Cache Creek North Levee Setback Project
Critical Erosion Site LM 3.9L and LM 4.2L
Draft Environmental Assessment

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Environmental Resources Branch

DRAFT FINDING OF NO SIGNIFICANT IMPACT
Cache Creek North Levee Setback Project
Critical Erosion Site LM 3.9L and LM 4.2L

I have reviewed and evaluated the information presented in this Environmental Assessment (EA); related documents; and views of other agencies, organizations, and individuals concerning the proposed Federal levee alterations, pursuant to Section 408 (Title 33 of the United States Code, Section 408 [33 USC 408]), in Cache Creek, Yolo County, California. The work is being funded and performed by the State of California Department of Water Resources, Division of Flood Management (DWR).

If current erosion patterns at Cache Creek continue, levee integrity and flood protection along Cache Creek would be severely compromised. This project proposes the construction of two setback levees requiring approximately 45,000 cubic yards of imported material which would serve to protect the integrity of the levee system and provide flood protection for the immediate area on the north side of the creek. The existing levee would be notched in three locations to allow drainage of the levee setback area back into Cache Creek. By setting back the existing levee, approximately 2.5 acres of new floodplain would be created and allow for enhancement of natural bank conditions and protection of existing shaded riverine habitat and diversity. Furthermore, the proposed setback levees would allow for natural channel migration and the associated natural cycles of habitat disturbance and renewal that native riparian vegetation is adapted to, with anticipated long-term increases in local habitat quality over the entire project area. No riprap revetment or in-stream work would take place as part of this action.

The possible consequences of the work described in the EA have been evaluated with consideration given to environmental, socioeconomic, cultural, and engineering feasibility. The environmental effects have been coordinated with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Historic Preservation Officer (SHPO), the California Department of Fish and Game, and the Central Valley Flood Protection Board. Consultation with USFWS on the Federally-listed valley elderberry longhorn beetle (VELB) has been completed and the Corps has received concurrence that there would be no significant adverse effects to the VELB from the project. Cultural resources surveys have been conducted and no known cultural resources would be affected by the project. The Corps has received concurrence from SHPO that there would be no adverse effect to historic properties.

No significant impacts on resources would result from the project. Best management practices, avoidance protocols and minimization measures would be utilized during construction to reduce effects related to air quality, sensitive biological resources, cultural resources, water quality, noise and utility systems.

The draft EA was circulated for a 15-day public comment period from March16, 2012 to April 2, 2012. All comments received concerning the project have been addressed and incorporated as necessary into the EA with no unresolved issues.

Based on my review of the EA, I have determined that the proposed levee improvement project would have no significant, long-term effects on the environment. Based on these considerations, I am convinced that there is no need to prepare an environmental impact statement. The EA and Finding of No Significant Impact provide adequate environmental documentation of the proposed action pursuant to the National Environmental Policy Act.

Date

William J. Leady, P.E.
Colonel, U.S. Army
District Engineer

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ACRONYMS AND ABBREVIATIONS

AADT	average annual daily traffic
ADT	average daily traffic
A-E	Agricultural Exclusive
AG	Agriculture
A-P	Agricultural Preserve
APE	Area of Potential Effects
AQAP	Air Quality Attainment Plan
ARB	California Air Resources Board
BMP	best management practices
CAA	Federal Clean Air Act
CAAA	Clean Air Act amendments
CCAA	California Clean Air Act
CCHS#1	Cache Creek Historic Site #1
CCR	California Code of Regulations
CCRMP	Cache Creek Resources Management Plan
CDMG	California Division of Mines and Geology
CFR	Code of Federal Regulations
CVFPB	Central Valley Flood Protection Board
Central Valley RWQCB	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNEL/L_{dn}	Community Noise Equivalent and Day-Night noise levels
CNPS	California Native Plant Society
CNRR	California Northern Railroad
CO	carbon monoxide
County	Yolo County
CR	County Road
CRHR	California Register of Historic Resources
CWA	Clean Water Act
cy	cubic yards
dBA	A-weighted decibels
DFG	California Department of Fish and Game
DOC	California Department of Conservation
DOT	California Department of Transportation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ER	Engineering Regulation
ESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FPPA	Federal Farmland Protection Policy Act
HTRW	hazardous, toxic, or radioactive waste
I-5	Interstate 5
IS/MND	Initial Study/Proposed Mitigated Negative Declaration

LCCFB	Lower Cache Creek Flood Barrier Plan
LESA	Land Evaluation-Site Assessment System
LM	Levee Mile
LM 3.9L	Levee Mile 3.9 Left Bank
LM 4.2L	Levee Mile 4.2 Left Bank
MLD	Most Likely Descendent
MWSL	Modified Wide Setback Levee Plan
NAHC	Native American Heritage Commission
NED	National Economic Development
NEPA	National Environmental Quality Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_X	nitrogens of oxide
NOI	Notice of Intent
NRCS	U.S. Natural Resources Conservation Service
NWIC	Northwest Information Center
OAP	Ozone Attainment Plan
PCB	Polychlorinated Biphenyl
PM_{10}	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
ppm	parts per million
proposed project	Cache Creek North Levee Setback Project – Critical Erosion Site LM 3.9 Left Bank and LM 4.2 Left Bank
ROG	reactive organic gases
SHPO	State Historic Preservation Office
SRBPP	Sacramento River Bank Protection Project
SRFCP	Sacramento River Flood Control Project
SCH	State Clearinghouse
SCS	Soil Conservation Service
SEIS IV	Supplemental Environmental Impact Statement IV for Sacramento River Bank Protection Project
SFNA	Sacramento Federal Ozone Nonattainment Area
SIP	State implementation plan
site assessment	Phase I Environmental Site Assessment
SO_X	oxides of sulfur
SR	State Route
SWPPP	stormwater pollution prevention plan
TAC	toxic air contaminant
TMDL	Total Maximum Daily Load
tpy	tons per year
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
VMT	vehicle miles traveled
VOCs	volatile organic compounds
YSAQMD	Yolo-Solano Air Quality Management District

1 PURPOSE AND NEED FOR ACTION

The California Department of Water Resources (DWR) Flood System Sustainability Branch repairs significant levee damage due to erosion, seepage, and/or stability deficiencies. Damaged levee sections are identified during levee inspections throughout the Sacramento and San Joaquin River Flood Control System. DWR proposes to address critical erosion damage on the left bank of Cache Creek at Levee Miles (LM) 3.9 and LM 4.2 in Yolo County that threatens the stability of the existing levee. The DWR Cache Creek North Levee Setback Project – Critical Erosion Site LM 3.9L and LM 4.2L (proposed project) proposes to construct setback levees at each erosion site along the north bank of Cache Creek. Encroachment by Cache Creek into the minimum berm specification of 30 feet has been observed and identified as requiring immediate remediation to prevent levee failure at both of these sites.

The levee is maintained by DWR Flood Maintenance Office, under provisions of the State Water Code Section 8361. The levee setback at LM 3.9L will be approximately 1,285 feet in length, and will be placed approximately 180 feet from the existing levee. The levee setback at LM 4.2L will be approximately 717 feet in length, and will be placed approximately 75 feet from the existing levee. The setting back of the existing levee required the acquisition of lands. In 2009, the State procured the necessary lands to implement the project.

1.1 PURPOSE OF PROPOSED ACTION

The Cache Creek levees proposed to be repaired are part of the Sacramento River Flood Control Project (SRFCP); a system of over 1,000 miles of levees, bypasses, weirs, and waterways designed to reduce flood damages in Sacramento and the Central Valley. The need for the proposed action is to maintain the integrity of the SRFCP.

The Cache Creek erosion sites are at risk of an erosional failure during flooding and/or normal flow conditions. These sites must be repaired before their erosion condition becomes so critical as to require emergency repair, or they experience a levee break, resulting in losses of life and property. The proposed repair will restore the structural integrity to the existing level of flood protection of the Cache Creek north levee. The existing levee system has a design flow capacity of 30,000 cubic feet per second (cfs) which corresponds to approximately 10 year level of flood protection. The proposed action will ensure that this level of flood protection is maintained. The setback levee designs include cutoff trenches that will penetrate underlying sand layers to reduce through and under seepage.

The SRFCP protects low-lying areas of the Sacramento Valley and the Sacramento–San Joaquin Delta from damaging floods. These areas contain large urban populations and industrial-commercial developments as well as extensive agriculture operations. A large amount of infrastructure, including highways, railroads, airports, water systems, and gas wells, is also present. Failure of a project levee would threaten these populations and developments.

1.2 BACKGROUND AND NEED FOR IMPROVED FLOOD PROTECTION

Cache Creek flood control issues have been longstanding. In 2003, DWR preformed an assessment of the equilibrium of Cache Creek. This assessment concluded that the creek is

extremely incised near the town of Yolo and there is a substantial risk of flooding at several erosion sites, including the sites that are the subject of this environmental document. The erosion sites are deep, steep-walled, and in close proximity to the levee section; therefore, the effectiveness of traditional waterside bank armoring methods is questionable, especially over the long-term and because these armoring methods could encroach into the design flow capacity. Upstream of the project reach, gravel mining has caused the lower reach of Cache Creek to become sediment starved. Because of sediment depletion, the creek is no longer in dynamic equilibrium. Since 1958, the creek has downcut as much as 35 feet. When a creek is in dynamic equilibrium, the water and sediment flowing through it are generally in balance and erosion and deposition are not excessive.

The U.S. Army Corps of Engineers (USACE) identified Cache Creek LM 3.9L and LM 4.2L as critical erosion repair sites following a series of storms in 2006. These sites were included in the Governor's emergency declaration (Executive Order S-18-06), which directed State agencies to cooperate fully and act expeditiously to complete emergency repairs to reduce the risk of catastrophic levee failure. A DWR alternatives analysis followed the emergency declaration, and concluded that setback levees are the preferred erosion repair alternative. DWR design of the setback levees was completed in 2007, but the levees were not constructed because of difficulty obtaining the required land and acquiring land easements. All land has been acquired following Eminent Domain proceedings.

1.3 PROJECT AUTHORIZATION

The Cache Creek levee at the proposed project are a part of the SRFCP authorized by the Flood Control Act (FCA) of 1917, as modified by the FCAs of 1928, 1937, and 1941. The Federal project levees for Cache Creek levees include a short reach upstream of the town Yolo to the Cache Creek Settling Basin/Yolo Bypass. Significant alterations to a Federal project levee by a non-federal entity are subject to permission from the Chief of Engineers, or his designee, under Section 408 (Title 33 of the United States Code, Section 408 [33 USC 408]) based on a determination that the alterations would not be injurious to the public. The Central Valley Flood Protection Board (Board) is the local sponsor of the SRFCP and has requested a determination from the USACE, under Section 14 of the Rivers and Harbors Act of 1899 (33 USC 408), to allow modification of the Federal project as proposed by DWR levee repair. The specific activities that would alter the Federal levee are the construction of the "tie-ins" to the existing levee (i.e., the sections of new levee that would connect the ends of the setback levee to the existing levee) and ultimate acceptance of the setback levee.

The proposed project would be seeking funding through future Sacramento River Bank Protection Project (SRBPP) authorization. SRBPP was authorized by Congress under the Flood Control Act of 1960 (Public Law 86-645), in accordance with the recommendations of the Chief of Engineers (as recorded in Senate Document Number 103, 86th Congress, Second Session, entitled ―Sacramento River Flood Control Project, Sacramento and dated May 26, 1960).

