designated nonattainment are required to evaluate whether estimated emissions conform to the SIP. That is, the federal action must be consistent with the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards. The General Conformity Rule is not applicable to federal actions where estimated emissions are below de minimis levels (Table 30).

Table 30 General Conformity Rule de minimis Thresholds	
Criteria Pollutant	**Thresholds (tons/year)**
VOC	10
NO_2	10
PM10	70
PM2.5	100
Pb	25
CO	100

Significance Criteria: The project would have a significant effect on air quality if estimated construction emissions exceed applicable BAAQMD construction emissions thresholds or the General Conformity de minimis thresholds.

3.6.1 Potential Impacts and Mitigation Measures

The project encompasses several major elements phased from 2014 thru 2018: clearing and grubbing, channel modification, raising berms, construction of maintenance roads and access

ramps, and vegetation maintenance. Table 11 (Section 2.11) provides a summary of proposed construction activities in Reach 12. Though some vegetation would occur in 2014, the majority of construction would occur in 2015. Project elements in 2016 thru 2018 would entail maintenance of planted vegetation. In-channel construction would occur from June thru October 2015. In general, approximately eight pieces of off-road construction equipment would be utilized periodically as needed for the duration of construction. Off-road construction equipment includes an excavator, loader, dozer, crane, soil stabilizer, grader, roller, and a water truck. Duration of use for each piece of off-road equipment by construction phase is shown in Appendix C. Construction would be limited to 8-hour working days. Major project elements expected to affect air quality are further described below.

- Clearing and grubbing entail the use of an excavator, loader, and dozer to clear (and in some cases, grub) within the 5-acre footprint between August and November of 2014. Duration of use for each piece of off-road equipment is shown in Appendix C. Up to 12,300 cubic yards of vegetation would be transported to Kirby Canyon Landfill or Guadalupe Landfill. Both landfills are within a 20-mile radius of the project site. Furthermore, grubbing would require up to 18 inches of topsoil from the 5-acre footprint to be removed. As a result, approximately 4,100 cubic yards of soil would also be transported to landfills, requiring approximately 1,640 haul trips in total for the clearing and grubbing operations.

- Channel modification activities encompass creation of flood benches, installation of instream structures, and gravel augmentation. These activities require the periodic use of excavator, dozer, crane, grader, roller, soil stabilizer, and water trucks over a five-month period. Duration of use for each piece of off-road equipment is shown in Appendix C. Gravel import would require 608 haul trips. Import of fill for flood bench work and instream structures would require 175 haul trips.

- Construction of maintenance road and access ramps would occur in 2015, subject to seasonal restrictions on construction activities. These activities require the periodic use of excavator, dozer, crane, grader, roller, soil stabilizer, and water trucks. Duration of use for each piece of off-road equipment is shown in Appendix C. Approximately 253 haul trips would be required to import aggregate.

- Raising existing berms would take place during a 1.5 month window between June and October 2015. These activities require the periodic use of excavator, dozer, crane, grader, roller, soil stabilizer, and water trucks. Duration of use for each piece of off-road equipment is shown in Appendix C. No additional haul trips are required.

Construction emissions for the proposed project were estimated using CalEEMod version 2013.2.2. Input data and parameters, such as construction schedule, phasing, and equipment usage were derived from construction cost estimates and project construction schedule. Daily emission estimates were compared to BAAQMD construction emission thresholds. Annual emission

estimates were compared to the General Conformity Rule de minimis thresholds. Note that calculations substantially overstate emissions since some previous project elements were deleted after calculations were completed.

Daily emission estimates for all years of construction are shown in Table 31. With the exception of NOx emissions in 2015, unmitigated emission estimates for all regulated pollutants were below daily construction thresholds for all construction years. Emissions of NOx in 2015 were estimated to be 105.8 lb/day which surpassed the BAAQMD NOx threshold of 54 lb/day. Use of Tier 4 engines as mitigation would reduce 2015 NOx emissions below the 54 lb/day NOx threshold to 22.83 lb/day. Furthermore, use of watering trucks resulted in reductions of fugitive PM10 and PM2.5.

Annual emission estimates for all years of construction are shown in Table 32. Mitigated and unmitigated emissions for all construction years are below General Conformity de minimis thresholds.

GHG emission estimates for all years of construction are shown in Table 33. GHG emissions for all construction years are below BAAQMD GHG emissions thresholds. Note that the "mitigation" numbers are likely to be conservative (biased upwards relative to actual emissions), while the "mitigation" numbers are based on data from engines and are likely to not be biased in either direction. Therefore, the "mitigation" numbers are very unlikely to be exceeded if emissions are mitigated with Tier 4 engines.

Table 31	Daily Construction Emissions Estimates										
Criteria Pollutants and Precursors	BAAQMD Construction Emission Thresholds (lb/day)[1]	2014 Daily Construction Emissions (tons/year)		2015 Daily Construction Emissions (tons/year)		2016 Daily Construction Emissions (tons/year)		2017 Daily Construction Emissions (tons/year)		2018 Daily Construction Emissions (tons/year)	
		No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]
ROG	54	4.73	3.31	9.42	1.60	0.95	0.16	0.87	0.16	0.77	0.16
NOx	54	50.95	26.58	105.8	22.83	10.86	0.70	9.84	0.70	8.29	0.70
CO	None	31.16	43.44	55.85	55.89	5.16	6.00	4.78	5.99	4.26	5.98
SO_2	None	0.04	0.04	0.08	0.08	0.13	0.13	0.13	0.13	0.13	0.13
PM 10 E[4]	82	2.57	1.37	5.05	0.41	0.40	0.02	0.36	0.02	0.30	0.02
PM 2.5 E	54	2.3	1.3	4.6	0.41	0.37	0.02	0.33	0.02	0.27	0.02
PM 10 F[5]	None	12.14	5.91	13.03	6.19	0.05	0.05	0.01	0.01	0.01	0.01
PM 2.5 F	None	5.98	2.80	6.81	3.15	0.01	0.01	0.00	0.00	0.00	0.00

Notes:

[1] BAAQMD 2001 CEQA Guidelines, Table 2-1, Section 2-6

[2] The discrepancy between unmitigated and mitigated CO emissions is the different algorithms used to calculate emissions. Unmitigated emissions (including CO) are calculated based on actual engine test data. In contrast mitigated emissions are calculated using engine standards manufacturers are required to meet. Thus, actual mitigated emissions are almost certain to be lower than stated.

[3] Mitigation using Tier 4 engines for off-road equipment and use of water trucks.

[4] Emission

[5] Fugitive

Table 32	Annual Construction Emissions Estimates										
Criteria Pollutant	General Conformity Rule de minimis Thresholds (tons/year)[1]	2014 Daily Construction Emissions (tons/year)		2015 Daily Construction Emissions (tons/year)		2016 Daily Construction Emissions (tons/year)		2017 Daily Construction Emissions (tons/year)		2018 Daily Construction Emissions (tons/year)	
		No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]	No Mitigation[2]	w/ Mitigation[2, 3]
VOC	10	0.09	0.05	0.13	0.33	0.22	0.00	0.11	0.00	0.01	0.00
NO_2	10	0.98	0.49	1.49	0.37	0.26	0.17	0.13	0.00	0.11	0.00
PM10[4]	70	0.32	0.16	0.30	0.12	0.01	0.00	0.00	0.00	0.00	0.00
PM2.5[4]	100	0.13	0.08	0.12	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Pb[5]	25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO	100	0.60	0.80	0.77	0.87	0.12	0.14	0.06	0.08	0.05	0.08

Notes:

[1] General Conformity Rule (40 CFR § 93.153)

[2] The discrepancy between unmitigated and mitigated CO emissions is the different algorithms used to calculate emissions. Unmitigated emissions (including CO) are calculated based on actual engine test data. In contrast mitigated emissions are calculated using engine standards manufacturers are required to meet. Thus, actual mitigated emissions are almost certain to be lower than stated.

[3] Mitigation using Tier 4 engines for off-road equipment and use of water trucks.

[4] Total PM values (exhaust & fugitive) from CalEEMod

[5] CalEEMod does not provide estimates for Pb emissions since it is no longer used in formulating fuel. Thus, Pb values are 0.00 by default.

Note that calculations overstate emissions since some work was deleted after calculations were completed.

Table 33 Annual GHG Emissions Estimates						
Criteria Pollutant	**BAAQMD GHG Emission Thresholds (MT CO_2e/year)[1]**	**2014 Annual GHG Emissions (MT CO_2e/year)[2]**	**2015 Annual GHG Emissions (MT CO_2e/year)[2]**	**2016 Annual GHG Emissions (MT CO_2e/year)[2]**	**2017 Annual GHG Emissions (MT CO_2e/year)[2]**	**2018 Annual GHG Emissions (MT CO_2e/year)[2]**
GHG	1,100	81.17	112.44	30.33	16.77	17.12

NOTES:

[1] BAAQMD 2001 CEQA Guidelines, Table 2-1, Section 2-6

[2] Calculations overstate emissions due to some work being deleted after calculations were completed.

Impact AQ-1: *Estimated emissions exceed General Conformity de minimis thresholds*. Annual construction emissions for all construction years are below General Conformity de minimis thresholds. Impacts to air quality would be ***less than significant***.

Impact AQ-2: *Estimated emissions exceed applicable BAAQMD construction emissions thresholds.* Emissions for NOx in 2015 would exceed BAAQMD construction emissions threshold of 54 lb/day. With the implementation of *Avoidance and Minimization Measure AQ-1*, estimated emissions for NOx would be below the BAAQMD construction emissions threshold, and impacts to air quality would be ***less than significant***.

Avoidance, Minimization, and Mitigation Measures

Avoidance and Minimization Measure AQ-1: *Utilize Tier-4 off-road equipment.* Utilize off-road diesel-powered construction equipment that meets Tier-4 off-road emission standards (construction equipment is 2008 or newer) for all off-road equipment greater than 50 horsepower.

General Conformity Rule Applicability: Construction emission would not exceed General Conformity de minimis thresholds. Therefore, a General Conformity analysis is not required.

3.7 Historic and Cultural Resources

The term cultural resource is used to describe the tangible and intangible evidence of past human behavior, which can be discerned in prehistoric archaeological sites, historic-era archaeological and architectural resources, artifacts and objects, historical buildings and structures, traditional cultural properties, and Native American sacred sites.

When a federal agency conducts a study or identifies a proposed project, the primary historic preservation statute that drives the cultural resource work is usually Section 106 of the National Historic Preservation Act (NHPA), as amended (16 USC § 470 et seq.). The regulations

implementing Section 106 of the Act are promulgated by the Secretary of the Interior, as codified in 36 CFR § 800. Section 106 requires agencies to make a good-faith effort to identify cultural resources in the area of potential effects, defined as the geographic area within which a project may directly or indirectly cause alterations in the character or use of historic properties. Identified resources are then evaluated for their significance and integrity by applying the criteria of the National Register of Historic Places (National Register), and to consult with Native American tribes, the State Historic Preservation Officer (SHPO), and interested parties as appropriate. This is known as the Identification and Evaluation phase of the Section 106 process.

When a cultural resource is determined through consensus to be eligible for listing in the National Register (an "historic property" in federal terminology) and all or part of it may be damaged or destroyed (an "adverse effect"), the agency, SHPO and tribal representatives consult to seek ways to not adversely affect the historic property, possibly through redesign of project features. In situations where adverse effects are unavoidable, a treatment plan is developed to resolve the effects, and a memorandum of agreement is often executed by the agency and the SHPO, with tribes given an opportunity to concur in the agreement. Resolution of adverse effects to historic properties typically involve archival and technical research, scientific excavations to recover information, photo and archival documentation, and interpretive and education programs to preserve data that would otherwise be lost when a project is implemented.

The NHPA authorizes the Secretary of the Interior to maintain and expand a National Register of districts, sites, buildings, structures, and objects of significance in American history, architecture, archaeology, engineering, and culture. A property may be listed in the National Register if it meets criteria for evaluation defined in 36 CFR § 60.4. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association and:

(A) that are associated with events that have made a significant contribution to the broad patterns of our history; or
(b) that are associated with the lives of persons significant in our past; or
(c) that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
(d) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR § 60.4).

A property must meet one or more of these specific criteria to qualify as a good representative of a significant historical theme or pattern. It must be associated with important historical events or persons (Criteria A and B); convey important technical, aesthetic, or environmental values (Criterion C); or have potential to provide important scientific or scholarly information

(Criterion D). Unless a site is of exceptional importance, it is not eligible for listing in the NRHP until it is 50 years of age.

A property determined eligible must also retain enough integrity to enable it to convey its historic identity; in other words, to be recognizable to a historical contemporary. The NRHP recognizes seven aspects or qualities that, in various combinations, define integrity: Location, the place where the historic property was constructed or the place where the historic event occurred; Design, the combination of elements that create the form, plan, space, structure, and style of a property; Setting, the physical environment of a historic property; Materials, the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property; Workmanship, the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory; Feeling, property's expression of the aesthetic or historic sense of a particular period of time; and Association, the direct link between an important historic event or person and a historic resource.

A historic resource maintains integrity when the property possesses several, and usually most, of these aspects. The significance of a resource (why, where, and when a property is important) must first be fully established, and only after significance is established can the integrity be addressed. The seven elements of integrity are most appropriately applied to standing buildings, structures, and objects. Location is a critical element for all resource types, but for archaeological sites the other six aspects are not readily applicable to most archaeological sites. A more relevant (and commonly applied) measure of integrity for archaeological sites is the resource's physical properties, i.e., the vertical and horizontal structure of the deposit.

Delineation of Area of Potential Effects: The Area of Potential Effects (APE) consists of (1) the River channel and both banks, approximately 150 feet wide from the stream center line, within which cut-and-fill work and placement of gravel in the stream would occur, and (2) unspecified channel areas downstream of Reach 12 where gravel migration from Reach 12 is expected to occur.

The USACE and SCVWD become aware of a dump site of historic-era debris, which is situated in the APE. This generated the archaeological research and site inspection of this area reported below. It was proposed that a foundation of engineered fill would be placed over the archaeological site to avoid impacts if necessary, since early designs would have placed an access ramp at or near this location.

Identification of Cultural and Historic Resources: In November 2013, prior to the historic-era deposit inspection and survey of the APE for additional cultural resources, the USACE conducted the standard records search, including information of areas previously surveyed by cultural resource specialists and information on any known prehistoric archaeological or historical-era resources on file with the Northwest Information Center (NWIC), California Historical Resources Information System. The search included checking the National Register of Historic Places by accessing the National Park Service website (http://www.nps.gov/history/nr/research/),

reviewing the California Inventory of Historic Resources, California Historical Landmarks, Heritage Resources of Santa Clara County, and the Historical Atlas of Santa Clara County.

The USACE reviewed its cultural and historical resource information, and interviews were conducted with project engineers and planners. It was determined that the location of the historic-era site in question was situated adjacent to farm properties surveyed by archaeologists in the 1970s. The site was not recorded with the NWIC, nor was it mentioned in any documentation. The field evaluation of the historic-era deposit and the archaeological survey of the Reach 12 area of potential effects were performed in December 2013.

The NWIC information revealed two ranch and farm properties recorded in the vicinity of the historic deposit, identified as P-43-000694 and P-43-000695, recorded by professional historians during architectural surveys in the 1980–1990s. The farms and buildings, which were far removed from the river and never in the area of potential effects, no longer exist. The information from the record forms provides a historic context for the historic-era deposit.

The P-43-000695 record forms documented a ranch complex known as the Malech Ranch that once covered about 30 acres and consisted of nine structures of wood-frame construction: a main house, tank house, sheds of undetermined use, a fruit-packing shed, two barns, and a garage. The complex of buildings was situated along the Almaden Expressway about 0.5 mile southwest of the historic deposit. This was a family operated farm first developed around the turn of the 20th century, apparently with the earliest period dominated by hay, grain, and livestock, and in later decades used to grow fruits and vegetables. The orchards on the property consisted of prunes, apricots, walnuts, and peaches; also present were a small vineyard, and acres of alfalfa. At the time that the property was recorded, the buildings did not "exhibit significant architectural characteristics" but appeared "to possess sufficient age and integrity to be listed on the National Register."

The P-43-000694 records documented two agricultural properties, one of which contained the Malech Ranch. The other associated with the architectural survey was the Cassibba house and farm: a Craftsman-style house, representative of a vernacular residence from the early 20th century, built circa 1921 and moved to the property in 1952. Ancillary buildings included a circa 1952 wood-clad garage, an open-shed building, and a wood shed enclosing a water pump and farm equipment. The buildings were evaluated for historical significance, and it was noted that the buildings as they existed in 2008 do not "provide a direct association with events that have made a significant contribution to the broad pattern of the area's local history." Although the Malech and Cassibba families were members of the local agricultural community, "they were not known to have made any significant contributions to the development of the local horticultural industry."

The archaeological survey covered the banks of the river in Reach 12. Besides the newly discovered historical deposit, no other cultural resources were identified in the area of potential effects. The site inspection of the historic-period deposit provided the following observations:

- The deposit appears to have been created through multiple dumping episodes at the edge of the secondary terrace of the Guadalupe River;
- Surface materials, in a matrix of gravel and cobble soil, extended for a distance of about 164 feet;
- Deposit materials had sloughed down slope from the terrace edge to the floodplain terrace; and
- The vertical distance from top of deposit to floodplain terrace is about 26 feet.

In addition, it was noted that the site deposit was extremely damaged from unauthorized digging, by so-called bottle hunters, apparently done with hand tools and leaving exposed cut banks and pits. The vegetation onsite was recently burned. Concrete rubble was recently dumped near the edge of the deposit. It is unknown how long the collectors were impacting the deposit and its artifacts, although it appears to have been years. It also appeared that the deposit was partly concealed by vegetation, which was recently burned. No evidence of direct material deposition was noted on the lower, primary floodplain terrace, and no evidence of digging was noted there.

The observed deposit constituents were: (a) metal parts and tin cans, rusted and not definitive to function; (b) several whole glass bottles, a couple jars, but much is fragmentary, with bottle tops both screw-top and cork forms; (c) fragmentary ceramics, with plates of floral print ware and geometric border design, and also pieces of a crock pot; (d) broken concrete sewer lines and general rubble; (e) construction style bricks and firebrick, the later suggesting remnants of a kiln.

National Register Evaluation: A Historic Properties Memorandum (HPM) was prepared that describes the APE, and presents the findings of the archaeological research, inspection of the historic deposit, and survey results. The HPM includes an evaluation of the resource for its eligibility to be listed in the National Register, which was done by applying the criterion d requirements (see above). It was determined that the historic-era site does not meet criterion d because the data shows there is no potential to yield information important to the local history. The extremely disturbed condition of the deposit was clearly demonstrated. The resource, therefore, is not considered to be a historic property for purposes of consultation under the Section 106.

State Historic Preservation Officer Consultation: In January 2013, the USACE initiated Section 106 consultation with the SHPO, requesting comment on Historic Properties Memorandum and the findings. The USACE believes it has completed an appropriate level of study for the proposed project, and that this work constitutes a "good-faith" effort to identify historic properties [36 CFR § 800.4(a) and § 800.4(b)(1)]. The USACE has made a finding of "no historic properties present" [36 CFR § 800.4(d)(1)]. The SHPO contacted the USACE within the standard timeframe, requesting clarification of the relationship of the currently proposed mitigation features with the originally authorized project. No additional comment was received from the SHPO, thus the USACE has satisfied its responsibilities under Section 106 of the NHPA.

Significance Criteria: An impact would be considered significant if it has the potential to adversely affect a historic or cultural resource that is currently listed on the National Register or determined by consensus to be eligible for listing.

3.7.1 Potential Impacts and Mitigation Measures

Impact HIST-1: *Adversely affect a resource that is listed or determined eligible for listing on the National Register.* The USACE expects the SHPO to concur with the HPM findings and conclusion, i.e., no National Register cultural or historic resources in the APE, and therefore, such resources will ***not be adversely affected***. No mitigation is required.

3.8 Noise

Airborne sound is a rapid fluctuation of air pressure and local air velocity. Sound levels are measured and expressed in decibels (dB) with 0 dB roughly equal to the threshold of human hearing. The frequency of sound is a measure of the pressure fluctuations per second, measured in Hertz (Hz). Most sounds do not consist of a single frequency, but are comprised of a broad band of frequencies differing in level. The characterization of sound level magnitude with respect to frequency is the sound spectrum.

Many rating methods exist to analyze sound of different sound spectra. Generally, the simplest method is used so that measurements may be made and noise impacts readily assessed using basic acoustical instrumentation. The method uses a single weighting filter which progressively de-emphasizes frequency components above 5,000 Hz and below 10,000 Hz. This frequency, called A-weighting is measured in A-weighted decibels (dBA) and reflects the relative decreased sensitivity of humans to both low and extremely high frequencies.

Noise levels diminish (or attenuate) as distance from the source increases based upon an inverse square rule, but the rate of attenuation varies with the type of sound source. Sound attenuates from point sources, such as an industrial facility, at a rate of 6 dB per doubling of distance. Roads typically have an attenuation rate of 4.5 dB per doubling of distance. However, heavily traveled roads with few gaps in traffic are typically characterized as a line source with an attenuation rate of 3 dB per doubling of distance.

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise on sensitive receptors. A single number, called the equivalent continuous noise level (L_{eq}) is used to describe a noise level over a period of time. The L_{eq} is a calculated single level for a specified duration, which contains the same energy as all of the varying sounds over the measurement period. While not identical to an average, especially when noise fluctuations are great, the L_{eq} is widely used to represent an average noise level over some period of time. Other common measurements include the minimum and maximum sound levels (L_{min} and L_{max}),and percentile-exceeded sound levels such as L_{10}, L_{20}, which is the A-weighted sound level that is exceeded 10 percent of the measurement period, 20 percent, etc. L_{50} is the level exceeded

50 percent of the period, and so on. L_{50} is the median sound level measured during the measurement period.

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time as well as community response to them. The Community Noise Equivalent Level (CNEL) and the Day Night Average Level (L_{dn}) are such indices. The L_{dn} represents the 24-hour A-weighted equivalent sound level with a 10 dB weighting added to the nighttime hourly noise levels (HNL) between 10:00 p.m. to 7:00 a.m. The CNEL is computed identically to the L_{dn} but with the addition of a 5 dB penalty to the evening HNL (i.e., 7:00 p.m. to 10:00 p.m.). The CNEL value is typically less than 1 dB above the L_{dn} value.

In 1974, in response to the requirements of the federal Noise Control Act, the United States Environmental Protection Agency (USEPA) identified indoor and outdoor noise limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor L_{dn} limits of 55 dB and indoor L_{dn} levels of 45 dB are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. Sound-level criteria to protect against hearing damage in commercial and industrial areas are identified as 24-hour L_{eq} values of 70 dB (both outdoors and indoors).

The State of California does not promulgate standards for environmental noise but requires each city and county to include a noise element in its general plan (California Government Code Section 65302(f)). In addition, Title 4 C.C.R. has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. There are no other state regulations or policies related to noise that would apply to the project.

The City of San Jose in its General Plan and Municipal Code has certain specific policies and guidelines related to noise, which are described in the *Avoidance, Minimization and Mitigation Measures* section.

Ambient Noise in the Project Area: The proposed project is located in the City of San Jose's Cambrian/Pioneer Planning Area, located in southwest San Jose. Highway 85 is a major source of traffic noise that affects the Planning Area. Major roadways, including Almaden Expressway, Capitol Expressway, Coleman Road, Blossom Hill Road, Branham Lane, Hillsdale Avenue, South Bascom Avenue, Union Avenue, Leigh Avenue, Meridian Avenue, Cherry Avenue, Camden Avenue, Kooser Road, and Pearl Avenue are the biggest noise sources at land uses immediately adjacent to these roadways. The Cambrian/Pioneer Planning Area is mainly developed with residential land uses. The planning area is also developed with commercial land uses primarily found at the intersections of major streets (Bascom/Camden, Union/Camden, Almaden/Blossom Hill, etc.).

The existing noise environment of communities along Reach 12 is mostly affected by noise sources that are transportation related (Highway 85, Almaden Expressway, Branham Lane and Blossom Hill road).

There are single family homes and multi-unit townhomes within 50–100 feet of the project in the northern portion of Reach 12 on the east side. South of Highway 85 and located adjacent to the east side of the project is a senior living community and the Blossom Hills Apartment Complex. Adjacent to the west bank of Reach 12 are percolation ponds and commercial complexes. The closest residences on the west bank are apartments located on Sanchez Road 500 feet away from the project, separated by percolation ponds.

Percolation ponds, commercial centers and the Almaden Ranch Center comprise the rest of the land uses adjacent to the project. Highway 85 in an east-west direction over Reach 12 near the middle section of the project and is also flanked by Almaden Expressway to the west, which runs in a north-south direction. Other noise-sensitive land uses in those communities along Reach 12 would also experience noise impacts but to a lesser degree, which are mostly adjacent to the west bank of Reach 12. These are commercial complexes and the 45-acre Almaden Ranch Retail Center, which is currently under construction.