1.4 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

As part of the Section 408 application process (33 USC 408) with USACE, DWR has prepared this Environmental Assessment (EA) to satisfy requirement under National Environmental

Policy Act (NEPA). The Section 408 process is a review process whereby the applicant, DWR in this case, requests USACE approval to significantly modify a locally- or Federally-maintained USACE flood protection project. Originally enacted as part of the Rivers and Harbors Act of 1899, 33 USC 408 requires the Secretary of the Army to review and possibly approve the proposed modification. Replacing the Cache Creek levees with setback levees is a significant modification needing USACE approval.

This EA has been prepared to fully assess the effects of constructing and operating the proposed project, as required under NEPA. NEPA is the nation's broadest environmental law, applying to all federal agencies and most of the activities they manage, regulate, or fund that have the potential to affect the environment. NEPA requires federal agencies to consider the environmental impacts of their proposed actions and alternatives to those actions.

NEPA compliance is triggered under the authority of the USACE to approve modifications to a Federal project levee. USACE is the lead agency under NEPA (40 CFR 1501.5) because USACE has jurisdiction over and is responsible for certification of Federal levees. Prior to the approval of the proposed action, USACE must comply with NEPA and the regulations published by the Council on Environmental Quality (Title 40 CFR Parts 1500-1508). The primary purpose of this EA is to determine whether the proposed action would have a significant impact on the environment and therefore require preparation of an Environmental Impact Statement (EIS). This EA (1) describes the existing environmental resources in the project area, (2) evaluates the environmental effects of the proposed project alternatives on these resources, and (3) identifies measures to avoid or reduce any effects to less than significant. If potentially significant impacts are found to be less than significant after adoption of mitigation measures, the USACE may prepare a Finding of No Significant Impact (FONSI). This EA has been prepared in accordance with NEPA and provides full public disclosure of the environmental effects of the proposed improvements for the Cache Creek erosion sites.

1.5 PROJECT LOCATION AND SETTING

The proposed project is located along Cache Creek in Yolo County, approximately 26 miles northwest of Sacramento (Figure 1-1). The project site is located southeast of the town of Yolo and north of the City of Woodland along the north bank of Cache Creek at Levee Miles 3.9 and 4.2.

The project site is rural in nature and is surrounded by agricultural, rural residences, and orchard lands. Interstate 5 (I-5) is southwest of the proposed setback levee sites. There are two residences immediately to the north of the project site. Some native and predominantly nonnative vegetation comprises the riparian community along Cache Creek levees and its banks at the project site.

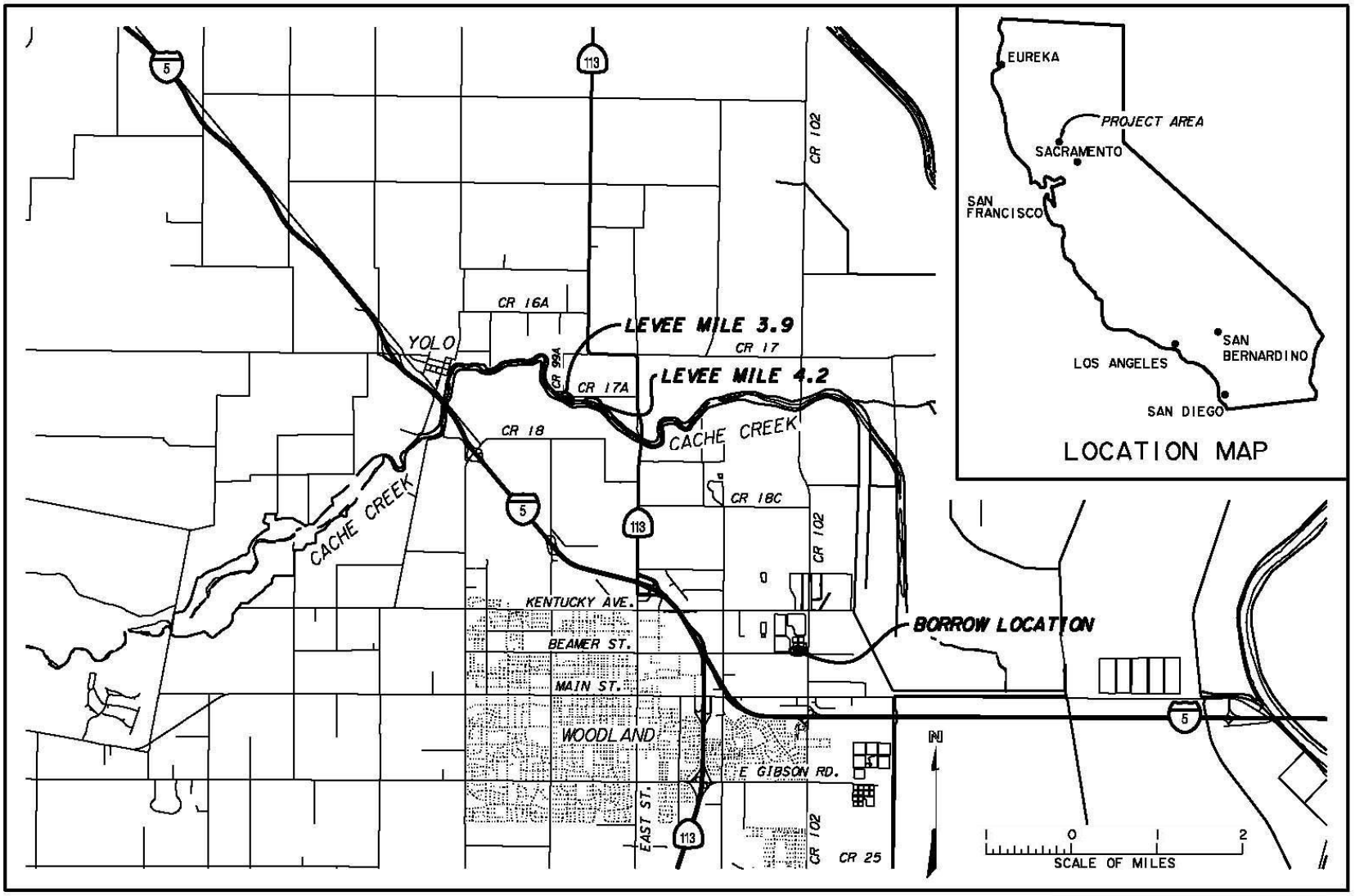

Figure 1-1. Regional Location

1.6 RELATED DOCUMENTS

An initial study and mitigated negative declaration (IS/MND) was prepared for LM 3.9L and LM 4.2L to satisfy California Environmental Quality Act (CEQA) requirement (DWR 2008). The CEQA was adopted by the CVFPB (SCH No. 2008102072) and a Notice of Determination filed with the State Clearinghouse on January 22, 2009. The CEQA alternatives were analyzed at an equal level of detail: the No Action Alternative and the Applicant Preferred Alternative (setback levees). Both direct and indirect effects were evaluated, consistent with CEQA.

Two additional sites, Cache Creek LM 2.8L and LM 3.4L will be included with the Section 408 application. NEPA and CEQA (SCH No. 2009042052) were completed for these two sites under authority of Phase II of the SRBPP under a joint document Draft EA/IS for 25 erosion sites (USACE and CVFPB 2009). The Draft EA/IS is tiered from the 1987 Environmental Impact Report/Supplemental Environmental Impact Statement IV (EIR/SEIS IV) for the SRBPP. NEPA was approved for LM 2.8L and LM 3.4L by the USACE and a FONSI was adopted on June 5, 2009.

2 ALTERNATIVES

The Cache Creek LM 3.9L and LM 4.2L sites at were identified as critical sites by the annual reconnaissance inventory team in summer 2006. Significant erosion was identified, especially on the upper slope of the waterside bank. The primary cause of erosion was identified as high sheer stress on the river bank when at near bank-full conditions. The waterside levee slopes were described as steep and composed of primarily silty, sand materials with a low to moderate resistance to erosion. In the planning process, three levee repair alternatives were considered and evaluated. The alternatives considered include setback levee and two in-stream repairs. The alternatives were consistent with previous critical levee repairs in the SRFCP and current SRBPP designs.

Initial engineering, environmental, and economic analyses indicated that the only feasible alternative was to construct individual setback levees at LM 3.9L and LM4.2L. Based on coordination conducted in preparing this draft EA, there are no unresolved conflicts concerning alternative uses of available resources (NEPA, section 102[2][E]), therefore this EA only analyzes the proposed action and no action. NEPA guidance from the Council on Environmental Quality (September 8, 2005, "Preparing Focused, Concise and Timely Environmental Assessments") states "When there is consensus about the proposed action based on input from interested parties, you can consider the proposed action and proceed without consideration of additional alternatives."

2.1 ALTERNATIVES ELIMINATED FROM DETAILED DISCUSSION

Two instream repair alternatives were considered for Cache Creek LM 3.9L and LM 4.2L which includes placing bank revetment (i.e., rip rap) along the waterside slope of erosion site. The two instream alternatives included (1) left bank revetment to repair erosion and (2) left bank revetment with excavation of the right (opposite) bank to gain additional channel capacity and reduction of hydraulic impact. The designs were recommended by the USACE, and designed

with acceptable slope stability factors of safety in low flow, high flow, and rapid drawdown conditions. Both in-stream alternatives included revegetation for on-site mitigation.

The *Bank Revetment* alternative includes placement of bank revetment at 1.5 horizontal to 1 vertical slope, agricultural soil, and erosion control fabric. Prior to rock placement, approximately 6 acres of levee surface that contains sparse (less than 25 percent of area) existing native riparian vegetation would be cleared at LM 3.9L and LM 4.2L combined. This alternative would also remove and relocate a combined total of 8 elderberry shrubs. The combined repair length was approximately 1,500 linear feet of bank revetment and a combined total of 30,000 tons of rock. The combined repaired slopes would be covered with 5,500 tons of agricultural topsoil to help facilitate on-site revegetation of 6 acres native grasses seeding and 3,400 willow pole cuttings.

The *Bank Revetment* alternative was eliminated due to the hydraulically modeled design resulted in a significant rise in water surface elevation and the additional impacts and mitigation associated with in-water repair. An instream repair design of bank revetment only could not be achieved without affecting a change in water surface elevation or without an overly steepened engineered bank slope (< 1.5 horizontal to 1 vertical). The *Bank Revetment* design was engineered with an aggressive 1.5 horizontal to 1 vertical slope, which is steeper than USACE levee design manual (EM 1110-2-1913) recommended for construction and stability assurance of a 2 horizontal to 1 vertical rock filled bank slope. Another factor for elimination was an estimate of 10 years or greater would be needed to restore habitat conditions to a baseline condition after incorporation of on-site mitigation plantings. The *Bank Revetment* alternative cost was similar to the proposed action, however off-site mitigation costs for temporal impacts and additional in-water mitigation under the Clean Water Act Section 401 and 404 were not considered for the *Bank Revetment* alternative cost but would likely push the overall cost greater than the proposed action.

The *Bank Revetment with Excavation* alternative includes excavation of right (opposite) bank and placement of left bank revetment at a 2 horizontal to 1 vertical slope, agricultural soil, and erosion control fabric. Prior to rock placement, as in the *Bank Revetment* alternative, for the combined LM 3.9L and LM 4.2L on the left bank slopes, approximately 6 acres of levee surface would be cleared that contains sparse, existing native riparian vegetation and removal and relocation of 8 elderberry shrubs. This alternative would require removal of 6 acres combined right bank high quality native riparian (>50 percent of area) and undetermined amount of elderberry shrubs. The combined repair length was approximately 1,500 linear feet of bank revetment and a combined total of 17,000 tons of rock. The combined right bank excavation was approximately 21,000 cubic yards of material. The combined repaired and excavated slopes would be covered with 9,000 tons of agricultural topsoil to help facilitate on-site revegetation of 10 acres native grasses seeding and 7,000 willow pole cuttings.