Existing noise levels along Almaden Expressway were measured at L_{dn} levels of 70 dBA. Highway 85 generates existing L_{dn} levels from 77 to 78 dBA at 75 feet. Vehicle traffic on Blossom Hill Road generates a day-night average noise level value of 71 dBA DNL at 75 feet. At 5733 Tucson Drive, 100 feet from the center of Almaden Expressway, 70 dBA was recorded and this is about 90 feet from Almaden Expressway in a residential neighborhood near the proposed project site.

Sensitive Receptors: Some land uses are generally regarded as being more sensitive to noise and vibration than others due to the types of population groups or activities involved. Sensitive population groups generally include children and the elderly. Noise sensitive land uses typically include all residential uses (single and multifamily, mobile homes, dormitories, and similar uses), hospitals, nursing homes, schools, and parks. Sensitive land uses are present along all reaches of the Upper Guadalupe River Flood Control Project. In the Reach 12 area, the densest residential areas on the east side of the river. These areas include the homes along Hampton Falls Place, Tonino Drive, the end of Dawnview Court, the Atrium Senior Living Community, and the Blossom Hills Apartment Complex.

Significance Criteria: The project would have a significant noise impact if it would expose sensitive receptors to nuisance noise (i.e., nuisance noise within 500 feet of residential uses or 200 feet of commercial or office uses).

The federal, state, and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and various other adverse physiological, psychological, and social effects associated with noise. The City of San Jose has

adopted a Noise Element of the General Plan (Master Plan) which contains land use and noise compatibility guidelines consistent with state and federal guidelines. The municipal code in the City of San Jose does not contain a noise control ordinance which is used by some cities to control specific, non-transportation type noise sources such as construction noise, an essential activity within any city. The following is stated as a policy within the City's Noise Element concerning construction noise: "Construction operations should use available noise suppression devices and techniques."

The Municipal Code does not establish quantitative noise limits for demolition or construction activities occurring in the City. San Jose considers significant construction impacts to occur if a project is located within 500 feet of residential uses or 200 feet of commercial or office uses.

The extent to which a community becomes annoyed with a noise activity will be influenced by the background noise level of the community without the offensive noise. The higher the background noise, the less noticeable becomes the offensive noise. Similarly, the lower the background noise, the more objectionable the intruding noise is judged by the community. Another important factor, according to the USEPA, is the initial attitude of the community toward the operation producing the noise. If the community is aware that the operation causing the noise is very necessary and will not continue indefinitely, the impact will be less objectionable to the community. The net effect of background noise and community attitude, according to the USEPA, would make construction noise seem 5 to 15 dBA less than other noise impacts where these factors are not involved.

3.8.1 Potential Impacts and Mitigation Measures

Impact NOISE-1: *Expose sensitive receptors to nuisance noise (i.e., nuisance noise within 500 feet of residential uses or 200 feet of commercial or office uses).* Heavy equipment would be used to construct the site, including dozers, excavators, soil stabilizers, flat bed trucks, dump trucks, chippers, rollers, water trucks, and other typical construction equipment. Typical noise levels for common construction equipment are provided in Table 34.

During site preparation and construction would temporarily generate sound levels ranging from about 70–90 dBa at 50-foot distances from heavy construction equipment. This equipment is a source point for sound that diminishes at about a rate of 6 dBA (depending on the source and terrain, the typical range for attenuation is 3–7.5 dBA for every doubling of distance from the point source) for each doubling of the distance from the source. For example, a 70 to 80 dBA noise range at 50 feet would diminish to 64 to 74 dBA at 100 feet and 58 to 68 dBA at 200 feet. Typically noise 50 feet from highway traffic noise is about 70 dBA (100 feet away would be 66 dBA and 200 feet away would be 62 dBA). It is expected the construction noise levels associated with the proposed project will be between 74 and 88 dBA (equivalent continuous noise level).

Reasonable noise reduction measures would be incorporated into the construction plan and implemented during all phases of construction activity to minimize the exposure of neighboring

properties in combination with the limitations on hours set forth in the City's Municipal Code would reduce the impact to a ***less-than a significant*** level.

Table 34 Typical Noise Levels for Common Construction Equipment (at 50 feet)	
Equipment Type	**L_{max} (dBA)**
Air Compressor	78
Backhoe	78
Cement Mixer Truck	79
Cement Pump Truck	81
Chain Saw	84
Compactor	83
Crane	81
Concrete Saw	90
Dozer	82
Excavator	81
Dump Truck	76
Flat Bed Truck	74
Front End Loader	79
Fork Lift	75
Generator	81
Grader	85
Paver	77
Pick-up Truck	40
Roller	80
Tractor	40
Tree Chipper	87
Source: Federal Highway Administration 2006	

Avoidance, Minimization and Mitigation Measures

Avoidance and Minimization Measure NOISE-1: *Limit construction hours.* According to San Jose Municipal Code, construction hours within 500 feet of a residential unit are limited to the hours of 7:00 am to 7:00 pm on Monday through Friday. No work would be performed on Saturdays, Sundays, or on holidays, unless otherwise expressly allowed in writing by the USACE. While USACE is not subject to City ordinances, every reasonable effort will be made to comply with the City ordinance to reduce noise impacts. Work hours outside of hours allowed by the ordinance are only

expected if needed to comply with seasonal restrictions on construction activities. Furthermore, noise produced by construction activities would be regulated to a limit noise level of 90 dBA at a distance of 50 feet from the source.

Avoidance and Minimization Measure NOISE-2: *Implement best management practices.* At a minimum, the construction operations would use the following best available noise suppression devices and techniques and limit construction hours near residential uses. Best management practices include:

- Air compressors and internal combustion engines will be in good operating condition that meet or exceed original factory specifications and shall be equipped with high-grade mufflers, air-inlet silencers, where appropriate, and noise suppressers.
- All mobile or fixed noise producing equipment used that is regulated for noise output by local, state, or federal law will comply with such regulation while in use. This will include vehicles licensed for use on public highways.
- Electrically-powered equipment instead of pneumatic or internal combustion powered equipment will be used, where feasible.
- The use of noise-producing signals, including horns, whistles, alarms, and bells will be for safety warning and emergency purposes only.
- No music system including personal or vehicle radio, tape, or CD players or the like will be audible at the project right of way line.
- Trucks or other mobile equipment will not use engine decompression ("Jake Brakes") for deceleration on grades.
- Taking all necessary precautions during its operations to limit peak particle velocities from vibratory compaction or percussion equipment so that they do not become a public nuisance or result in property damage.

The USACE will occasionally take sound readings with a hand-held noise level meter during construction activities and operations of any noise-producing equipment to monitor compliance with the noise criteria. Any equipment causing incompliance with the noise criteria shall be removed from the job site as directed by the USACE.

3.9 Recreation

Recreational activity at the project site is primarily associated with land based recreation along the Guadalupe River Trail, a paved pedestrian and bicycle path that runs along the banks of the Guadalupe River including the east bank of Reach 12. District maintenance roads along the east bank of Reach12 are not authorized for recreational use but may sometimes be informally used as trails by local residents. No water-based recreational activities, such as boating, fishing, or swimming, are sanctioned or known to take place along Reach 12 of the river.

The entire Guadalupe River Trail is approximately 11.4 miles long and composed of two discontinuous segments: a 1.4-mile segment along the Upper Guadalupe River from Chynoweth Avenue to Almaden Lake Park, and a longer segment along the Lower Guadalupe River from the intersection of Alviso and Gold Streets to Grant Street near Highway 280 (City of San Jose, 2014). The Highway 87 Bikeway serves as an indirect link between the two discontinuous segments of the trail and thus the trail is used for both recreation and commuting to downtown San Jose from outlying neighborhoods. The portion of the Guadalupe River Trail running along the east bank of Reach 12 extends from Blossom Hill Road downstream to the vicinity of State Route 85 where the trail diverges east to Chynoweth Avenue (Figure 26 in yellow and red).

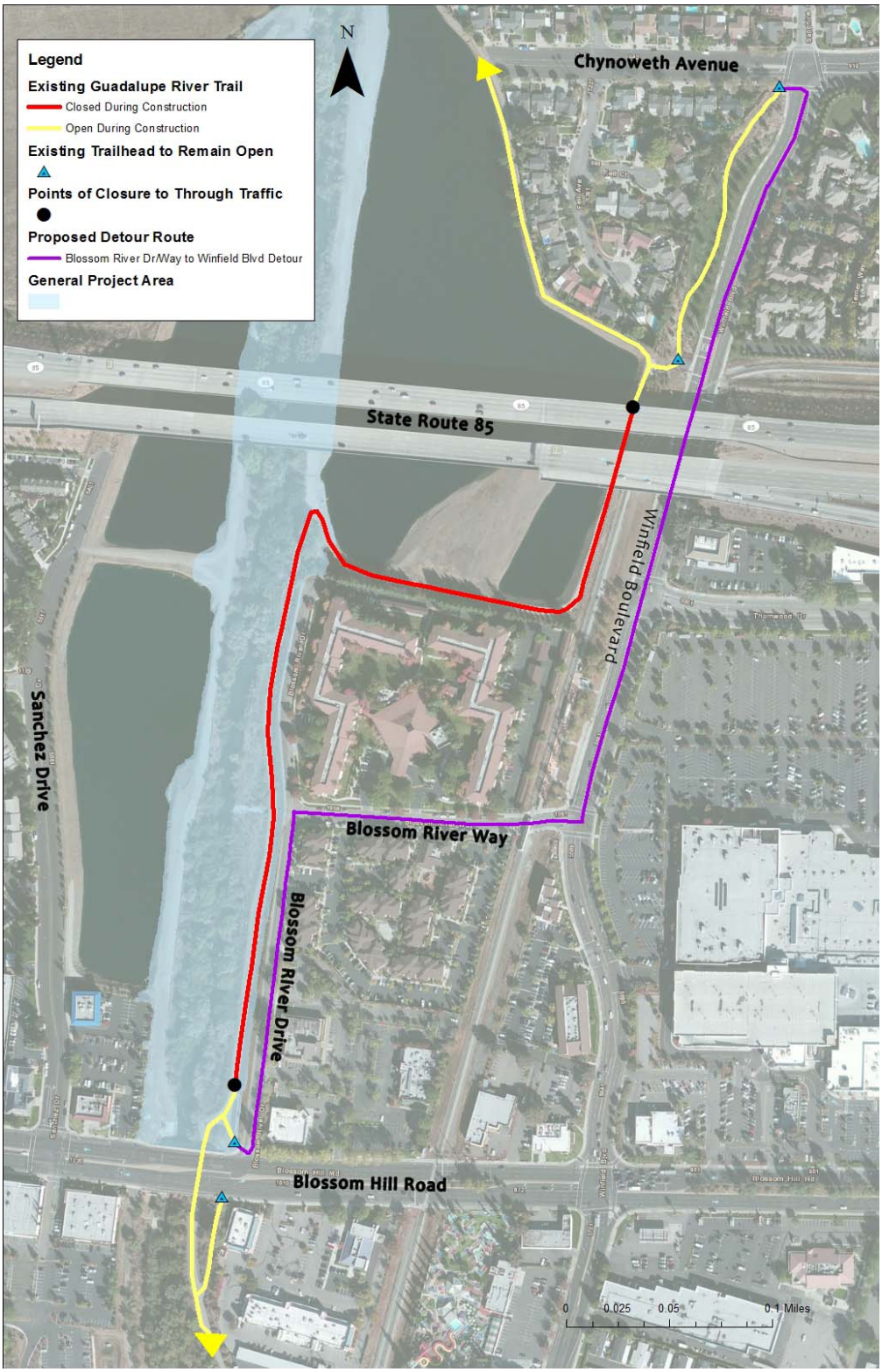

Figure 24. Potential Recreation Trail Detour Routes

Significance Criteria The proposed action would have a significant impact on recreation if it would result in permanent degradation or elimination of recreational opportunities in the project area.

3.9.1 Potential Impact and Mitigation Measures

Impact REC-1: *Temporary Closure of a Portion of the Guadalupe River Recreational Trail.* As part of the proposed action, an approximately 1,600-foot long section of the existing trail along Reach 12 will be closed to public use for the duration of project construction (approximately 18 months). The trail will be closed from the northern terminus (cul-de-sac) of Blossom River Drive to the intersection of Blossom Hill Road/Blossom Hill Drive (Figure 26; Red Path). Closure of this section of the Guadalupe River Trail would be temporary and cease at the completion of construction. This, along with implementation of *Avoidance and Minimization Measure REC-1*, a detour directing users along an alternate path around the closed section of trail during construction, would mitigate the potential impact to a ***less-than a significant*** level.

Impact REC-2: *Degrade the condition of the existing, paved recreational trail.* The existing paved trail is designed for pedestrian and bicycle traffic however, under the proposed action, trucks and construction equipment will utilize the trail to access the reach and haul materials. Vehicular usage may result in degradation or damage of the paved surface of the road. Implementation of *Mitigation Measure REC-2*, repair and repaving of the trail to existing conditions after construction, would mitigate this potential impact to a ***less-than a significant*** level.

Avoidance Minimization Measures

Avoidance and Minimization Measure REC-1: *Implement detour around the closed section of trail.* Under the proposed action, trail users will be detoured at temporary trail closure points to an alternate pathway during construction. The SCVWD has a joint-use agreement with the City of San Jose allowing the District to close the trail for public safety and maintenance and operation of the flood protection project. The SCVWD will notify the City of San Jose Department of Parks, Recreations and Neighborhood Services (Trail Program) of the necessary closure and coordinate with the City to determine the most feasible detour route for trail users. One potential detour routes is currently being considered. The detour is described below and illustrated in Figure 26.

Blossom River Drive to Winfield Boulevard Detour (Figure 26, Purple Path)
Northbound trail users would pass under Blossom Hill Road using the trail underpass and then be immediately routed up to street level on Blossom River Drive. Users would continue north on Blossom River Drive to Blossom River Way where they would continue east. At Winfield Boulevard, users would turn north and continue to Chynoweth Avenue where they could continue on with the recreation trail. Southbound trail users would be detoured to Winfield Boulevard at the existing trailhead north of the VTA light rail crossing of Winfield Boulevard. The trail would proceed south on Winfield Boulevard, west on Blossom River Way, and south on Blossom River Drive.

The detour would have clear signage with directions and a map for following the detour will be posted in numerous locations along the existing trail and the detour route itself. The trail closure signs would conform to City of San Jose requirements and would be placed at least two weeks ahead of the actual closure date to give advance warnings to regular trail users.

Mitigation Measure REC-2: *Repair and/or re-pave trail to existing condition after construction.* At the completion of construction, the contractor would repair or repave the closed section of trail to restore it to its existing condition prior to re-opening the trail to public use. Similarly, if the Blossom River Drive detour is selected, at the completion of construction, the pathway portion of the detour running between the Blossom River Drive cul-de-sac and the existing Guadalupe River Trail would be restored to existing condition and the chain link-fencing along the existing Guadalupe River Trail would be replaced.

3.10 Transportation and Traffic

The proposed project is located within a developed area consisting of commercial and residential properties, along with construction activities not related to the project. While the proposed project is not expected to result in road closure or replacement, traffic on roadways in the vicinity of the project has the potential to be affected. Regional access in the study area is provided by Guadalupe Parkway, State Route (SR) 87. Important streets in the vicinity of the project are described below and shown on Figure 27.

Guadalupe Parkway. Guadalupe Parkway is located north of the project area. It is a four to six lane expressway / arterial that extends from U.S. 101 south to SR 85.

Almaden Expressway (G8): Almaden Expressway is a six-lane major arterial with industrial, commercial, and residential uses. It serves as a parallel facility to SR 87, extending from Almaden Road near Alma Avenue to Harry Road in south San Jose. The traffic count generated from Google Earth estimates that the Almaden Expressway serves over 58,000 cars per day.

Blossom Hill Road (G10): Blossom Hill Road is a four to six lane major arterial with industrial, commercial, and residential uses. Extending from U.S. 101 to SR 17, portions of this road serve as a parallel facility to SR 85. The traffic count generated from Google Earth estimates that this road serves over 35,000 cars per day.

Blossom River Drive: Blossom River Drive is a short (approximately 0.3-mile-long) two lane road immediately east of the project area. It begins at Blossom Hill Road and travels north to its cul de sac terminus past Blossom River Way at Guadalupe River Trail. It provides access to residences areas.

Blossom River Way: Blossom River Way is a short (approximately 0.15-mile-long) two-lane road that connects Blossom River Drive to Winfield Boulevard. It provides access to multi-family residences north and south of the street.

Sanchez Drive: Sanchez Drive is a short (approximately-0.35-mile long) two lane road located immediately west of the project area. It begins at Blossom Hill Road and ends at a parking lot located to its west (just before Highway 85). It provides access to residences and commercial areas.

Guadalupe River Trail: The Guadalupe River Trail is a major bicycle and pedestrian transportation route. It is used daily by commuters traveling around the area. An analysis of closing portions of this trail during construction is provided in Section 3.9.

Significance Criteria: The project would have a significant effect on transportation and traffic resources if it would:

- Substantially interfere with surrounding traffic which would result in major delays.
- Adversely affect roads and highways.
- Safety

3.10.1 Potential Impacts and Mitigation Measures

A portion of the project entails earth moving activities including removal of grub material and grubbed soil, removal of excess sediment, importing of gravel, importing of clean backfill sediment, and importing of road aggregate. Table 35 shows the anticipated truck count for the quantity of material estimated and the duration of the hauling activities. As the work activities are limited to 8:00 am to 5:00 pm during weekdays, not including holidays, the maximum average anticipated frequency of the truck loads is approximately every 15 minutes.

Table 35 Number of Truck Hauls Required to Transport Equipment and Construction Material

Purpose of truck trip	Truck Loads [1]	Construction Year	Construction Duration (months) [2]
Removal of vegetation	1,230 [3]	1 (2014)	2
Import gravel	668	2 (2015)	3
Dispose excess excavated sediment	1,103 [4]	2 (2015)	10
Import clean backfill sediment	175	2 (2015)	
Import road aggregate	253	2 (2015)	1.5

Table 35 Number of Truck Hauls Required to Transport Equipment and Construction Material			
Purpose of truck trip	**Truck Loads [1]**	**Construction Year**	**Construction Duration (months) [2]**
Total Truck Trips	**3,429**	**--**	

NOTES:

[1] Assumes that heavy equipment will be transported to the site on large flatbed trucks. Import and export material will be transported in 10 cy trucks.

[2] Construction months are approximate, per the work schedule. Need to determine approximate number of trucks per day based on this.

[3] Approximately 12,300 cubic yards of vegetation would be cleared or removed by hand and require disposal in 2014. This would require approximately 1,230 haul trips.

[4] Approximately 4,100 cubic yards of soil would require removal following clearing and grubbing. Additionally, 6,030 cubic yards of excavated sediment would require removal. This would result in a total of approximately 1,103 haul trips in 2015.

The haul routes anticipated would be the blue paths, as shown on Figure 27. As shown, there are five points of entry (Figure 27, yellow double arrows) into the project area—two in the north end (one on each bank of the reach), one in the south end providing ingress and egress to the western bank of the project, and two in closer to the middle (one on each side of the bank). Truck hauls will maximize use of larger roads and expressways (i.e., Almaden Expressway, Blossom Hill Road, and Branham Lane) to gain entry to the State Route 85 by access the project site from the north and south entry points. Trucks would travel along the routes show either from the project site to State Route 85 or from State Route 85 to the entry points. The project would add at a maximum an additional 35 trucks to the flow patterns, which would not significantly alter the quantity of traffic on the roads proportionate to the overall flow.

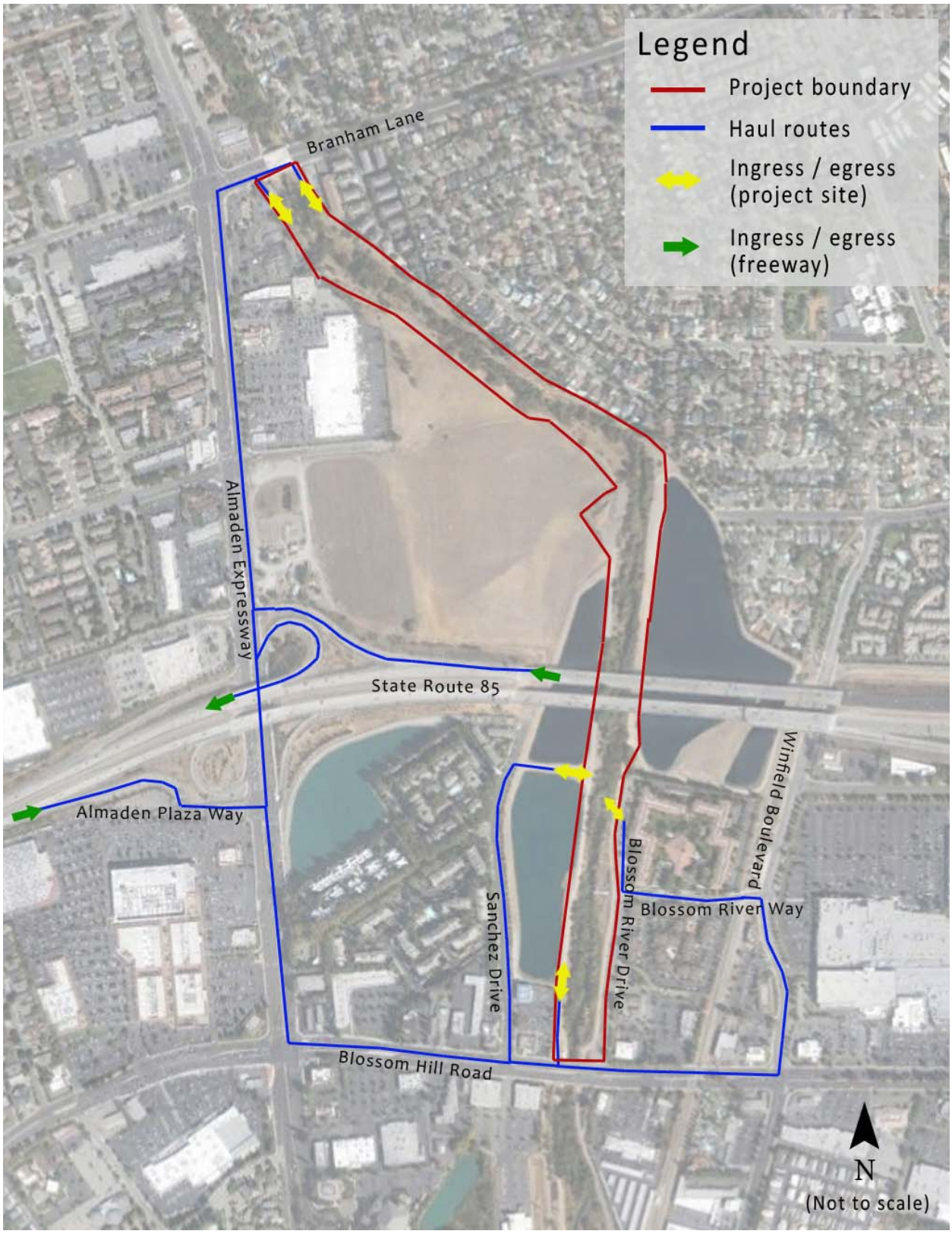

Figure 25. Major Roads and Construction Haul Routes

Impact TT-1: *Substantially interfere with surrounding traffic which would result in major delays.* Although not anticipated, potential impacts may also include lane closures, removing and replacing traffic control systems, fencing, railing, barricades, crash cushions, channelizers, pavement, driveways, curbs, gutters and sidewalk and pavement markings, adjacent to or near the project area. Temporary construction signs will be installed in the area to direct traffic as necessary which has the potential to impact sprinkler systems or landscaping. Resulting debris or residual materials may occur on roadways or sidewalks as a result of moving earthen materials such as soil, sand or gravel.

Additional impacts include an influx of cars to the area as a result of the workers personal vehicles that will require parking. Given the residential nature of the surrounding area, parking areas may be limited and an influx of cars without proper controls could result in impacts to available parking to residents and restricted movement in the community.

While construction traffic is expected to cause minor delays in the truck haul areas, these delays would be temporary and short-lived. Further, implementation of *Avoidance and Minimization Measures TT-1, TT-2* and *TT-3* would ensure that impacts to transportation and traffic would be ***less than significant***.

Impact TT-2: *Damage roads and highways.* Although not anticipated, the potential for road damage, such as potholes, exists as a result of the increase in heavy equipment and trucks or through non-routine hauling actions that may arise. Implementation of *Mitigation Measure TT-4: Repair any damage to roadways resulting from construction-related traffic* would ensure that this impact is ***less than significant***.

Impact TT-3: *Result in injury or harm to other drivers, pedestrians, bikers, or others using any form of transportation in the project area.*

All of the potential impacts listed above would be slight and temporary in nature. There are no long-term significant impacts to traffic associated with the preferred project.

Avoidance, Minimization, and Mitigation Measures

Additional traffic and trucks to the area are not an avoidable occurrence; therefore minimization measures were established and potential mitigation measures were identified. The project will actively seek to avoid or minimize unnecessary disturbance of the neighborhood from construction activities. Actions to ensure impacts to transportation and traffic are minimized are listed below.