The *Bank Revetment with Excavation* alternative design did not significant raise the hydraulically modeled water surface elevation but was eliminated due to the repair was projected to last only 20 years with continued bank toe erosion, would cause significant opposite, right bank erosion, and additional impacts and mitigation associated with in-water repair. The excavation of the right bank would cause significant environmental impact to mature native riparian vegetation which includes mature valley oak stand at LM 4.2R. The excavation would likely increase right

bank erosion into the levee template. There is currently identified erosion on the right bank at both sites but sites have been included in annual reconnaissance inventory because there is still in wide bench. The excavation would reduce the right bank bench to minimum requirement of 30 feet width. Although the both banks would be revegetated with on-site plantings, temporal impacts would be greater than 10 years to restore both banks to their baseline habitat condition. The *Bank Revetment with Excavation* cost was similar to the proposed action alternative cost, however, additional in-water mitigation under the Clean Water Act Section 401 and 404 off-site and mitigation costs for temporal impacts and adverse impacts to the mature riparian stand at LM 4.2R were not considered for this alternative but would push the overall cost significantly greater than the proposed action.

The *Bank Revetment* and *Bank Revetment with Excavation* alternatives were designed prior to the implementation of the current USACE vegetation policy (ETL 11110-2-571). Both instream alternatives would need to redesigned to eliminate existing and on-site mitigation of woody vegetation on waterside slope within the vegetation free zone (within 15 feet of projected waterside toe) to be USACE compliant. The additional costs for redesign, hydraulic modeling, and mitigation for the loss of mature riparian vegetation would be needed to be reanalyzed for these eliminated alternatives and would push the overall cost significantly greater than the proposed action alternative.

2.2 ALTERNATIVES EVALUATED IN DETAIL

The proposed action is the only alternative that is considered practicable given cost and engineering feasibility. Two alternatives were carried forward for evaluation in this environmental document. These alternatives are described below. The proposed project corresponds to the proposed setback levee alternatives evaluated in an IS/MND prepared for LM 3.9L and LM 4.2L to satisfy CEQA requirements (DWR 2008).

2.2.1 No Action

NEPA requires the evaluation of the comparative impacts of a "No Project" alternative. Under this alternative, no action would be taken to halt erosion and protect the levee at Cache Creek LM 3.9L and LM 4.2L. Forces of erosion would persist, including wave wash, flood flows, and human disturbances. Continued erosion to the levee system would increase the risk of levee failure and possible flooding of surrounding areas. Should levee failure result from the No Action alternative, resultant emergency measures would likely be of a nature that limits the ability of USACE to properly implement best management practices (BMPs), site-specific mitigation, and other measures that would minimize impacts to aquatic and terrestrial communities.

2.2.2 Proposed Project

If current erosion patterns continue, levee integrity and flood protection along Cache Creek would be severely compromised. Construction of the proposed setback levees would serve to protect the integrity of the levee system and provide flood protection for the immediate area on the north side of the creek. Because of the urgency of the proposed project and the infeasibility of traditional fill and bank armoring methods, it was determined that construction of a setback

levee would be the most efficient and least environmentally damaging method of protecting the integrity of the levee system.

The setback levees would be built landward of the existing levees creating approximately 2.5 acres of new floodplain and would allow for enhancement of natural bank conditions and protection of existing shaded riverine habitat and diversity. The design setback distances accommodate 50 years of bank retreat without having the erosion encroach into the 3 horizontal to 1 vertical prism that is projected from the waterside toes of the setback levee. The setback levee design entails removing the existing levee crown (material above the floodplain, or bankfull, elevation) (Figure 2-1 and 2-2).

The setback levee at LM 3.9L would be constructed approximately 180 feet north of the existing levee and would be approximately 1,285 feet in length. A ramp would be constructed to allow vehicle access to County Road 17a. The setback levee at LM 4.2L would be constructed approximately 75 feet north of the existing levee and would be approximately 717 feet in length. The landward landside slope at LM 4.2L will be 2 horizontal to 1 vertical in lieu of the standard 3 horizontal to 1 vertical slope to avoid impacting an existing building in the immediate vicinity and to allow minimum clearance for landside toe levee inspection. To allow construction of setback levee LM 3.9L, an approximate 1,300-foot-long stretch of County Road 17a would be relocated north of the existing road and would be shortened to approximately 1,100 feet long. A larger and longer setback levee encompassing both erosion sites was considered but it would be costlier to implement with greater real estate acquisition needs and a larger disturbance area without providing any substantial amounts of incremental hydraulic and flood reduction benefits.

Both setback levees would be between 40 and 50 feet wide at the base, with a 12-foot-wide gravel road along the top of the levee. The height of the setback levees would be approximately 8 to 12 feet above original ground. The setback levee crest elevations would be built to the same elevations as the existing levees. The existing levee crest elevations are up to a few feet lower than shown in the 1960 USACE as-built drawings because of severe subsidence in the area. All landside and waterside slopes would be 3H to 1V, except for the landside slope at LM 4.2L which would be 2H to 1V because of a real estate constraint. The existing levee would be notched in three locations to allow drainage of the levee setback area back into Cache Creek. These notches would be approximately 10 feet wide and would be degraded to the same elevation as the levee setback area. The area disturbed from notching the existing levee will be hydroseeded with a native grass mix to prevent construction related erosion. Ornamental shrubs and exotic trees at downstream end of LM 4.2L transition footprint, including 15 feet beyond the landside toe, will be removed. The area within project repair footprint will be compliant with current USACE vegetation policy (ETL 11110-2-571). Trees and shrubs on the landside and waterside of the levee, outside of the repair footprint will remain in place. Sensitive resources would be avoided during notching of the existing levee and construction of the setback levee.

Up to 45,000 cubic yards (cy) of fill would be needed for construction of both levee setbacks, and the fill would be hauled in from off-site. Fill material would be transported from an existing storage site where it was stored after being obtained from Yolo County in 2007 during its water treatment plant expansion. This storage site is located approximately 5.5 miles from the project site. Any material to be disposed of would be hauled to a properly permitted landfill.

2.2.3 Construction Schedule

The construction of setback levees at LM 3.9L and LM 4.2L is planned for late summer to fall of 2012. County Road 17A/99A and PG&E powerlines relocation will be completed prior to the start of the new levee excavation of the foundation and construction of the tie-ins into the existing levee. The tie-in construction must be completed prior to the start of the designated flood season of November 1. The remaining construction may continue beyond fall 2012 depending on weather conditions. The notches in the existing levee may only take place outside of designated flood season from April 16 to October 31. All phases of construction are proposed for two months but timing will depend if work is able to occur prior to the start of flood season. If work starts in October or later, construction may last up to 6 months for completion.