Avoidance and Minimization Measure TT-1: *Prepare and implement a traffic control plan.* Prior to the start of work a traffic control plan will be developed which will abide by the City of San Jose and State specifications. The traffic control plan will be submitted to the City of San Jose prior to the preconstruction meeting. The coordination with the city will include obtaining a "Haul Route

Permit" from the City of San Jose to transport construction materials to the site and to transport surplus materials over the City of San Jose streets.

Avoidance and Minimization Measure TT-2: *Utilize traffic control safety measures.* Traffic control will be performed to maintain safe vehicular, pedestrian, and cyclist traffic during construction and to perform best management practices. These practices include mitigating high peak and high volume construction traffic, prevent idling and queuing, establish site access limitations and mitigation measures, identify haul routes, and provide overall control of all construction traffic entering and exiting and operating within the project site. During delivery and export of construction materials and equipment, traffic flaggers and signs along the access route will be present. Operations and schedule cleanups shall be performed to cause the least possible obstruction and inconvenience to traffic, pedestrians, cyclists, adjacent property owners. Inspections of traffic control zones shall be performed on a daily basis.

Any traffic control system that is removed during the construction will be immediately replaced with a permanent approved structure or a temporary structure. At the time which construction is complete the traffic control structures will be returned to the original state or completed in the approved plan. All construction signs shall be placed in the field and shall be visible to drivers and not covered or blocked by trees or other fixed objects. Prior to installation of any construction signs in planting strips, sprinkler system conflicts will be verified. If landscaping is found to be damaged upon removal of construction area signs, it will be replaced to original condition. Any potholes or other such damage following the use of the roads will be remedied as necessary to previous condition. Stockpiling of materials or parking of equipment will not be allowed on streets and sidewalks and all streets and sidewalk areas shall be swept clean.

Avoidance and Minimization Measure TT-3: *Minimize interference with existing traffic.* The working area will be clear of parked vehicles to maintain sight visibility and access to adjacent properties. Existing road signs shall not be blocked at any time. Personal vehicles of the employees, and equipment and vehicles shall not be parked on the traveled way, shoulders, medians or lanes which have not been approved for closure. When entering or leaving roadways carrying public traffic, the equipment, whether empty or loaded, shall in all cases yield to public traffic and shall travel in the direction of the traffic. No driveways or private roads shall be blocked. Safe access must be maintained for pedestrian traffic throughout the work areas at all times. Trucks and personnel vehicles parking and access shall be in compliance with local permits and ordinances. All construction equipment and worker vehicles arriving at the site shall park within the site. The workers or other associates shall not park in residential areas where the preferential parking in those residential areas belongs to the residences themselves. Ultimately, parking shall be first come, first served, but residential owners have priority over parking in their residential communities. The workers or other associates shall arrive onto the site no more than 30 minutes prior to the start of work nor remain on the site 30 minutes after the end of work.

Mitigation Measure TT-4: *Repair and rehabilitate roads damaged by construction vehicles.* Prior to construction, haul routes will be inspected for damage; any damage will be recorded. After each construction season, the routes will be inspected for construction-related damage. Any damage to roadways will be repaired or rehabilitated.

3.11 Land Use Classification

The land in the vicinity of Reach 12 is used for a mix of commercial, residential, municipal, and recreational purposes. The land bordering the northwestern edge of the reach is zoned for commercial use by the city of San Jose. The central two-thirds of the western side of the reach are zoned for agriculture but are designated General Commercial in the City of San Jose General Plan for that area south of Chynoweth Avenue, and Very High Density Residential (25-40 DU/AC) for the area north of Chynoweth Avenue. Agricultural use of the area, which extends from the River to the Almaden Expressway, was terminated in December 1996.

The northernmost portion of the reach is bounded to the west by retail stores and restaurants, to the north by Branham Lane, and to the east by property owned by San Jose Water Company (SJWC) and single-family residences along Tonino Drive. The SCVWD maintains a service road along the river. The river right-of-way (ROW) managed by the SCVWD along both sides of the northern segment varies from 100 to 350 feet. The SJWC operates groundwater wells, a pump house, and a water storage tank on its property. The residences along Tonino Drive backup to the SCVWD's ROW and, in some cases, residents of these properties have built structures and/or placed items that are suspected of encroaching on the SCVWD's ROW. Since February 2014, the SCVWD has made contact with residents along Tonino Drive regarding the suspected encroachment issues through written notices and in-person meetings. The SCVWD will perform a back fence survey in May 2014 to confirm the property lines of the residences and has communicated with the residents that they will have until the end of July 2014 to relocate/remove items on SCVWD property that they would like to save. Any remaining items on SCVWD property would be removed if necessary as part of the proposed action.

The central portion of the reach (north of the Highway 85 overpass) is bounded on the west by a shopping center under construction and to the east by a percolation pond used by the SCVWD for groundwater recharge. South of the Highway 85 overpass, the SCVWD ROW is bounded on the west by additional percolation ponds and a restaurant at the northwest corner of the intersection of Blossom Hill Road and Sanchez Drive. The two ponds on the western bank occupy an extensive area approximately 2,000 feet long and up to 350 feet wide. South of the highway overpass and east of the river, the ROW is bounded by Blossom River Drive, which parallels the river from Blossom Hill Road to 900 feet north of the road. Along the west side, Sanchez Drive runs north-south about 300 to 500 feet west of the river. The overall SCVWD's ROW in this segment of the reach varies from 250 to 1,000 feet in width. On the east side of the river, adjacent the percolation pond is a new residential subdivision. Multi-family residential uses are also present east of Blossom River Drive and a number of townhouses and condominiums were recently completed or

are under construction west of Sanchez Drive. The Blossom Hill Road Bridge forms the southern boundary of the reach.

Lands Required for the Proposed Action

Table 36 identifies the lands that would be required for the proposed action, which of those lands are currently owned by the SCVWD, and what easements would be required for the project.

Approximately 29.5 acres of real estate are required for the proposed action and the SCVWD currently owns 26.94 of these acres. A number of different types of easements are required for the project including Flood Levee Protection Easements (FLPE), Channel Improvement Easements (CIE), Permanent Road Easements (PRE) and Borrow Easements. The SCVWD has secured all easements except those highlighted in gray. The Branham Lane easement was originally required for underpass work that has since been deferred and thus this easement is not necessary for the Reach 12 project. The Almaden Ranch and Reinhard easements are required for a proposed section of maintenance road on the west bank of the river (between stations 89+50 to 99+75). This work is a supplemental bid item and the easements will be obtained if the option to complete the work is exercised.

Significance Criteria: A significant adverse land use impact would result from the proposed action if it would conflict with the General Plan land use designation where the project is located, result in the conversion of public open space into urban- or suburban space, disrupt or divide the physical arrangement of the established community, or juxtapose incompatible land use types.

Table 36	Real Estate Require for the Proposed Reach 12 Project							
APN	**Physical Address**	**Parcel Owner**	**Parcel Area**	**FPLE**	**CIE**	**PRE**	**Borrow**	**Sum**
458-17-009	Roberts Lane San Jose, California 95118	SCVWD	2.78	0.064	1.937	0.643	--	2.644
458-18-005	1088 Branham Lane San Jose, California 95136	TCOB Enterprises	0.18	--	0.018	0.038	--	0.056
458-18-012	San Jose, California 95118	San Jose Water Works	1.15	--	0.218	0.213	--	0.431
458-18-080	4606 Almaden Expressway San Jose, California 95118	Uccelli Jr., George	3.52	0.011	0.066	0.194	--	0.271
458-18-081	Branham Lane San Jose, California 95118	SCVWD	2.98	--	2.740	0.192	--	2.932
459-16-030	Branham Lane San Jose, California 95118	SCVWD	0.10	--	--	0.003	--	0.003
458-17-002	San Jose, California 95118	SCVWD	2.36	--	2.239	0.068	--	2.307
458-17-003	San Jose, California 95118	SCVWD	1.42	--	0.998	0.157	0.160	1.315
458-17-004	San Jose, California 95118	SCVWD	2.22	--	1.336	0.315	--	1.651
458-17-005	San Jose, California 95118	SCVWD	0.73	--	0.734		--	0.734
458-17-018	14540 Almaden Expressway San Jose, California 95118	Almaden Ranch, LLC	24.20	0.020	0.006	0.302	--	0.328
458-17-020	14520 Almaden Expressway San Jose, California 95118	Reinhard, Eli	10.08	0.023	0.041	0.230	--	0.294
458-14-032	Blossom River Drive San Jose, California 95123	SCVWD	16.32	--	3.265	0.668	0.038	3.971
458-16-035	Sanchez Drive San Jose, California 95123	SCVWD	3.72	--	0.860	0.201	2.175	3.236

Table 36	Real Estate Require for the Proposed Reach 12 Project							
APN	**Physical Address**	**Parcel Owner**	**Parcel Area**	**FPLE**	**CIE**	**PRE**	**Borrow**	**Sum**
HWY 85	San Jose, California 95123	State of California	N/A	--	0.961	0.191	--	1.152
458-14-034	San Jose, California 95123	SCVWD	23.05	--	5.470	0.770	--	6.240
458-14-029	Blossom River Drive, San Jose, California 95123	SCVWD	2.84	--	1.506	0.405	--	1.911
		Total Acres	**97.65**	**0.12**	**22.40**	**4.59**	**2.37**	**29.476**

3.11.1 Potential Impacts and Mitigation Measures

Impact LU-1: *Conflict with the Adopted General Plan Designations, Land Uses, or Physical Arrangement of the Community.* The proposed project conforms to General Plan designations, will not convert public open space to urban or suburban space, and will not divide the community or juxtapose incompatible land uses. Thus, impacts to land use are expected to be ***less than significant***. No mitigation is proposed.

3.12 Aesthetics

The visual resources in Reach 12 are generally quite different from other reaches due to the large amount of open space along most of the length of the reach, including the large percolation ponds on both sides of the channel north and south of the SR 85 overcrossing. In addition, even with the development adjacent to the river corridor, it is generally set back farther than what is usual in other reaches of Guadalupe River. These conditions create a more open, spacious visual setting in most parts of the reach for people visiting or looking upon the reach, compared to other reaches.

Reach 12 has more public access than most reaches due to the recreation trail along the upper part of the reach, which extends as far north as Chynoweth Avenue via the east side of the percolation ponds. Most of the reach is visible from this trail, either close up or at a distance. The far upstream end of the reach can be viewed from Blossom River Drive and Blossom Hill Road. Distant views of the reach are available from portions of State Route 85, associated ramps, and Almaden Expressway. However, views of the reach are not available from the State Route 85 overcrossing due to sound walls.

Portions of the reach can also be viewed from private residences and businesses along Sanchez Drive, Blossom River Drive, Almaden Expressway, and several streets northeast of the reach. For some of these residences, views of the river corridor may be an important part of the visual quality of the property.

A private development now under construction adjacent to the west bank along the middle third of the reach will remove some of this open space and change the visual character of the reach. However, the percolation ponds will remain as publically owned open space and will help retain the relatively open appearance of most of the reach.

Significance Criteria: The proposed project would have a significant impact on aesthetics if it would:

- Significantly alter the viewshed by extensively removing vegetative cover.
- Result in the viewshed being composed of construction equipment and/or activities for an extended period of time.
- Result in a completed project which would have a permanent negative viewshed.

3.12.1 Potential Impacts and Mitigation Measures

Impact VR-1: *Losses of vegetative cover in limited portions of the river channel and the west bank due to construction activity and selective removal of non-native trees and shrubs.* In localized areas of the reach, construction activities will cause temporary losses of vegetative cover due to clearing, grubbing, and grading activities. All disturbed locations will at a minimum be revegetated with hydroseeded grass, and many will be revegetated with plants visually similar to pre-disturbance vegetation. In cases where woody vegetation is not replaced in the same location, mitigation plantings will generally be placed in nearby locations. Total cover of trees, shrubs, and grasses will increase over current conditions, resulting in a long-term net positive effect. Temporary negative visual impacts in these areas would not be significant due to the small proportion of existing vegetation which would be affected and its scattered locations. See Table 23 for acres of vegetation removal and replacement. While vegetation would be removed, implementation of *Avoidance and Minimization Measure VIS-1: Retain native vegetation to the maximum extent practicable* and *Mitigation Measure BIO-2: Replant vegetation according to the planting designs for the project* would avoid, minimize, and mitigate for loss of vegetation cover. As such, this impact is expected to be ***less than significant***.

Impact VR-2: *Temporary views of construction activities and materials.* Construction activities would involve various types of heavy equipment, light vehicles, a construction trailer, and construction materials which would operate on and/or be stored on the site sporadically over a period of up to 18 months. The presence of these vehicles, equipment, and materials would have an intermittent effect on the visual quality of the site. This effect would be very minor for views of the site from a distance, such as from SR-87. Visual impacts from adjacent streets and residences with a clear view of the construction areas would be somewhat larger but still insignificant due to the sporadic and temporary nature of the impacts. As such, this impact is considered ***less than significant***.

Impact VR-3: *New berms along the percolation ponds.* The percolation ponds have wide earthen berms between the ponds and the adjacent river channel. About 1500 feet of berm on each side of the river will be raised about three feet to better keep flood flows and associated pollution and sediment out of the percolation ponds. The new side slopes will be hydroseeded with grass. These new berms will not create a significant visual impact due to their vegetated sides and their low height relative to the existing berms and riparian forest. The new berms are not expected to result in permanent adverse affects to the viewshed. Further, implementation of *Avoidance and Minimization Measure VIS-1: Retain native vegetation to the maximum extent practicable and Mitigation Measure VIS-3: Hydroseed areas where vegetation will be removed* would ensure that the completed project would not result in a permanent negative viewshed. As such, this impact is considered ***less than significant***.

Impact VR-4: *Loss of trees behind houses on the east bank, downstream portion of the reach.* On the east bank of the river between the north end of the largest percolation pond and Branham Lane, a

number of non-native trees, shrubs, and other plants have been planted on SCVWD land over the years without authorization, mostly between the existing maintenance road and the fence line. Some of these species are invasive and some present hazards to maintenance employees.

The SCVWD has been working with adjacent homeowners regarding removal of unauthorized improvements by adjacent property owners. Many of the unauthorized trees and other plants in this area will be removed by USACE as part of the proposed action. Avoidance measure VIS-2 will reduce these impacts.

It should be noted that some of the land in this area is owned by the San Jose Water Company (SJWC). Trees and other plants located on SJWC land will not be removed unless this is determined necessary for construction access and only upon approval by the SJWC. Removal of trees or other plants on these lands is not expected as the maintenance road in this area is already maintained for access by SCVWD and SJWC maintenance vehicles. Based on this assessment, loss of trees behind houses is expected to result in a ***less than significant*** impact on aesthetics.

Avoidance, Minimization, and Mitigation Measures

Avoidance and Minimization Measure VIS-1: *Retain native vegetation to the maximum extent practicable.* Several individual trees and one clump of trees will be retained due to their visual importance, and some additional trees and smaller plants may be retained upon further examination of the area prior to construction. Existing native trees and shrubs, including large oak trees, will not be removed in the area between the maintenance road and the houses.

Avoidance and Minimization Measure VIS-2: Retain non-invasive non-native trees in this area to the extent practicable.

Mitigation Measure VIS-3: *Hydroseed areas where vegetation will be removed.* Areas where plants are removed will be hydroseeded afterwards for stabilization. This will also reduce visual impacts by covering areas of bare earth with grass.

3.13 Public Facilities, Utilities, and Services

Police service for the project area is provided by the San Jose Police Department and fire service is provided by the San Jose Fire Department. Parks and open spaces adjacent to the project area include a section of the larger Guadalupe River Trail running along the east bank of the project. Potential effects of the proposed action on the Guadalupe River Trail are discussed in the recreation section).

Various existing utilities, including water, sewer and storm drain mains, telephone and television cables, and gas and electricity lines, are located above and below ground along the project route. Water mains serve residences and commercial establishments and are operated by the San Jose

Water Company and the City of San Jose Municipal Water System. Sanitary sewer and storm drain lines are both operated by the City of San Jose. Telephone cables are maintained and operated by Pacific Bell and AT&T. Gas and electricity lines are maintained and operated by the Pacific Gas and Electric (PG&E) Company.

Under the proposed action, the construction contractor will arrange with the local electrical and telephone utilities for temporary services deemed necessary at the project site and will provide and maintain field-type sanitary facilities on-site. The construction contractor will conserve any utilities being used to the extent practical. Temporary demand for these services on site is not anticipated to significantly affect regional utility service demand and will cease after project construction. No mitigation measures related to the provision of temporary utility service are recommended.

Significance Criteria: The project would have a significant effect on public facilities, services, and utilities if it interferes with emergency response, damages existing utility infrastructure, or interrupts utility services for extended periods of time.

3.13.1 Potential Impacts and Mitigation Measures

Impact PUS-1: *Potential Interference with Police and Fire Protection Services.* During construction, the project may cause minor traffic congestion, occasional trespassing within the construction zone, and incidental events that would could call for police or fire services. Any traffic congestion that might be caused by this project would be slight and infrequent. Increased demand for protection services due to activities at the project site is also expected to be very minimal , which along with implementation of *Avoidance and Minimization Measure PUS-1: Notification of Police and Fire Protection Services Regarding Construction and Implementation of Site Security Patrol*, would reduce this potential impact to a ***less-than a significant*** level.

Impact PUS-2: *Interference with Utility Service.* During construction, utilities such as gas and power lines may require relocation during channel construction. Relocation of utilities may result in short-term service interruptions to surrounding areas. Additionally, damage to existing utility infrastructure onsite due to construction activities could cause service interruptions. Post-construction, vegetation growth that interferes with overhead or underground utilities could lead to damage and potential service interruption. Implementation of *Mitigation Measures PUS-2: Identify and Coordinate Relocation or Protection of Utilities,* and *PUS-3: Avoid placement of trees in locations that could interfere with utilities,* would reduce this potential impact to a ***less-than a significant*** level.

Avoidance, Minimization, and Mitigation Measures

Avoidance and Minimization Measure PUS-1: *Notification of Police and Fire Protection Services Regarding Construction and Implementation of Site Security Patrol.* During the construction period, the SCVWD would notify the City of San Jose Police Department and Fire Department regarding

construction activities that would be likely to impede delivery of police services. Contact would also be made with the Crime Prevention Unit to ensure that the project site and residents in the vicinity are visible and accessible by emergency vehicles. Additionally, a security guard would be employed to patrol work and transit areas during work hours to ensure safety and avoid theft/vandalism. To the extent necessary, the security guard might also patrol equipment, facilities, and work areas during night/weekends.

Mitigation Measure PUS-2*: Identify and Coordinate Relocation or Protection of Utilities.* All utilities in the project area would be identified by a private utility locating service and coordinated with the utility agency. Locations of all utilities would be marked and markings made during the utility investigation would be maintained throughout construction.

If relocation of utilities is deemed necessary, utility excavation and encroachment permits would be obtained from the San Jose Public Works Department 30-days prior to the initiation of project construction. Relocation of utilities would be coordinated with the appropriate utility company and relocation would be performed by the appropriate utility unless they directed otherwise. Approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities would be arranged for utility removal. Utility service functions would not be interrupted without authority from the utility owner.

Existing utility poles and utilities not relocated would be protected during construction activities to maintain service and prevent damage. All exposed utilities would be supported firmly and uniformly and no utilities would be left exposed for a period exceeding 8 hours unless approved by the utility. Moreover, all utility pole and guy anchors would be protected and where necessary, additional lateral support to poles or anchors would be provided during construction activity. Where temporary roads cross buried utilities that might be damaged by the loads, such utilities would be adequately protected. Any work adjacent to utilities would be performed in accordance with procedures outlined by the utility company. Where it is known or anticipated that an existing utility would be encountered during construction, the affected utility's owner would be notified at least 5 working days in advance of such work. Additionally, all utility companies and Underground Service Alert would be notified at least 2 working days prior to starting excavation work for the proposed project. Any damage to utilities would be immediately reported to the appropriate utility company and repaired.

Avoidance and Minimization Measure PUS-3*: Avoid placement of trees in locations that could interfere with utilities.* Tree locations associated with the proposed project would be modified as necessary to avoid interference with overhead or underground utilities. Only small tree or shrub species would be planted in overhead utility easements.

3.14 Public Health and Safety

The proposed project does not involve the production or use of materials that pose a threat to public health and safety[1] so health and safety concerns associated with the proposed action relate to potential hazards to the public on or adjacent to the project site caused by construction equipment operation and construction activities.

Public Access to the Reach 12 project area is largely unauthorized except for the portion of the Guadalupe River Trail bordering the reach. Despite this, unsupervised entry to the river channel does occur and the downstream portion of the reach has been occupied by varying numbers of transient and homeless people in recent years due to the relatively secluded nature of this area. Recent enforcement actions appear to have largely removed this population from the project area over a period of a number of months, so the homeless population is currently minimal.

The public does use the Guadalupe River Trail along a portion of Reach 12 for recreation and commuting as well as roadways and sidewalks along Blossom Hill Road, State Route 85, Branham Lane, Blossom River Drive, and Sanchez Drive adjacent to the project site for vehicular, bicycle, and pedestrian movement. Additionally, along some portions of the reach, construction activities will take place in close proximity to residential and commercial areas. Potential impacts and mitigation measures associated with recreational trail and roadway traffic are described in Sections 3.9 (Recreation) and 3.10 (Transportation and Traffic) of this analysis, respectively. Impacts and mitigation measures associated with public safety in terms of police and fire protection service are discussed in Section 3.13 (Public Utilities, Facilities, and Services) of this analysis.

Significance Criteria: The project would have a significant effect on public health and safety if it would create a potential public health or safety hazard or involve the use, production or disposal of materials that pose a health hazard to people or animals or plant populations in the area affected.

3.14.1 Potential Impacts and Mitigation Measures

Impact PHS-1: *Potential Public Safety Impacts Due to Unauthorized Entry to the Construction Area or the Reach After Construction is Complete.* Public access and unauthorized entry into project construction areas might result in public safety hazards including increased potential for injury by construction activities, vehicles, and equipment. Homeless people currently using the site unauthorized could also be injured by construction activities. Post-construction, unauthorized and unsupervised entry into Reach 12 could also present a safety risk to individuals. Implementation of *Avoidance and Minimization Measures PHS-1: Provide Warning Signs, Install Fencing and Barricades, and Implement Site Security Patrol at Construction Site During Construction* and *PHS-2:*

[1] Some Mercury- laden sediment existing at the project site will be excavated, stockpiled, and reused or disposed of. Mitigation measures related to this part of the proposed action are discussed in the Geology, Soils, and Seismicity section of the document.

Limit Public Access to the River Channel Post-Construction by Installing Permanent Access Control Measures would reduce this potential impact to a ***less-than a significant*** level.

Impact PHS-2: *Construction Hazards to Vehicles and Pedestrians.* Construction will occur adjacent to roadways, sidewalks, and bridges utilized for vehicular and pedestrian traffic. Moreover, construction vehicles will travel along roadways adjacent to the project site and, in some cases, cross pedestrian sidewalks to enter and egress from the site. These actions could create distraction hazards for passing vehicles and pedestrians. Large construction vehicles on roadways and crossing sidewalks as well as associated detours could present traffic or pedestrian safety hazards. Implementation of *Avoidance and Minimization Measures PHS-3: Identify Truck Routes and Construction Zones Prior to Project Commencement,* and *PHS-4: Notify Residents of Construction Schedule and Proposed Traffic Detours,* would reduce this potential impact to a ***less-than a significant*** level.

Impact PHS-3: *Displacement of Homeless Persons Occupying the Reach.* Construction of the proposed action will displace some of the homeless people currently occupying the reach unauthorized through direct eviction by the construction contractor as well as construction activities discouraging their presence. Ongoing enforcement efforts by the City are expected to continue to prevent establishment of large numbers of homeless inhabitants and due to the low numbers of homeless people currently in the reach, this effect will be ***less-than significant***. No mitigation is proposed.

Avoidance, Minimization, and Mitigation Measures

Avoidance and Mitigation Measure PHS-1: *Provide Warning Signs, Install Fencing and Barricades, and Implement Site Security Patrol at Construction Site***.** As part of the proposed action, warning signs would be posted around the project site and the site would be adequately fenced and barricaded to prevent unauthorized access during construction. A security guard would be employed to patrol work and transit areas during work hours to ensure safety and avoid theft and vandalism. To the extent necessary, the security guard might also patrol equipment, facilities, and work areas during night and weekends.

Avoidance and Mitigation Measure PHS-2: *Install permanent access control measures post-construction.* Permanent warning signs (e.g., no entry, no swimming or diving), fencing, barricades and/or other access control measures would be erected in areas along the channel, where necessary, to restrict or prohibit public access post-construction.

Avoidance and Mitigation Measure PHS-3: *Identify Truck Routes and Construction Zones Prior to Project Commencement.* Prior to commencing construction activities, access routes for construction truck traffic would be identified and posted. Construction zones would be clearly marked by posted signage and flag personnel used wherever necessary to direct traffic, particularly in areas where construction traffic will cross pedestrian walkways to enter or exit the site.

Avoidance and Mitigation Measure PHS-4: *Notify Residents of Construction Schedule and Proposed Traffic Detours.* Notification would be given to residents and businesses in the surrounding area before construction begins. Alternate traffic, pedestrian, and recreation trail routes for impacted areas would be posted monitored, and maintained throughout the construction period.