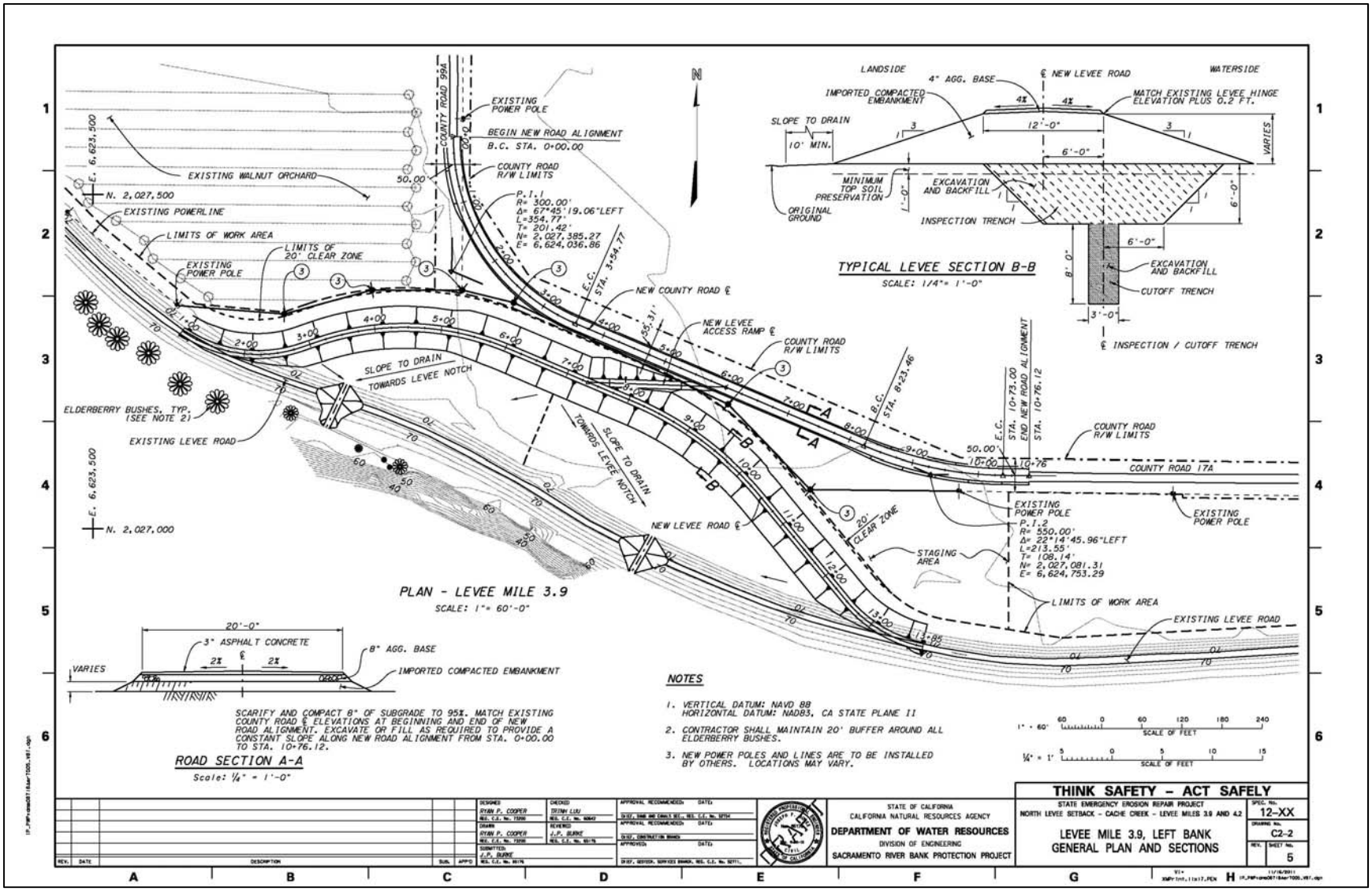

Figure 2-1. Proposed Setback Levee at Cache Creek LM 3.9L and Road Relocation

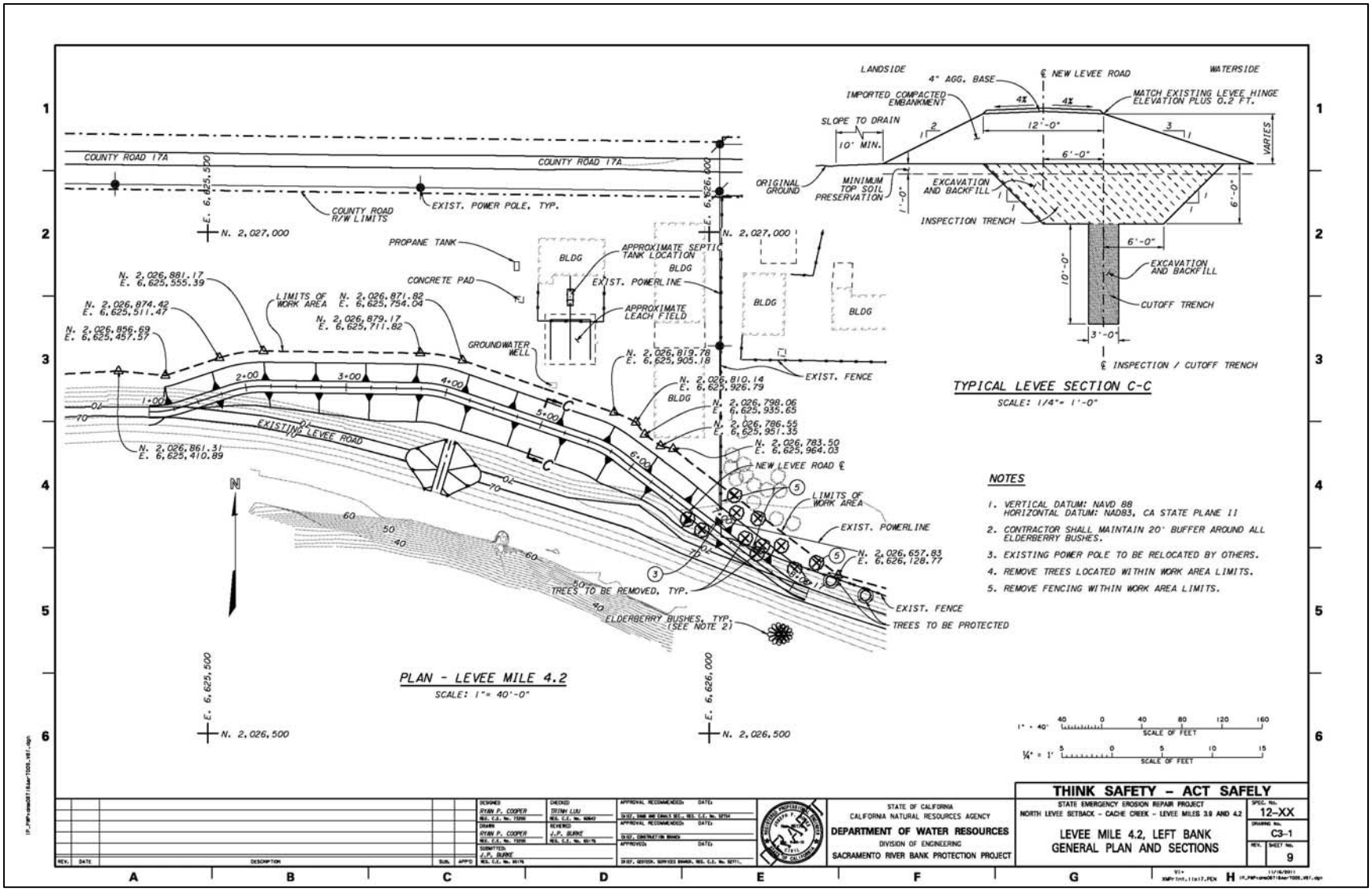

Figure 2-2. Proposed Setback Levee at Cache Creek LM 4.2L

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

3.1 INTRODUCTION

For NEPA purposes, the assessment of potential impacts takes into consideration the significance of the proposed action in terms of its context and its intensity (40 CFR 1508.27). To aid in the evaluation of context, USACE has determined that the affected region is Cache Creek and the Sacramento River watershed and the locality of the proposed action is the SRBPP planning area. Intensity refers to the severity of potential impact. The intensity of the potential impacts for each resource element is addressed under Environmental Consequences.

This section describes the existing environmental resources in the project area that may be affected by the proposed action. This section also describes how these resources would be affected. For those resources on which the proposed project may have significant effects, mitigation measures are proposed.

3.2 ENVIRONMENTAL RESOURCES ELIMINATED FROM DETAILED ANALYSIS

Initial evaluation of the effects of the alternatives indicated that there would likely be little to no direct, indirect, or cumulative effects on Recreation and Hazards and Hazardous Materials resources. These resources are discussed in Sections 3.2.1 and 3.2.2 to add to the overall understanding of the environmental setting.

3.2.1 Recreation

There are currently no existing recreation opportunities at the project site or vicinity of the Proposed Action. The Proposed Action does not include proposals for new housing, recreational facilities, or recreational resources. Public access to Cache Creek is restricted as a result of private lands that border the creek in the project area. The existing levees are currently not used for recreational purposes, and are used exclusively for levee monitoring and maintenance. The closest recreational area to the project site is the Esparto Community Park, which is located approximately 13 miles west of the project area along Highway 16 in Esparto.

3.2.2 Hazards and Hazardous Materials

An updated Phase I Hazardous, Toxic, and Radiological Waste (HTRW) site assessment for the sites was completed in 2009. The purpose of the surveys was to identify the presence or likely presence of any hazardous waste that may affect construction of the project. A records review, a site visit, and several interviews were conducted to compile information for the survey. This survey did not include sampling for analysis of soil or groundwater. Results of the assessment did not reveal any evidence of HTRW, hazardous waste containers, or any other type of debris that would indicate that HTRW was being used or had ever been used at these locations. There were no identified hazards located within the project area or vicinity of the Proposed Action.

While the project would not require long-term storage or use of hazardous materials, small quantities of fuel, engine oil, and hydraulic line oil would be stored at the staging area and handled during construction. Potential health and safety hazards include possible accidental spills

or leaks involving these fuels and lubricants. During construction, employees are required to safely handle and store fuels and oil in accordance with applicable State and Federal regulations

3.3 AESTHETICS

This section discusses the existing aesthetic resources within the project area, any effects the Proposed Action may have on those resources, and mitigation measures to reduce effects, if needed.

3.3.1 Existing Conditions

The project site is characterized by agricultural lands and views of Cache Creek (Figures 3-1 and 3-2). The creek is vegetated with a mix of native and nonnative vegetation and has steep, eroding banks. Other visual features at the project site include overhead utility lines and rural county roads. There are no State-designated visual resources within or near the project site. Within the project vicinity, State Route (SR) 16 is eligible for a scenic highway designation from Capay to its intersection with SR 20 (DOT 2008). Nighttime views within the project site are typical of those within an agricultural setting. Sources of nighttime lighting include the city of Woodland, traffic on I-5, and scattered rural residences. The general character of the surrounding area is described below:

- **North:** Lands to the north of the project site consist of plowed agricultural fields and orchards. There are also three residences, private driveways, and County Road 17A and 99A to the north of the project site.
- **South:** To the south of the project site is Cache Creek, which consists mostly of nonnative vegetation and steeply eroding banks. One residence is located across the creek channel on the landside of the south bank levee and across a country road.
- **East:** Lands to the east include plowed agricultural fields. Additional farm residences and structures are to the east of the site.
- **West:** West of the project site are agricultural land and rural residences.

3.3.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA. For the purposes of this EA, effects on aesthetics/visual resources were considered significant if the project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of light or glare which would adversely affect day or nighttime views in the area.

Figure 3-1. Agricultural Lands and County Road 17A/99a view NW from LM 3.9L

Figure 3-2. Cache Creek Channel view Downstream from LM 4.2L

No Action Alternative

Under the no-action alternative, no activities would be conducted to halt erosion at the erosion sites. Aesthetic resources associated with the existing levees would remain unchanged for the immediate future. Over time, flood flows, and human disturbance would contribute to continued erosion and risk of levee failure. Given the extent of existing erosion, it is likely that the erosion would increase in severity to the point that pre-failure emergency repairs would be warranted or the levee would fail, resulting in flooding, greatly accelerated erosion, and the need for post-failure emergency repairs. Either of these outcomes would likely result in potentially significant impacts to the existing aesthetic values, as well as other resources.

When pre-failure emergency repairs are required, failure of the levee is imminent and little to no opportunity is available to incorporate measures into the project design that would minimize impacts to aesthetic resources. Additionally, if the erosion has been allowed to occur and continue, larger disturbance areas would need to be treated to repair the levee, resulting in a larger footprint of impact.

Similarly, if post-failure emergency repairs are required, they would be unlikely to incorporate measures to protect aesthetic values into the project design. The required post-failure emergency repairs could have a significantly larger footprint given the damage to the levee incurred as a result of the failure. Levee failure and resultant flooding would result in at least temporary impacts to existing aesthetic resources on the levees (e.g., loss of trees from accelerated erosion) and degradation of the visual character and quality of the flooded areas.

Proposed Action

Potentially significant impacts resulting from implementation of the proposed action to visual resources are identified below.

Impact Aesthetics 1: Impacts to Aesthetics from Construction Activities

Although SR 16 is eligible for a scenic highway designation, construction and operation of the setback levees would not be visible from SR 16 or any other scenic vistas. The setback levees would be consistent with the visual character of the project area and would not substantially alter views of the project area. Construction and operation of the setback levees would not generate any new sources of nighttime lighting or glare. Although construction of the setback levees would change the views within the project area, they would not change the views from any scenic highways or vistas, nor would they introduce nighttime lighting or glare to the project area. The setback levees would also be consistent with the visual character of the project area; therefore, the proposed action would have a less-than-significant impact on visual resources. No mitigation measures are required.

The setback levees and road realignment would be consistent with the existing visual character of the project area and would not substantially alter existing views of the project area. The setback levees and relocated road would be consistent with the visual character of the project area, which already has views of levees and the road; therefore, the proposed project would have a less-than-significant impact to visual resources.

3.3.3 Mitigation

Implementation of the proposed action would not result in significant impacts related to Aesthetic Resources. No mitigation is required.

3.4 AIR QUALITY

This section includes a description of ambient air quality conditions, a summary of applicable regulations, and an analysis of potential short-term construction and long-term operational-source air quality impacts of the proposed project. Mitigation measures are recommended as necessary to reduce any potentially significant air quality impacts to a less-than-significant level.

3.4.1 Existing Conditions

Physical Setting

The project site is under the jurisdiction of the Yolo-Solano Air Quality Management District (YSAQMD). With respect to ozone, Yolo County is currently designated as a serious nonattainment area for the State 1-hour and national 8-hour standards (ARB 2011a). Yolo County is also designated as a nonattainment area with respect to State PM_{10} (i.e., respirable particulate matter with an aerodynamic diameter of 10 micrometers or less).

Criteria air pollutant concentrations are measured at two monitoring stations in Yolo County. The Woodland-Gibson Road station is the closest monitoring station to the study area with recent data for ozone, PM_{10}, and $PM_{2.5}$ (i.e., respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less). In general, the ambient air quality measurements from this monitoring station are a representative of the air quality in the vicinity of the project site. A summary air quality data collected in 2008-2010 at Woodland-Gibson Road air quality station is presented in Table 3-1 (ARB 2011b).

According to Yolo County's 2008 emissions inventory, mobile sources are the largest contributor to the estimated annual average air pollutant levels of reactive organic gases (ROG), carbon monoxide (CO), nitrogens of oxide (NO_X), and oxides of sulfur (SO_X) accounting for approximately 49 percent, 84 percent, 82 percent, and 21 percent, respectively, of the total County emissions. Mobile sources account for approximately 3 percent and 12 percent of the County's PM_{10} and $PM_{2.5}$ emissions, respectively (ARB 2009).

All projects are subject to adopted YSAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the proposed project may include, but are not limited to: Rules 2-1, 2-3, 2-5, 2-11, and 2-28.

YSAQMD in coordination with the air quality management districts and air pollution control districts of El Dorado, Placer, Solano, Sutter, and Sacramento Counties prepared and submitted the *1991* Air Quality Attainment Plan (AQAP) in compliance with the requirements set forth in the California Clean Air Act (CCAA), which specifically addressed the nonattainment status for ozone and, to a lesser extent, CO and PM_{10}.

Table 3-1. Air Quality Data for Woodland-Gibson Road

Year	Pollutant (averaging time)	Maximum Concentration	No. of Days Exceeding Federal Standards	No. of Days Exceeding State Standards
2008	Ozone (1 hour)	0.100 ppm	0	4
	Ozone (8 hour)	0.087 ppm	4	12
	$PM_{2.5}$ (daily)	41.9 µg/m3	1	0
	PM_{10} (daily)	181.1µg/m3	1	8
2009	Ozone (1 hour)	0.093 ppm	0	0
	Ozone (8 hour)	0.082 ppm	3	11
	$PM_{2.5}$ (daily)	27.6 µg/m3	0	0
	PM_{10} (daily)	64.6µg/m3	0	2
2010	Ozone (1 hour)	0.087 ppm	0	0
	Ozone (8 hour)	0.069 ppm	0	0
	$PM_{2.5}$ (daily)	26.7 µg/m3	0	0
	PM_{10} (daily)	87.4 µg/m3	0	1

Source: California Air Resources Board 2011; California Air Resources Board website – http://www.arb.ca.gov/adam (accessed December 1, 2011).

The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP was fulfilled with the preparation and adoption of the *1994 Ozone Attainment Plan* (OAP). The OAP stresses attainment of ozone standards and focuses on strategies for reducing emissions of ozone precursors (ROG and NO_X). It promotes active public involvement, enforcement of compliance with YSAQMD rules and regulations, public education in both the public and private sectors, development and promotion of transportation and land-use programs designed to reduce vehicle miles traveled (VMT) within the region, and implementation of control measures for stationary and mobile sources. The OAP became part of the State implementation plan (SIP) in accordance with the requirements of the Clean Air Act amendments (CAAA) and amended the 1991 AQAP. However, at that time the region could not show that the national ozone (1-hour) standard would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment" coupled with additional emission requirements on stationary sources. Additional triennial reports were also prepared in 1997, 2000, 2003, and 2006 in compliance with the CCAA; these reports act as incremental updates.

Yolo County is also part of the Sacramento Federal Ozone Nonattainment Area (SFNA), which comprises all of Sacramento and Yolo Counties and portions of El Dorado, Placer, Sutter, and Solano Counties. As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. Milestone reports were prepared for 1996, 1999, 2002, and most recently in 2006 for the 8-hour ozone standard. These milestone reports include compliance demonstrations that the requirements have been met for the SFNA. The AQAPs and reports present comprehensive strategies to reduce emissions of ROG, NO_X, and PM_{10} from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect-source review program; adoption of local air quality plans; and control measures for stationary, mobile, and indirect sources.

The Sacramento region was classified by the U.S. Environmental Protection Agency (EPA) as a "serious" nonattainment area on June 15, 2004, for the national 8-hour ozone standard with an attainment deadline of June 15, 2013. Emission reduction needs to achieve the air quality standard were identified using an air quality modeling analysis. An evaluation of proposed new control measures and associated ROG and NO_X emission reductions concluded that no set of feasible controls were available to provide the needed emission reductions before the attainment deadline year. Given the magnitude of the shortfall in emission reductions, and the schedule for implementing new control measures, the earliest possible attainment demonstration year for the Sacramento region is determined to be the "severe" area deadline of 2019.

Section 181(b)(3) of the Federal Clean Air Act (CAA) permits a State to request that EPA reclassify a nonattainment area to a higher classification and extend the time allowed for attainment. This process is appropriate for areas that must rely on longer-term strategies to achieve the emission reductions needed for attainment.

The board of director's for each of the five air districts (including YSAQMD) which comprise the SFNA requested that California Air Resources Board (ARB) submit a formal request for voluntary reclassification from a "serious" to a "severe" for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019. ARB submitted that request on February 14, 2008.

On March 24, 2008, EPA published in the Federal Register a finding of Failure to Submit the 2011 Reasonable Further Progress Plan for the SFNA in the Federal Register. The Failure to Submit finding triggered sanctions clocks, which include:

- Offset sanctions: More stringent emission mitigation requirements for new and modified businesses, "major stationary sources" if a complete plan is not submitted within 18 months after EPA findings of failure to submit the plan.
- Federal Highway funding sanctions: Prohibiting transportation projects from receiving federal transportation funding if a complete plan is not submitted within 24 months after EPA findings.

The sanctions clocks will stop once the air districts (including YSAQMD) submit the 2011 Reasonable Further Progress Plan and EPA accepts the plan as complete. The Sacramento

Regional Nonattainment Area 8-Hour Attainment Demonstration Plan is scheduled to be published by the end of 2008 (SMAQMD 2008).

3.4.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA. For the purposes of this EA, impacts are considered significant if the operational emissions of the proposed Project or its alternatives would:

- violate applicable air quality standards and thresholds;
- create considerable risk to human health from toxic air contaminants (TACs);
- result in a cumulatively considerable net increase in any criteria air pollutant for which the project region is in non-attainment; or
- create objectionable odors affecting a substantial number of people.

No-Action Alternative

The no-action alternative would likely result in a continuation of the current air quality standard violations, similar to the ones described above. This alternative is associated with the greatest possibility of levee failure. Subsequent emissions associated with repair would be as described for Proposed Action below.

Proposed Action

This section describes the potential air quality effects of the proposed action, including exhaust emissions from construction equipment and worker commute and delivery vehicles, fugitive dust generated by construction activities, and vehicle travel over unpaved roads. To complete the analysis, information was collected on projected construction activities, duration, and timing and on equipment use and activities for the construction year (Table 3-2).

Table 3-2. Summary of Modeled Maximum Short-Term Construction-Generated Emissions

Source	**ROG (tons per year)**	**NOX (tons per year)**	**PM_{10} (pounds/day)**
Mobile Equipment Exhaust 1	0.2	1.7	4
Fugitive Dust	-	-	10
Total Maximum Unmitigated	**0.2**	**1.7**	**14**
YSAQMD Significance Threshold	**10**	**10**	**80**
EPA de minimis Threshold	**100**	**100**	**548**

1 Accounts for employee commute trips, on-site heavy-duty construction equipment, and material transport (e.g., soil and aggregate base). See Appendix A for modeling results and assumptions.
Source: Data Modeled by EDAW 2008
United Ststes Environmental Protection Agency website-http://www.epa.gov/airquality/genconform/deminimis.html (accessed February 8, 2012)

Impact AQ1: Temporary Increase in Emissions

Construction emissions are described as "short term" or temporary in duration and have the potential to represent a significant impact with respect to air quality, especially fugitive dust emissions (PM_{10}). Fugitive dust emissions are primarily associated with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles on-site and off-site. ROG and NO_X emissions are primarily associated with gas and diesel equipment exhaust and the application of architectural coatings. With respect to the project, levee construction would result in the temporary generation of ROG, NO_X, and PM_{10} emissions from site preparation (e.g. excavation, grading, and clearing), material transport, and other miscellaneous activities. Approximately 52 11- mile round trips per day would be needed for the 45,000 cubic yards of borrow material necessary for construction. The material for the setback levees would be moved from the stockpile location on East Beamer Street. There would also be up to 43 additional truck trips associated with worker commute trips each day. Short-term construction-generated emissions of ROG, NO_X, and PM_{10} were modeled using the YSAQMD recommended URBEMIS 2007, Version 9.2.4, computer program. Input parameters were based on default model setting and information (e.g., number and type of equipment, amount of material transport) provided by DWR. The modeled maximum daily construction emissions are summarized in Table 3-2 and described in more detail in Appendix A.

Based on the modeling conducted, levee construction would result in worst-case maximum unmitigated annual emissions of approximately 0.2 tons per year (tpy) of ROG, 1.7 tpy of NO_X, and daily emissions of 14 lb/day of PM_{10}. Thus, construction-generated emissions would not violate an air quality standard set by the YSAQMD and therefore would not contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. In addition, short-term emissions would not result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment under an applicable Federal or State ambient air quality standard or conflict with or obstruct implementation of the applicable air quality plan. As a result, this temporary impact is considered less than significant and no mitigation is required, however BMPs will be implement to reduce temporary increase of emissions.

As discussed under "Transportation and Circulation," the long-term operation of the project would not cause a significant increase in vehicle traffic on the local roadway system. Thus, operation of the project would not increase long-term regional ROG, NO_X, and PM_{10} or local CO emissions associated with increases in mobile sources. In addition, implementation of the project would not increase VMT and, consequently, would not conflict with or obstruct implementation of YSAQMD's air planning efforts. Furthermore, construction of the project would not result in the operation of any major stationary emission sources. Thus, long-term operational emissions would not violate an air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. In addition, operational emissions would not result in a cumulatively considerable net increase of criteria pollutants for which the project region is non-attainment under an applicable federal or State ambient air quality standard or conflict with or obstruct implementation of the applicable air quality plan. As a result, this impact is considered less than significant and no mitigation is required.

Impact AQ2: Generation of GHG Emissions

Potential ways the proposed action would contribute to the generation of GHG emissions could be through short-term construction activities at the erosion sites. Short-term air pollution in the form of particulate matter (fugitive dust) and CO_2 may be caused by construction activity, including truck and equipment movement, grading, and earthwork. Transportation currently accounts for a large fraction of overall GHG emissions, mostly in the form of CO_2 (Bemis 2006). Hybrid vehicles may be used to decrease the amount of GHG emissions contributed by a project. In addition, meeting regional air quality district significance thresholds through construction equipment modifications or substitution as quantified in emissions modeling, or providing off-site mitigation for any violations of standards, would contribute to GHG reduction. In comparison to the overall amount of GHG emissions being produced and due to the relatively short duration of the construction period, the proposed action is not expected to significantly influence GHG. No mitigation is required

Impact AQ3: Expose Sensitive Receptors to Pollutants and Objectionable Odors

Construction of the project would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a toxic air contaminant (TAC) by ARB in 1998. Construction of the project would generate diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, and other construction activities. The dose to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Due of the dispersive properties of diesel PM (Zhu et al. 2002) and the temporary nature (less than 2 months) of the mobilized equipment use, short-term construction-generated TAC emissions would not expose sensitive receptors to substantial pollutant concentrations. As a result, this temporary impact is considered less than significant and no mitigation is required.

Construction of the project would result in diesel exhaust emissions from on-site construction equipment. The diesel exhaust emissions would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. In addition, no existing odor sources are located in the vicinity of the proposed project site and the project would not include the long-term operation of any new sources. Thus, the operation of the project would not create, further, or change existing objectionable odors that would affect a substantial number of people. As a result, this temporary impact is considered less than significant and no mitigation is required.

3.4.3 Mitigation

Implementation of the following mitigation measure would reduce potential impacts from the proposed action to less-than-significant levels.

Mitigation Measure AQ-1: Temporary Increase in Emissions during Construction Activity

Standard construction practices would ensure that exhaust emissions from all off-road diesel-powered equipment used on the sites do not exceed 40 percent opacity for more than 3 minutes

in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and DWR and YSAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly and a monthly summary of the visual survey results shall be submitted throughout the duration of construction activities, except that the monthly summary will not be required for any 30-day period in which there is no construction activity. The monthly summary shall include the quantity and type of vehicles surveyed, as well as the dates of each survey. The YSAQMD and/or other officials shall be authorized to conduct periodic site inspections to determine compliance. The mitigation measure would not supersede YSAQMD, or state rules or regulations.

Additional BMPs shall be implemented for ozone and PM_{10} to help protect ambient air quality conditions. To reduce ozone and PM_{10} levels, the contractor shall perform routine tuning and maintenance of construction equipment to ensure that the equipment is in proper running order. The contractor shall also monitor dust conditions along access roads and within the construction area to ensure that the generation of fugitive dust is minimized below the 50 $\mu g/m^3$ 24-hour threshold. Water sprays shall be periodically applied to disturbed areas and soil stockpiles for dust control, at least 3 times per day during hot weather. Minimum freeboard for all haul vehicles shall be 2 feet or greater. Soil-disturbing activities shall be suspended during periods with winds over 25 miles per hour.