3.15 Irreversible Changes and Irreversible Commitment of Resources

The proposed project would not result in irreversible changes or irreversible commitment of resources with the exception of funds and energy expended on construction and maintenance. Proposed channel modifications, gravel nourishment, and plantings could be reversed if this were deemed appropriate.

4.0 Other Required Analysis

4.1 Cumulative Impacts

The Upper Guadalupe River Project is part of a larger system of projects that provide flood risk reduction and other benefits to the Guadalupe River watershed. Projects in watershed system include seven reservoirs in the upper portion of the watershed, two diversions into percolation ponds near Lake Almaden, and four civil works projects along the Guadalupe River: the Upper Guadalupe River Project, the Guadalupe River Project (also known as the Downtown Project), the Lower Guadalupe River Project, and the South San Francisco Bay Shoreline Study.

The Upper Guadalupe River Project is the last of the three civil works projects that will be constructed along the Guadalupe River mainstem to reduce flood risk in the watershed. The project extends over 5.5 miles of the Guadalupe River, from Blossom Hill Road Bridge downstream to the Southern Pacific Railroad Bridge just south of Interstate 280. The project area also includes portions of Ross Creek (extending 5,200 feet upstream from its confluence with the Guadalupe River in Reach 11) and Canoas Creek (extending 2,800 feet upstream from its confluence with the Guadalupe River in Reach 10A). The total project length is divided into seven reaches (Reach 6 through Reach 12), each of which is distinguished by a major street or railroad crossing. Implementation of the Upper Guadalupe River Project was initiated in Reach 10B in 2009 and in Reach 6 in 2011. Reach 6 is entirely non-federal but was included in the permitting and other environmental compliance for the project.

The only potential cumulative impacts from other projects in the region include the construction efforts of the Almaden Ranch Retail Center, which is ongoing. This center will be located adjacent to the downstream portion of the channel on the west bank. Construction is ongoing and expected to be complete by February 2015, prior to the proposed project's 2015 construction start. Cumulative impacts to traffic could occur from additional construction vehicles entering Almaden Expressway in 2014, during vegetation removal. However, the timeline for the construction will not result in cumulative significant impacts due to staggered timing for the major construction efforts for the two projects.

4.2 Interrelated and Interdependent Activities

None are identified.

5.0 Environmental Compliance

This section discusses the federal environmental laws and regulations the project must comply with prior to issuing and final Finding of No Significant Impact (FONSI). The SCVWD is preparing a separate California Environmental Quantity Act (CEQA) which will identify any state or local environmental compliance requirements. CEQA and other state and local environmental compliance requirements are not discussed further in this document.

National Environmental Policy Act (NEPA) of 1969 (42 USC §§ 4321 et seq)

NEPA requires that environmental consequences and project alternatives be considered before a decision is made to implement a federal project. NEPA established requirements for preparation of an Environmental Impact Statement (EIS) for projects potentially having significant environmental impacts, and an EA for projects with no significant environmental impacts.

An EIS for the overall federal Upper Guadalupe River Flood Control Project was finalized in 1999. This supplemental EA was prepared to disclose the changes to the Reach 12 project description, disclose impacts of the project changes, and develop mitigation measures associated with the proposed project, as discussed in the CEQ regulations on implementing NEPA (40 CFR §§ 1500-1508).

Endangered Species Act of 1973 (16 USC § 1451 et seq)

The Federal Endangered Species Act (ESA) protects threatened and endangered species by prohibiting federal actions that would jeopardize continued existence of such species or result in destruction or adverse modification of any critical habitat of such species.

The NMFS issued a Biological Opinion (BO) for the Upper Guadalupe River Flood Control Project in 2000, and a supplemental BO was issued in 2005 to address a compressed project schedule. The BOs required that the riparian forest and SRA cover mitigation be installed per the description in the 1999 EIS/EIR and MMP. They further required continuous temperature monitoring to ensure river temperature did not increase to a degree that would adversely affect fish. Two reasonable and prudent measures were included in the BOs: fish relocation prior to dewatering and submission of annual reports to document the status of construction and monitoring activities.

The proposed project is not expected to result in changes that would violate the existing BOs. However, the USACE will prepare a *not likely to adversely affect* letter stating its determination that the proposed Reach 12 project is consistent with the existing NMFS BOs and the project is not likely to adversely affect listed fish in the action area. A *not likely to adversely affect* letter will also be sent to the USFWS.

Biological Opinion

The NMFS issued a supplemental biological opinion (BO) and incidental take statement in 2005 for the greater Upper Guadalupe River Flood Control Project in February 2005. In the BO, NMFS concluded that the project is not likely to jeopardize the continued existence of threatened Central California Coast (CCC) steelhead.

Section 9 of the Endangered Species Act (ESA) prohibits the take of endangered and threatened species without special exemption. 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. Harm can arise from significant habitat modification or degradation where it actually kills or injures protected species by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(b)(4) and 7(o)(2) of the ESA, taking that is incidental to and not intended as part of the proposed action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the provisions of the supplemental incidental take statement issued for the project by NMFS [2].

The supplemental incidental take statement issued by NMFS for the overall Upper Guadalupe River Flood Control Project estimates that approximately ten fish per construction season may be taken as a result of actions associated with the proposed project. To minimize the impacts of incidental take of threatened CCC steelhead the incidental take statement includes a number of reasonable and prudent measures to be undertaken as part of the proposed project. These measures include minimizing in stream construction and changes to instream and riparian forest; use of a fisheries biologist for monitoring and relocating steelhead from affected areas; minimizing turbidity, sedimentation, and pollutant inputs into the river, preparing and submitting annual monitoring reports; ensuring designs enhance natural stream functions and benefit salmonid habitat; and ensuring fish passage improvements are properly designed and functioning. The USACE is responsible for in relation to each reasonable and prudent measure. These terms and conditions are specific actions that implement each reasonable and prudent measure and can be found in the supplemental BO and incidental take statement which are included as Appendix E.

Clean Water Act of 1972, (33 USC § 1251 et seq)

Section 404: Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act) requires the USACE to analyze its activities that involve placement of dredged or fill material into waters of the United States (33 USC § 1344). For water-dependent and non-water-dependent projects, the Guidelines prohibit discharges of dredged or fill material into waters of the United States if a practicable alternative to the proposed project exists that would have less adverse

[2] The supplemental incidental take statement released with the supplemental BO in February 2005 supersedes the incidental take statement attached to the original April 18, 2000 BO.

impacts on the aquatic ecosystem, including wetlands, and does not have other significant environmental consequences (40 CFR § 230 [a]).

In evaluating USACE projects under Section 404 of the CWA, USACE must clearly demonstrate that there are no practicable, less damaging alternatives. The purpose of this analysis is to provide information regarding the availability of practicable alternatives to the proposed project that are not analyzed in detail in the EA and to summarize the analysis regarding those alternatives that may be considered practicable after preliminary stages of screening. The USACE is responsible for making the formal determination of compliance with the 404 (b)(1) Guidelines.

The USACE has prepared a 404(b)(1) analysis for the proposed project and has determined that the project is the lease environmental damaging alternative (LEDPA). The 404(b)(1) analysis is available in Appendix D.

Section 401: Under the CWA, the state (as implemented by the relevant Regional Water Quality Control Board) must issue or waive Section 401 Water Quality Certification for the project to be permitted under Section 404. Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States. Though the USACE will not obtain a 404 permit, a 404(b)(1) analysis was prepared for this project, as required by Section 404 of the CWA. As such, the USACE must obtain a 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board.

The overall Upper Guadalupe River Flood Control Project has an existing Waste Discharge Requirement (WDR) and Water Quality Certification (WQC), which includes the original Reach 12 design (Order No. R2-2003-0115. Although the design for this reach has changed, the project would still comply with the water quality objectives of the WDR. Additionally, the USACE has worked closely with the San Francisco Bay RWQCB to address issues not specifically mentioned in the WDR. The USACE will continue to work closely with the RWQCB to ensure full compliance with the existing WDR or any amendments made to it.

Waste Discharge Requirements (WDR) and a Water Quality Certification (WQC)

The California Regional Water Quality Control Board (RWQCB), San Francisco Region, issued Waste Discharge Requirements (WDR) and a Water Quality Certification (WQC) for the overall Upper Guadalupe River Flood Control Project in December of 2003. The WDR and WQC include specific conditions and requirements that the project must comply with during implementation in order to ensure the protection of the quality of jurisdictional waters and prevent impacts to beneficial uses. The WDR and WQC are included as Appendix F of this document and the primary provisions are summarized below.

Work Windows: The WDR and WQC limit any construction in the Guadalupe River that falls below ordinary high water (2.33 year flood recurrence interval) to the summer dry season between June 1

and October 15 of each year to prevent impacts to steelhead trout and Chinook salmon (unless other approval by the Executive Regional Board Officer is received in advance).

Discharges: The WDR and WQC prohibit the discharge of waste (as defined by section 13050(d) of the California Water Code) to surface waters or surface water drainages. Prior to excavation of sediment, the material to be removed will be characterized using protocols described in the Santa Clara Valley Water District Sediment Characterization Plan. Excavated material from the project that is not desirable or suitable for beneficial reuse must be placed either in an on-site temporary location that isolates and contains runoff, sediment, or decant water from contacting jurisdictional waters, or in a designated off-site temporary or permanent location or permitted landfill. The discharge of decant water from these temporary excavated material stockpiles or storage areas is prohibited unless best management practices are adopted to ensure the decant water complies with effluent and receiving water limitations.

Erosion Control: The WDR and WQC require exposed surfaces to be stabilized with erosion control materials and/or revegetated with appropriate native vegetation or non-native sterile seed mix no later than October 15 of each year to prevent erosion. Additionally, any diversion of water must be performed in a non-erosive manner using a pipe or other best management practice to prevent flows from crossing active work sites.

Effluent and Receiving Water Limitations: The WDR and WQC regulate the pH, turbidity, temperature, color, dissolved oxygen content, and pollutant levels in wastewater that drains to waters of the State as well as in the receiving waters of the State up to 100 feet downstream from the point of wastewater discharge or diverted flow.

Water Quality Monitoring: As required by the WDR and WQC, receiving water limitations and background water quality conditions will be monitored in the morning and afternoon, each day, during hours of operation and monitoring results will be reported to the RWQCB every 2 weeks or immediately upon request by a RWQCB representative. If any receiving water limit is exceeded for a 4-hour period, the RWQCB will be notified of the exceedance and a corrective action plan implemented. If any receiving water limit is exceeded for an 8-hour period, construction activities upstream of the discharge will be terminated and will not resume until compliance with receiving water limitations is restored. If dead fish or fish exhibiting stress are observed within 1,000 feet of any project work activity or discharge, the incident will be reported to the CDFW, NMFS, USFWS Service, and the RWQCB Executive Officer and a qualified biologist will be immediately assigned to investigate the cause of the problem and define an acceptable corrective action plan. If the cause is related to project activities, work activities will be ceased until an acceptable corrective action plan can be implemented.

Mitigation and Monitoring Program: A mitigation and monitoring plan (MMP; USACE and SCVWD, November 1999) will be implemented and annual technical and mitigation success status reports will be submitted to the RWQCB Executive Officer. As required by the WDR and WQC, a

revised MMP will be developed if compensatory mitigation has not developed in accordance with the measurable objectives and other requirements of the original MMP.

Fish and Wildlife Coordination Act (16 USC § 1801 et seq)

The Fish and Wildlife Coordination was enacted to protect fish and wildlife from federal actions which could result in the control or modification of a natural body of water. It authorizes the United States Fish and Wildlife Service (USFWS) to evaluate impacts to fish and wildlife from proposed water development projects, and recommend project modifications or mitigation to protect fish and wildlife resources.

The USFWS conducted a habitat evaluation procedure of the entire Upper Guadalupe River Flood Control Project and issues a detailed Coordination Act Report (CAR) in 1998. Following proposed changes to the project design of Reach 12, the USFWS reevaluated the reach and prepared a Supplemental CAR specific to this reach in 2010. The conclusion of the 2010 CAR indicates that construction of Reach 12 would yield net habitat value benefits for all riparian models and most SRA cover models. However, the CAR did not "…allow for an evaluation of the extent to which benefits in Reach 12 would potentially offset impacts in other reaches of the flood control project." The 2010 Supplemental CAR is available upon request.

The USACE will continue coordinate with the USFWS further following release of this EA to review the revised project description and, possibly, conduct additional HEP analysis to ensure the project is in full compliance with the FWCA.

Migratory Bird Treaty Act (16 USC § 703 et seq)

The essential provision of the Migratory Bird Treaty Act (MBTA) makes it unlawful except as permitted by regulations "to pursue, hunt, take, capture, kill…any migratory bird, any part, nest or egg," or any product of any bird species protected by the convention. The proposed action is not expected to result in harm of any migratory bird, nest, or egg.

The project area is known to provide habitat for migratory birds protected under the MBTA. To protect migratory birds from adverse effects of the proposed project, the USACE and SCVWD will conduct bird surveys of the project area and adjacent areas prior to construction as described in Avoidance *and Minimization Measure BIO-5*. Areas where migratory birds are identified will be roped off and protected from construction activities. Construction personnel will be trained on how to avoid adversely impacting migratory birds and their nests.

National Historic Preservation Act as amended (16 USC § 470 et seq)

The regulations implementing Section 106 of the Act are promulgated by the Secretary of the Interior, as codified in 36 CFR § 800. Section 106 requires agencies to make a good-faith effort to identify cultural resources in the area of potential effects, defined as the geographic area within

which a project may directly or indirectly cause alterations in the character or use of historic properties. Identified resources are then evaluated for their significance and integrity by applying the criteria of the National Register of Historic Places (National Register), and to consult with Native American tribes, the State Historic Preservation Officer (SHPO), and interested parties as appropriate. This is known as the Identification and Evaluation phase of the Section 106 process.

In January 2013, the USACE initiated Section 106 consultation with the SHPO, requesting comment on HPM and the findings. The USACE believes it has completed an appropriate level of study for the proposed project, and that this work constitutes a "good-faith" effort to identify historic properties [36 CFR § 800.4(a) and § 800.4(b)(1)]. The USACE has made a finding of "no historic properties present" [36 CFR § 800.4(d)(1)]. The SHPO contacted the USACE within the standard timeframe, requesting clarification of the relationship of the currently proposed mitigation features with the originally authorized project.

Clean Air Act (42 USC § 7401 et seq)

The federal Clean Air Act (CAA) established the National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. These criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM10), particulate matter less than 2.5 microns in diameter (PM2.5), lead (Pb), and sulfur dioxide (SO_2). California Clean Air Act (CCAA) also established the California Ambient Air Quality Standards (CAAQS) for criteria pollutants. In general, CAAQS are more stringent than the NAAQS.

The CAA requires states to classify air basins as either *attainment* or *nonattainment* with respect to quantitative thresholds in the NAAQS, and prepare State Implementation Plans (SIPs). SIPs articulate emission reduction strategies to maintain the NAAQS for those areas designated as attainment and to attain the NAAQS for those areas designated as nonattainment.

The USACE has prepared a CAA analysis which shows that using Tier-4 construction equipment would ensure that the proposed project does not violate any air quality standard. The analysis is summarized in Section 3.6 and provided in its entirety in Appendix C.

Executive Order 11990, Protection of Wetlands (42 Fed. Reg. 26,961, May 25, 1977)

Under this Executive Order, federal agencies are directed to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands. Impacts to approximately 0.001 acre of emergent wetland (approximately 0.24 percent of the total aquatic emergent habitat) will not require mitigation because the RWQCB staff has resolved that this loss would be a result of overall habitat improvements, therefore, additional mitigation is not required (pers. comm, Ms. Beth, RWQCB, and Mr. DeJager, USACE, May 6, 2014). Further, following construction some emergent aquatic wetlands would reestablish on the channel margins. As such, mitigation of 0.001 acre of

emergent aquatic habitat is not further discussed in this document. As such, the proposed action is in full compliance with this Executive Order.

6.0 Determination and Statement of Findings

The USACE has prepared this draft Supplemental EA to assess and disclose the potential impacts of the proposed project on the quality of the environment within the proposed project area. Based on this assessment, it has determined that with implementation of avoidance, minimization, and mitigation measures, the proposed action would not significantly affect the surrounding environmental resources. The potential impacts and proposed avoidance, minimization, and mitigation measures are summarized in Table 12.

Based on these findings, a draft Finding of No Significant Impact (FONSI) was prepared pursuant to 33 CFR Part 325. The draft FONSI is available and is provided with this draft EA. Once the comment period is complete, any comments will be reviewed and considered for incorporation into a final EA. All comments will be responded to and appended to the final EA and a final FONSI will be prepared.

7.0 Documents Incorporated by Reference

The following documents are incorporated by reference into this Supplemental EA.

- Final Environmental Impact Report/Environmental Impact Statement for the Upper Guadalupe River Flood Control Project (SCVWD and USACE 1999a).
- Waste Discharge Requirement and Water Quality Certification for the Santa Clara Valley Water District and United States Army Corps of Engineers Upper Guadalupe River Flood Control Project, City of San Jose, Santa Clara County. Order R2-2003-0115 (San Francisco RWQCB 2003) (available in Appendix F).
- Volume VIII of the FEIR/EIS for the Upper Guadalupe River Flood Control Project—Mitigation Monitoring Plan (SCVWD and USACE 1999b).
- NMFS Supplemental Biological Opinion (NMFS 2005) (available in Appendix E).

8.0 List of Preparers and Contributors

Name	Title	Affiliation	Years Experience
Preparers			
William DeJager	Biologist	USACE	22
Cynthia Jo Fowler	Environmental Manager, Ecologist	USACE	10
Tessa Beach	Environmental Manager, Biological Sciences	USACE	5
Richard Stradford	Archaeologist	USACE	30
Amanda B. Cruz	Biologist	USACE	9
Kenneth Wong	Chief, Regional Planning Section	USACE	11
Chris Eng	Environmental Manager	USACE	20
Contributors			
Andrew Smith	Engineer	USACE	5
Bonievee Delapaz	Real Estate	USACE	8
James Manitakos	Environmental Planner II	SCVWD	29
Lotina Nishijima	Assistant Civil Engineer II	SCVWD	11

9.0 References

Beth, Margaret and William DeJager. 2014. Personal communication. May 6, 2014, 9:48 AM.

City of San Jose. 2014. "Guadalupe River Trail." Available at: http://www.sanjoseca.gov/Facilities/Facility/Details/202 Accessed on March 26, 2014.

City of San Jose. 2010. *Environmental Noise Assessment for Envision San José General 2040 Plan*.

County of Santa Clara et al., 2012. *Final Santa Clara Valley Habitat Plan*, available at http://www.scv-habitatplan.org/www/site/alias__default/346/final_habitat_plan.aspx. Accessed on April 30, 2014. Additional authors are City of San José, City of Morgan Hill, City of Gilroy, Santa Clara Valley Water District, and the Santa Clara Valley Transportation Authority.

Department of Water Resources (DWR). 2004. *California's Groundwater.* Bulletin 118. Available at: http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/2-9.02.pdf. Accessed on March 20, 2014.

Dunne and Leopold**.** 1978. *Water in Environmental Planning*. W.H. Freeman and Company, New York.

Federal Highway Administration. 2006. *Construction Noise Handbook.* Available at: http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/.

Guadalupe River Park Conservancy. 2012. *Flora and Fauna*. Available at: http://www.grpg.org/Wildlife.shtml. Accessed on April 3, 2014.

H.T. Harvey and Associates, 1997. *Red-Legged Frog Distribution and Status – 1997*. Prepared for Santa Clara Valley Water District, CA.

Leidy, R.A., G.S. Becker, B.N. Harvey. 2005. Historical distribution and current status of steelhead/rainbow trout *(Oncorhynchus mykiss)* in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, Oakland, CA.

NMFS. 2005. *Supplemental Biological Opinion for the Upper Guadalupe River Flood Control Project, San Jose, California*. File No: 151422SWR00SR589

NMFS. 2010. 5-yer Review: Summary and Evaluation of Central Coastal Steelhead DPS and Northern California Steelhead DPS. Available at: http://www.nmfs.noaa.gov/pr/pdfs/species/ccc_nc_steelhead_5yearreview.pdf. Accessed on April 3, 2014. Accessed on April 15, 2014.

Paul, M.J. and J.L. Meyer. 2001. *Streams in the urban landscape*.

San Francisco Regional Water Quality Control Board (RWQCB). 2003. *Waste Discharge Requirement and Water Quality Certification for the Santa Clara Valley Water District and United States Army Corps of Engineers Upper Guadalupe River Flood Control Project, City of San Jose, Santa Clara County.* Order R2-2003-0115.

San Francisco Bay RWQCB. 2009. *Basin Plan Amendment.* Available at: http://www.epa.gov/waters/tmdldocs/32396_final_staff_report.pdf. Access on March 12, 2014.

Santa Clara Valley Urban Runoff Pollution Prevention Program. *Guadalupe Watershed.* Available at: http://www.scvurppp-w2k.com/ws_guadalupe.shtml. Accessed on March 12, 2014.

SCVWD. 2011-2013. Upper Guadalupe River Flood Control Project—Continuous Temperature Monitoring (2011-2013). Data provided by SCVWD.

SCVWD. 2012. Upper Guadalupe River Reach 6 Construction Water Quality Monitoring (available in Appendix B).

SCVWD. 2012. *Reservoir Operating Restrictions*. Available at: http://www.valleywater.org/uploadedFiles/Services/CleanReliableWater/WhereDoesYourWaterComeFrom/Reservoirs/Operating%20Restriction%20FAQ%202011_FINAL_07_05_11.pdf. Accessed on April 2, 2014.

UC Davis. 2007. California Swainson's Hawk Inventory: 2005-2006. Department of Fish and Game Resource Assessment Program, Final Report. Available at: https://www.dfg.ca.gov/rap/projects/swainsonhawk/docs/RAP-final-report-form-2007.pdf. Accessed on April 15, 2014.

USACE. 1996. Engineering Manual 1110-2-1619: *Risk-based Analysis for Flood Damage Reduction Studies.* Available at: http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-1619.pdf.

USACE. 2009. ETL 1110-2-571: *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures*. Available at: http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1110-2-571.pdf.

USACE. 2012. Upper Guadalupe River Reach 10B Construction Water Quality Monitoring (available in Appendix B).

USACE. 2013. Upper Guadalupe River Reach 12 Sampling and Analysis Report.

USACE. 2014. Upper Guadalupe River Flood Risk Management Project—Reach 12: Supplemental Design Documentation Report (DDR). ITR/BCOES Submittal. January 2014. Prepared by: Moffatt & Nichol with ICF Jones & Stocks and McBain & Trush.

USACE and SCVWD. 1999a. *Final Environmental Impact Report / Environmental Impact Statement for the Upper Guadalupe River Flood Control Project.*

USACE and SCVWD. 1999b. *Volume VIII of the FEIR/EIS for the Upper Guadalupe River Flood Control Project—Mitigation Monitoring Plan.*

USEPA. 2010. *Watershed Assessment, Tracking & Environmental Results*. Available at: http://iaspub.epa.gov/tmdl_waters10/attains_waterbody.control?p_list_id=CAR2054005019980928160437&p_cycle=2010&p_report_type. Accessed on March 20, 2014.

USFWS Critical Habitat Mapper. Available at: http://crithab.fws.gov/crithab/flex/crithabMapper.jsp?. Accessed on 15 April 2015.

USFWS. 1998. Recovery Plan for Insect and Plant Taxa from the Santa Cruz Mountains in California. http://ecos.fws.gov/docs/recovery_plan/980928a.pdf. Accessed on April 15, 2014.

USFWS. 2002. Recover Plan for the California Red-legged Frog (*Rana aurora draytonii*). Available at: http://ecos.fws.gov/docs/recovery_plan/020528.pdf. Accessed on 15 April 2014.

USFWS 2008. *Lasthenia conjugens* (Contra Costa goldfields) 5-year Review: Summary and Evaluation. Available at: http://ecos.fws.gov/docs/five_year_review/doc1993.pdf. Accessed on 15 April 2014.

USFWS. 2009a. Species Account, California Tiger Salamander (*Ambystoma californiense*). Available at: http://www.fws.gov/sacramento/es_species/Accounts/Amphibians-Reptiles/Documents/california_tiger_salamander.pdf. Accessed on April 15, 2014.

USFWS. 2009b. Bay Checkered Butterfly (*Euphydryas editha bayensis*) 5-year Review: Summary and Evaluation. Available at: http://ecos.fws.gov/docs/five_year_review/doc2517.pdf. Accessed on April 15, 2014.

USFWS 2010. *Chorizanthe robusta* var. *robusta* (Robust Spineflower) 5-year Review: Summary and Evaluation. Available at: http://ecos.fws.gov/docs/five_year_review/doc3229.pdf. Accessed on 15 April 2014.

USFWS 2013. *Dudleya setchelli* (Santa Clara Valley Dudleya) and *Streptanthus albidus spp. albidus* (Metcalf Canyon Jewelflower) 5-year Review: Summary and Evaluation. Available at: http://ecos.fws.gov/docs/five_year_review/doc4336.pdf. Accessed on 15 April 2014.

To view Upper Guadalupe River Reach 12 DRAFT FONSI and Appendices visit: www.spn.usace.army.mil/Missions/Environmental