The contractor shall provide a plan for approval by the YSAQMD, and DWR demonstrating that the construction activities shall not exceed 25 lbs/day of NO_x. The plan shall demonstrate that heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction. To reduce NO_x emissions for this project, the applicant may employ one or more of the following measures:

i. Require injection timing retard of 2 degrees on all diesel vehicles, where applicable.
ii. Install high-pressure injectors on all vehicles, where feasible.
iii. Encourage the use of reformulated diesel fuel.
iv. Electrify equipment, where feasible.
v. Maintain equipment in tune with manufacturer's specifications.
vi. Install catalytic converters on gasoline-powered equipment.
vii. Substitute gasoline-powered for diesel-powered equipment where feasible.
viii. Use compressed natural gas or onsite propane mobile equipment instead of diesel-powered equipment, where feasible.

The contractor shall submit to DWR and YSAQMD, a comprehensive inventory of all off-road construction equipment equal to or greater than 50 horsepower that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the

duration of construction activities, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the contractor shall provide YSAQMD with the anticipated construction timeline, including start date and the name and phone number of the project manager and onsite foreman.

3.5 BIOLOGICAL RESOURCES

This section describes the existing conditions of biological resources within the project site, potentially significant effects from implementation of the proposed project, and mitigation, if necessary, to reduce potentially significant effects of the proposed project.

Information on biological resources of the project site is based on a review of pertinent literature and databases, including the Cache Creek North Levee Setback Project IS/EA – Critical Erosion Site LM 3.9L and LM 4.2L (DWR 2008), Cache Creek North Levee Setback Project IS/EA – Critical Erosion Sites 1 and 2 (DWR 2006a) and Cache Creek North Levee Setback Project IS/EA – Critical Erosion Site 3 (DWR 2006b), and surveys conducted at the project site by EDAW/AECOM and DWR biologists. The surveys included a reconnaissance-level investigation of the project site and a protocol-level elderberry shrub (*Sambucus* sp.) survey. The purposes of these surveys were to characterize biological resources present on the project site and to determine the potential for sensitive biological resources to occur on the project site.

3.5.1 Existing Conditions

The project site is located on the landside of the north levee of Cache Creek southeast of the town of Yolo where County Road 17A/99A approaches Cache Creek. Elevations on the project site range from 75 to 80 feet above mean sea level. Topography in the vicinity of the project site is flat except for the bed of Cache Creek, which lies approximately 40 feet below the level of surrounding lands. Agricultural fields are present on the northwest half of the site, and a small orchard is present on the southeast corner of the site. Southeast of the agricultural fields, a fence and utility poles extend east to west. Between the fence, the existing levee and the orchard lies a triangular shaped field that in the past has been used to grow hay or exercise horses. On the waterside of the existing levee, remnant patches of valley oak (*Quercus lobata*) riparian forest grow on the upper banks of the creek. Lands to the north of the project site are characterized by agricultural fields and walnut orchards. A residence and horse barns are present immediately adjacent to the project site's east boundary.

Habitats present on the project site include row-crop agricultural lands, a walnut orchard, landscaped areas, and ruderal vegetation. The agricultural fields were disced and fallow at the time of the site visit. The triangular shaped field was fallow, but included ruderal vegetation such as Bermuda grass (*Cynodon dactylon*), ripgut (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), shortpod mustard (*Hirschfeldia incana*), knotweed (*Polygonum arenastrum*), horseweed (*Conyza canadensis*), and prickly lettuce (*Lactuca serriola*). The slopes of the existing levee had been burned recently during routine levee maintenance and were therefore unvegetated at the time of the site survey. Local wildlife species observed that are characteristic of row crop agricultural and ruderal habitats include California ground squirrel (*Spermophilus beecheyi*), desert cottontail (*Sylvilagus audubonii*), killdeer (*Charadrius vociferous*), red-tailed

hawk (*Buteo jamaicensis*), house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*).

Great Valley oak riparian forest occurs on the banks of Cache Creek adjacent to the project site. This vegetation community is characterized by valley oak, northern California black walnut (*Juglans hindsii*), California wild rose (*Rosa californica*), blue elderberry (*Sambucus mexicanus*), and tree tobacco (*Nicotiana glauca*). Areas closer to the creek bed are dominated by tamarisk (*Tamarix sp*.), giant reed (*Arundo donax*), Fremont's cottonwood (*Populus fremontii*), willow (*Salix* spp.), and California grape (*Vitis californica*). Common riparian-associated wildlife species that were observed during the reconnaissance surveys include American mink (*Mustela vison*), northern flicker (*Colaptes auratus*), black phoebe (*Sayornis nigricans*), ruby-crowned kinglet (*Regulus calendula*), red-shouldered hawk (*Buteo lineatus*), western scrub-jay (*Aphelocoma californica*), and belted kingfisher (*Ceryle alcyon*). The riparian vegetation is separated from the project site by a dirt road at the toe of the existing levee and a strip of ruderal vegetation characterized by yellow star thistle (*Centaurea solstitialis*), wild oat (*Avena fatua* and *Avena barbata*), ripgut, soft chess, milk thistle (*Silybum marianum*), black mustard (*Brassica nigra*), salt grass (*Distichlis spicata*), and Russian thistle (*Salsola tragus*).

Sensitive Habitats

Sensitive habitats include those identified as sensitive natural communities "rare and worthy of consideration" in the List of California Terrestrial Natural Communities Recognized by the CNDDB, as well as those protected under Section 404 of the Clean Water Act (CWA), Section 1602 of the California Fish and Game Code, and the State's Porter-Cologne Water Quality Control Act. The project site does not include any sensitive habitats. However, the patches of Great Valley oak riparian forest immediately outside the boundaries of the project site, as well as Cache Creek itself, are considered sensitive habitats.

Sensitive Biological Resources

Sensitive biological resources include plants, animals, and habitats that have been afforded special recognition by federal, State, or local resource agencies and organizations. Also included are habitats that are of relatively limited distribution or are of particular value to wildlife. Searches of the California Department of Fish and Game (DFG) California Natural Diversity Database (CNDDB 2011a), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2011), and USFWS (2011) were conducted to identify sensitive resources previously documented in the vicinity of the project site. The searches included the Zamora, Eldorado Bend, Knight's Landing, Madison, Woodland, Gray's Bend, Winters, Merritt, and Davis U.S. Geological Survey 7.5-minute quadrangles. DWR environmental scientists reviewed these database searches and existing conditions on the project site to develop a list of special-status species with potential to occur on or in the vicinity of the project site. Additional background information on special-status species was obtained by reviewing a completed biological field survey document covering the project site (DWR 2005) and a technical document prepared for the Cache Creek Resource Management Plan (CCRMP) planning process (Yolo County Community Development Agency 1995).

Special-status species include those that are State-listed and/or federally listed as threatened or endangered; those considered as candidates for listing as threatened or endangered; those identified by the USFWS and/or DFG as species of concern and species of special concern, respectively; and animals identified by DFG as fully protected. Special-status plant species include those on CNPS Lists 1A (plants presumed extinct in California), 1B (plants rare, threatened, or endangered in California and elsewhere), or List 2 (plants rare, threatened, or endangered in California but more common elsewhere).

All raptors are protected under Section 3503.5 of the California Fish and Game Code and the, which prohibits take or destruction of raptors, including their nests and eggs. Raptors species that could nest and forage within the project site include Swainson's hawk, Cooper's hawk, American kestrel, red-tailed hawk, northern harrier, white-tailed kite, great horned owl, and burrowing owl. Sharp-shinned hawk could also forage in the project area, but does not nest in Yolo County.

Special-Status Plant Species

Ten special-status plant species were identified in the CNDDB and CNPS searches as occurring in the project vicinity. Seven of these species occur in mesic areas (vernal pools) and/or in alkaline soils, one of the species occurs in freshwater marsh, and one occurs in valley and foothill grassland habitats. EDAW biologists and DWR environmental scientists determined that these nine species do not have the potential to occur on the project site due to the absence of suitable habitat for these species. A tenth species, northern California black walnut, has two forms: 1) a rare form with pure northern California black walnut genotype; and 2) a common hybrid form resulting from hybridization with English walnut (*Juglans regia*). The rare form of California black walnut is not known from the project vicinity and is not expected to occur on the project site. More detailed descriptions of these special-status plant species are provided below in Table 3-3.

Special-Status Wildlife Species

Ten special-status wildlife species were obtained from USFWS (USFWS 2012) within Quad 514A (Woodland). In addition, nine special-status wildlife species were identified in the CNDDB searches as occurring within 5 miles of the project site. Of the 19 species considered, 9 have potential to occur on or adjacent to the project site. Suitable habitat for special-status vernal pool species such as vernal pool tadpole shrimp (*Lepidurus packardi*), vernal pool fairy shrimp (*Branchinecta lynchi*), and California tiger salamander (*Ambystoma californiense*) does not exist within or adjacent to the project site; therefore, these species will not be discussed further. Furthermore there is no suitable habitat on or adjacent to the project site for California red-legged frog (*Rana aurora),* Giant garter snake, (*Thamnophis gigas), pallid bat (Antrozous pallidus) and Western snowy plover (Charadrius alexandrines nivosus*), therefore these species will not be discussed in detail but are noted below in Table 3.4.

Table 3-3. Special-Status Plants Known to Occur in Vicinity of the Project Site

Species	Status* USFWS/DFG/CNPS	Habitat and Blooming Period	Potential for Occurrence
Alkali milkvetch *Astragalus tener* var. *tener*	--/--/1B	Playas and vernal pools in valley and foothill grassland, alkali flats and flooded lands; from 0 to 60 meters in elevation. Blooms March – June	Playas and vernal pools in valley and foothill grassland, alkali flats and flooded lands; from 0 to 60 meters in elevation. Blooms March – June
Heartscale *Atriplex cordulata*	--/--/1B	Saline or alkaline soils in meadows, chenopod scrub, alkaline flats and scalds, sandy soils in valley and foothill grassland; from 1 to 375 meters in elevation. Blooms April – October	Not expected to occur on the project site, as no suitable habitat is present.
Brittlescale *Atriplex depressa*	--/--/1B	Alkali scalds or playas alkaline clay soils in chenopod scrub, meadows, and valley and foothill grassland, rarely associated with riparian, marshes, or vernal pools; from 1 to 320 meters in elevation. Blooms May – October	Not expected to occur on the project site, as no suitable habitat is present.
San Joaquin spearscale *Atriplex joaquiniana*	--/--/1B	Alkali meadow, chenopod scrub, seeps in valley and foothill grassland, often in seasonal alkali wetlands or alkali sink scrub; from 1 to 835 meters in elevation. Blooms April – October	Not expected to occur on the project site, as no suitable habitat is present.
Palmate-bracted bird's beak *Cordylanthus palmatus*	E/E/1B	Chenopod scrub, alkaline areas in valley and foothill grassland, usually on Pescadero silty clay which is alkaline; from 5 to 155 meters in elevation. Blooms May – October	Not expected to occur on the project site, as no suitable habitat is present.
Round-leaved filaree *Erodium macrophyllum*	--/--/2	Cismontane woodland, valley and foothill grassland; from 15 to 1200 meters in elevation. Blooms March – May	Not expected to occur on the project site, as no suitable habitat is present.
Rose-mallow *Hibiscus lasiocarpus*	--/--/2	Freshwater marshes and swamps, generally found on wetted river banks and low peat islands in sloughs, known from the Sacramento-San Joaquin Delta watershed; from 0 to 120 meters in elevation. Blooms June – September	Not expected to occur on the project site, as no suitable habitat is present.
Northern California black walnut *Juglans californica* var. *hindsii*	FSC/--/1B	Riparian scrub, riparian woodland; from 0 to 440 meters in elevation. Blooms April – May	N. California black walnut trees were encountered during the site visits; however, these are likely to be hybrids between *J.*

Species	Status* USFWS/DFG/CNPS	Habitat and Blooming Period	Potential for Occurrence
			hindsii and *J. regia*. The pure form of this variety is not known from the project vicinity and is not expected to occur on the project site.
Heckard's peppergrass *Lepidium latipes* var. *heckardii*	--/--/1B	Alkaline soils at edges of vernal pools or in valley and foothill grassland; from 3 to 200 meters in elevation. Blooms March – May	Not expected to occur on the project site, as no suitable habitat is present.
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	--/--/1B	Vernal pools, swales, meadows, and seeps in cismontane woodland, lower montane coniferous forest, and valley and foothill grassland, on adobe or alkaline soils, from 5 to 1740 meters in elevation. Blooms April – July	Not expected to occur on the project site, as no suitable habitat is present.

U.S Fish and Wildlife Service (USFWS)
E Endangered
FSC Federal Species of Concern

California Dept of Fish and Game (DFG)
E Endangered
T Threatened

California Native Plant Society (CNPS) Categories
1B Plant species considered rare, threatened, or endangered in California and elsewhere
2 Plant species considered rare, threatened, or endangered in California but more common elsewhere

Source: CNDDB 2011

Source: CNDDB 2011

Table 3-4. Special-Status Fish and Wildlife with Potential to Occur on or Adjacent to Project

Species	Status* Federal/State	Habitat	Potential for Occurrence
Invertebrates			
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/--	Elderberry shrubs, primarily in riparian woodlands.	Occurs year-round; elderberry shrubs are present within 100 feet of the project site.
Fish			
Delta smelt *Hypomesus transpacificus*	T/T	Inhabit a wide range of salinity and typically rear in shallow, fresh or slightly brackish waters	No historic records in Cache Creek. Not expected to occur due to downstream fish passage barrier.
Central Valley steelhead *Oncorhyncus mykiss*	T/--	Requires cold, freshwater streams with suitable gravel for spawning	May occur during extreme flow conditions, Likely not expected to occur due to downstream fish passage impediments.
Sacramento winter-run Chinook salmon *Oncorhyncus tshawytscha*	E/E	Requires cold, freshwater streams with suitable gravel for spawning	May occur during extreme flow conditions, Likely not expected to occur due to downstream fish passage impediments..

Species	Status* Federal/State	Habitat	Potential for Occurrence
Central Valley spring-run Chinook salmon *Oncorhyncus tshawytscha*	T/T	Requires cold, freshwater streams with suitable gravel for spawning	May occur during extreme flow conditions, Likely not expected to occur due to downstream fish passage impediments.
Amphibians			
California red-legged frog *Rana aurora*	T/SSC	Deep water ponds with overhanging vegetation	Not expected to occur in the study area. No CNDDB records within 5 miles of the project site and no suitable habitat on or adjacent to the site.
Reptiles			
Giant garter snake *Thamnophis gigas*	T/T	Inhabits slow-moving streams, sloughs, ponds, marshes, flooded rice fields, and irrigation and drainage ditches with mud substrate, emergent aquatic vegetation, protected basking areas, and access to upland hibernaculae above the highwater line.	Not expected to occur; no known occurrences exist within 5 miles of the project area. Cache Creek does not provide suitable habitat. The creek bottom consists of gravel and sand, emergent aquatic vegetation is absent, and 40-foot vertical banks preclude snake access to upland habitats. No irrigation ditches or other waterways are present on the project site.
Birds			
Swainson's hawk *Buteo swainsoni*	--/T	Nests in riparian woodlands and isolated trees; forages in grasslands, shrublands, and agricultural fields	Known to occur in the project vicinity in late spring and summer. Suitable nesting and foraging habitat is present adjacent to the project site.
White-tailed kite *Elanus leucurus*	--/FP	Nests in woodlands and isolated trees; forages in grasslands, shrublands, and agricultural fields.	Could occur year-round; suitable nesting and foraging habitat is present adjacent to the project site
Burrowing owl *Athene cunicularia*	--/SSC	Nests and forages in a variety of open habitats including marshes, grasslands, shrublands, and agricultural fields.	Could occur year-round; suitable nesting and foraging habitat is present adjacent to the project site.
Tricolored blackbird *Agelaius tricolor*	--/SSC	Nests colonially in cattails, tules, willows blackberries, nettles, mustards, thistles, and other dense vegetation; Forages in grasslands and agricultural fields	Could occur year-round; recorded within 5 miles of the project site. Low-quality nesting habitat is present adjacent to the project site; low-quality foraging habitat is present both on and adjacent to the project site.
Bank swallow *Riparia riparia*	--/T	Forages in open riparian areas, grassland, wetlands,	Not expected to occur; recorded within 5 miles of the project site, but suitable

Species	Status* Federal/State	Habitat	Potential for Occurrence
		water, and cropland. Nests in vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, and lakes.	habitat is not present on or adjacent to the project site.
Mountain plover *Charadrius montanus*	--/SSC	Forages in short grasslands, plowed agricultural fields, and occasionally low, open sagebrush-steppe, usually where trees are absent.	Could occur in winter; recorded within 5 miles of the project site. Low-quality foraging habitat is present adjacent to the project site
Western snowy plover *Charadrius alexandrines nivosus*	T/SSC	Nests and forages on sandy and gravelly beaches along the coast and the shores of inland alkali lakes.	Not expected to occur; recorded within 5 miles of the project site, suitable habitat is not present on or adjacent to the project site.
Mammals			
Pallid bat *Antrozous pallidus*	--/SSC	Inhabits a variety of habitats, including grasslands, shrublands, woodlands, and forests from sea level up through mixed coniferous forests. Associated with oak woodlands at lower elevations and may roost in a variety of places including tree cavities, rock crevices, and manmade structures.	Unlikely to occur; no roosting habitats (e.g., man-made structures or tree cavities) are present on or adjacent to the project site.
American badger *Taxidea taxus*	--/SSC	Inhabits grassland, shrub, and woodland habitats with friable soils.	Could occur year-round; recorded within 5 miles of the project site. Suitable habitat exists adjacent to the project site; although no badger burrows were observed during reconnaissance surveys.

Federal ESA status
E Endangered (legally protected)
T Threatened (legally protected)

State ESA status
E Endangered (legally protected)
T Threatened (legally protected)
FP Fully Protected (legally protected, no take allowed)
SSC Species of Special concern (no formal protection)

Source: CNDDB 2011

*Special-Status Fish Species***:** Historically, Cache Creek supported a diverse population of native fish species including several species that are currently designated as special-status (including Chinook salmon and steelhead). Currently, the anadromous fish population of Cache Creek is absent due to upstream and downstream migration barriers and habitat degradation (e.g., temperature and flow). The Cache Creek settling basin and several check dams and culverts throughout the Yolo Bypass and all located downstream of the project site prevent migration into the project area except under exceptional conditions during extreme high Yolo Bypass flows. A

2007 technical assist letter from William Leets, NMFS confirmed: *Although adult Chinook salmon and steelhead have been observed in Cache Creek, they can be considered strays in the sense that the creek is not utilized for spawning, nor do juvenile fish ascend the creek during their rearing phase prior to smolting* (NMFS 2007).

*Valley Elderberry Longhorn Beetle***:** Valley elderberry longhorn beetle is federally listed as threatened. This species requires elderberry shrubs for reproduction and survival. Five elderberry shrubs, or clusters of shrubs, are present on or adjacent to the project site. All five shrubs contain stems measuring greater than 1.0 inch or greater in diameter when measured at ground level and thus have the potential to support valley elderberry longhorn beetle

Swainson's Hawk: Swainson's hawk is State-listed as threatened. This species nests in large trees such as oak and cottonwood and forages in grasslands, low shrublands, and fields of short agricultural crops, such as alfalfa and tomato. The Swainson's hawk breeding season is defined by DFG as March 1 through September 15. In the last 5 years, 79 Swainson's hawk nesting occurrences have been recorded by CNDDB within 5 miles of the project site. The nearest Swainson's hawk nests are approximately 0.5 mile from the project site. The project area provides potential foraging habitat for this species. Trees bordering the agricultural fields and in the adjacent riparian habitat along Cache Creek provide suitable nest sites for this species.

White-tailed Kite: White-tailed kite is a fully protected species under California law. It nests in trees such as oak and cottonwood and forages in grasslands, low shrublands, and fields of short agricultural crops, such as alfalfa and tomato. This species inhabits the Central Valley throughout the year. No white-tailed kite nesting occurrences have been recorded by CNDDB within 5 miles of the project site. No white-tailed kites were observed during the September 2008 reconnaissance survey. White-tailed kites could use the project site, however, as it provides suitable nesting and foraging habitat.

Burrowing Owl. Burrowing owl is a California species of special concern. The CNDDB does not document any burrowing owls within 5 miles of the project site. Owls were not observed during EDAW's September 2008 reconnaissance survey; however, potential habitat is present. Burrowing owls typically nest and roost in burrows created by fossorial animals, such as ground squirrels, which are present but not abundant on the project site. Burrowing owls commonly forage in agricultural habitats similar to those on the project site.

Northern Harrier: The northern harrier is a California species of special concern. Harriers nest on the ground and forage in a variety of open habitats including marshes, grasslands, shrublands, ruderal areas, and agricultural fields. Harriers nest most often in open areas where large trees are absent or uncommon. Although no harriers were documented in the CNDDB search within 5 miles of the project site, harriers may us agricultural fields on the site for nesting and foraging.

Tricolored Blackbird: Tricolored blackbird is a California species of special concern. They nest in dense colonies that range from less than 25 individuals to more than 80,000 and often change colony locations from year to year. Tricolored blackbirds may nest in a variety of habitats, including riparian vegetation. A tricolored blackbird colony has been recorded by CNDDB within 5 miles of the project site, in a large stand of cattails along another section of Cache Creek. Tricolored blackbirds could also nest in the willow-dominated sections of Cache Creek

adjacent to the project site. However, these areas provide lower-quality nesting habitat for this species, as they nest less frequently in willow-dominated vegetation than in emergent marsh vegetation or thickets of thorned plants such as blackberries. Tricolored blackbirds forage in grasslands, pastures, and agricultural fields, and could forage in the fields in and adjacent to the project site.

Mountain Plover: Mountain plover is a California species of special concern. It inhabits flat plains with short vegetation (often less than 4 inches high) or bare ground, and is found in both grasslands and fallow agricultural habitats. Mountain plover is only present in the Central Valley during winter. When fallow, the agricultural fields on the project site may provide foraging habitat for mountain plover. These species are unlikely to make extensive use of the project site, however, as they typically avoid areas near abundant trees, which may support their avian predators.

Bank Swallow: Bank Swallows are State listed as threatened. Bank Swallows are typically found between April and September, primarily in riparian and other lowland habitats in the Central Valley. They nest colonially and inhabit isolated places where vertical bluffs or riverbanks with fine-textured soils in which to dig burrows are available. Bank swallows forage over open riparian areas, brushland, grassland, and cropland. Eroding banks that provide potentially suitable nesting habitat are present adjacent to the project site however no burrows were not observed at either of the erosion sites. The height and length of available vertical face at each of the erosion sites is less than the average height and length (>10 feet, >100 feet) of burrows built by successful bank swallow colonies (Garrison 1999). Burrows in cliff faces less than 10 feet in height are more susceptible to predation. Additionally, the soils at each of the sites are compacted and primarily composed of clay and fine sand. Bank swallows tend to utilize banks with soils composed of sand and fine gravels.

American Badger: The American badger is a California species of special concern. This species inhabits a variety of grassland, shrub-steppe, and wooded habitats with friable soils. One badger occurrence has been documented by CNDDB within 5 miles of the project site. Although no badger burrows were observed during the reconnaissance surveys, suitable habitat for badger is present on the project site along the existing levee and along the hedgerow. The riparian habitat along Cache Creek is also potentially suitable for this species.

3.5.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA. For the purposes of this EA, impacts on biological resources are considered significant if the proposed Project would:

- have a substantial adverse effect, either directly or through habitat modifications on any state or federal candidate, sensitive, or special-status species;
- have a substantial adverse effect on any sensitive natural community identified by CDFG or USFWS;
- have a substantial adverse effect on federally protected wetlands defined by Section 404 of the CWA;

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with the provisions of an approved local, regional or state policies or ordinances protecting biological resources; or
- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan (NCCP), or other approved local, regional or state HCP.

No-Action Alternative

Under the no-action alternative, no action would be taken to repair the existing erosion and protect the levee at the erosion sites. Forces of erosion would persist, including wave wash, flood flows, and human disturbances. Continued erosion at the erosion sites would increase the risk of levee failure and possible flooding of surrounding areas. Potential impacts resulting from the no-action alternative are identified below.

Special-Status Species

The no-action alternative would likely result in levee failure and post-failure emergency levee repair measures, and would include short-term construction-related effects and long-term effects on habitat. The potential adverse effects of such an event may also result from post-failure emergency repair measures in which BMPs and mitigation measures would be more difficult to implement. A limited ability to implement BMPs and mitigation measures could result in short-term adverse construction-related effects and long-term adverse effects on habitats. The post-failure emergency repair measures that could occur under the no-action alternative could likely include alteration of essential fish habitat (EFH) for Chinook salmon (all ESUs); designated critical habitat for Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead downstream of the site (Yolo Bypass). Short-term adverse effects of emergency levee repair could include increases in turbidity and suspended sediment that may disrupt feeding activities or result in temporary displacement of individuals from preferred habitats downstream. Deposition of suspended sediment can also bury stream substrates that provide habitat for aquatic invertebrates, an important food source for many fish species, thereby reducing food availability and foraging success for these species.

Toxic substances used at construction sites, including gasoline, lubricants, and other petroleum-based products could enter the project reaches because of spills or leakage from machinery or storage containers. These substances can kill aquatic organisms through exposure to lethal concentrations. Exposure to non-lethal levels can cause physiological stress and increased susceptibility to other sources of mortality. Although unlikely, direct mortality of individual fish could also occur due to in-water construction activities such as placement of rock revetment.

Potential impacts to special-status wildlife and plant species associated with the no-action alternative would result from the erosion becoming so severe that pre-failure emergency repairs are required; or the levee fails resulting in flooding, greatly accelerated erosion, and the need for

post-failure emergency repairs. Either of these outcomes would likely result in potentially significant impacts to special-status species that may occur within and near the erosion sites.

When pre-failure emergency repairs are required, failure of the levee is imminent and there is little to no opportunity to properly conduct environmental studies, assess environmental impacts, and incorporate environmental protection and mitigation measures into the project design. Additionally, given that the no-action alternative would allow erosion to continue, a larger disturbance area would be required to repair the levee; resulting in a larger footprint of environmental impact than that required under the existing level of erosion. The level of disturbance from levee failure and resultant flooding can range in severity from relatively minor to catastrophic depending on the conditions under which the levee failed, the integrity and materials of the levee, and the surrounding land uses. Under a less severe scenario, loss of suitable habitat and/or displacement of special-status species may be limited. However, post-failure emergency repairs would be required and would likely be of a nature that limits the ability to implement proper BMPs, site-specific mitigation, and other measures that would minimize impacts to special-status species.

Under a more severe scenario, levee failure and flooding could result in significant loss of suitable habitat and displacement of special-status species. Furthermore, extensive flooding during a levee failure would likely entrain toxic substances into the water, including gasoline, lubricants, insecticides, pesticides, and sewage that could enter the affected river systems. These substances can kill or otherwise adversely affect special-status species. The required post-failure emergency repairs could have a significantly large footprint and the urgent need to repair the levee immediately would preclude proper planning and environmental protection.

Non–Special Status Species

The potential adverse effects of the no-action alternative on non–special status species would be similar to those described for special-status species.

Proposed Action

Under the proposed action, bank protection measures would be implemented to prevent ongoing erosion and increase levee stability. Setback levees would be built at the sites. Potential impacts to biological resources associated with implementation of the proposed action are identified below:

Impact BIO1: Impacts to Orchard and Pasture Vegetation Communities

Proposed activities at the sites involve the construction of setback levees. The setback levee at LM 3.9L would be constructed approximately 180 feet away from the existing levee and the setback levee at LM 4.2L approximately 75 feet away from the existing levee. Vegetation communities that would be affected by the construction of the setback levees include orchard and pasture. Because these vegetation types are not considered to be sensitive and are abundant in the area surrounding the erosion repairs, impacts would be considered less than significant and no mitigation is required.

Impact BIO 2: Impacts to Riparian Vegetation Communities and Native Tree Resources

The project site does not include any riparian habitat or other sensitive natural communities. However, Cache Creek and the Great Valley oak riparian forest patches along its banks are located immediately adjacent to the project site. Both the creek and the forest are considered sensitive habitat by DFG. Patches of Great Valley oak riparian forests are present within 25 feet of construction activities, and the bank of Cache Creek is located within 100 feet of construction activities. All diversions, obstructions, or changes in the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by DFG under Section 1602 of the California Fish and Game Code. Considering the proximity of proposed project construction activities to Cache Creek, there is the potential for construction-related impacts to the creek bank. These impacts would be considered potentially significant. Implementation of Mitigation Measure BIO-1 would reduce this impact to a less-than-significant level.

Impact BIO 3: Impacts to Special-Status Plants

The project site does not support suitable habitat for special-status plants. Therefore, no impact to special-status plants would occur as a result of implementation of the proposed project.

Impact BIO 4: Impacts to Valley Elderberry Longhorn Beetle

A total of five elderberry shrubs (or clusters of shrubs) were documented along the water side of the existing levee. All but one of the shrubs was at the northwest end of the site near LM 3.9L. Approximately 2 percent of the stems surveyed had exit holes, which indicate that the shrub could be occupied by valley elderberry longhorn beetle. Potential damage and mortality to these shrubs from construction activities associated with the proposed project is considered to be a potentially significant impact on valley elderberry longhorn beetle.

According to the USFWS guidelines, USFWS Conservation Guidelines for Valley Elderberry Longhorn Beetle (USFWS 1999), a 100-foot buffer around elderberry shrubs should be established by the project applicant wherever feasible to completely avoid potential impacts to valley elderberry longhorn beetle. Where a 100-foot buffer is not feasible, a minimum buffer of 20 feet from the dripline shall be maintained around each elderberry shrub. Appropriate buffer widths for the proposed project were discussed on December 6, 2005, during coordination between DWR and Jennifer Hobbs of USFWS regarding the Cache Creek North Levee Setback – Critical Erosion Sites 1, 2, and 3 (DWR 2006a and 2006b). A subsequent site visit with DWR and USFWS was held at the Cache Creek Critical Erosion sites LM 3.9L and LM 4.2L on March 22, 2007. At this meeting, USFWS concurred that implementation of the levee setback project would not adversely affect valley elderberry longhorn beetle (Hobbs, pers. comm., 2007).

Under provisions of Section 7 of the Endangered Species Act (ESA), the USACE will send the draft EA to serve as the Biological Assessment (BA), to the USFWS. The USACE will request concurrence with the determination that the proposed project may affect, but not likely adversely affect, the Federally listed valley elderberry longhorn beetle. The response from the USFWS will be included in the final EA.

Implementation of Mitigation Measure BIO-2 would reduce the potentially significant impact to valley elderberry longhorn beetle to a less-than-significant level.

Impact BIO 5: Impacts to Special-Status Fish Species

The anadromous fish population, designated as special-status (including Chinook salmon and steelhead), is absent in Cache Creek due to upstream and downstream migration barriers and habitat degradation (e.g., temperature and flow), except under exceptional conditions during extreme high Yolo Bypass flows. Cache Creek is not used for spawning by Chinook salmon or steelhead, nor do juvenile fish ascend the creek during their rearing phase prior to smolting. Additionally, Cache Creek is not critical habitat for the Federally listed species under NMFS's jurisdiction (NMFS 2007). Therefore, no adverse impacts to special-status fish are expected to result from the construction, operation, or maintenance of the setback levees because there are no Federally listed fish in the area of potential effect.

All construction activities would be restricted to the landside of the existing levee, above the ordinary high-water mark, and outside the existing riparian habitat. Potential for resident fish stranding during high flows would be minimized by notching the existing levee to prevent ponding (i.e., grading the area to drain into the creek channel). In addition, beneficial effects could result from fish being contained within the new setback area during a flood. Under the current situation, fish would be subject to higher mortality during a levee break that occurs at a lesser magnitude flood because many fish would be expected to be transported into and stranded in nearby agricultural fields. This potential impact is considered to be less than significant.

The USACE has determined that there will be no impacts to Federally listed fish species, therefore no consultation under Section 7 of the ESA concerning special-status fish species was initiated with NMFS.

Impact BIO-6: Impacts to Nesting Raptors and Special-Status Birds

Special-status birds that could nest within or adjacent to the setback levee site include Swainson's hawk, white-tailed kite, northern harrier, tricolored blackbird, and burrowing owl. In addition to these special-status species, a number of common raptors species could nest in the project vicinity. The nests of all raptor species are protected under Section 3503.5 of the California Fish and Game Code. Nest disturbance resulting from project construction has the potential to cause nest abandonment or the loss of eggs or chicks due to reduced parental care. The project does not propose to remove any known or potential nesting trees for special-status birds or common raptors. Loss of an active special-status bird nest or raptor nest caused by disturbance during project construction would be a significant project impact. This impact is considered to be potentially significant. Implementation of Mitigation Measure BIO-3 would reduce the potentially significant impact to nesting raptors and special-status birds.

Impact BIO 7: Impacts to Habitats for Special-Status Birds

The construction staging area would be located on 1.2 acres of agricultural and ruderal land, which would result in the temporary loss of approximately 1.2 acres of potential foraging habitat for Swainson's hawk, white-tailed kite, burrowing owl, northern harrier, tricolored blackbird, and mountain plover, as well as potential nesting habitat for burrowing owl. The levee setback area would eventually be restored after construction with native grassland which would improve habitat for the species listed above. Given that a small area of habitat may be converted from

agricultural to grassland, that all three habitat types support special-status species, and that agricultural habitat is much more common than grassland in Yolo County, impacts would be less than significant. Permanent habitat conversion along the levee footprint would also be less than significant, because the species associated with the agricultural habitat that would be lost are also associated with the grassland and ruderal habitats that would characterize the new levee.

Impact BIO 8: Impacts to American Badger

American badger has been documented within 5 miles of the project site and suitable foraging habitat exists in the adjacent riparian woodland. Although badgers could forage in this adjacent woodland, they are unlikely to den adjacent to the project site because of the narrow width of the riparian habitat. Badgers are typically an area-dependent species with home ranges between 300-1,500 acres. No evidence of badger activity was observed during the reconnaissance survey. Construction and operation of the setback levee are not expected to adversely affect American badger; therefore, this impact would be less than significant.

3.5.3 Mitigation

The following mitigation measures would be incorporated into the proposed action to avoid the potential for significant impacts to biological resources.

Mitigation Measure BIO1: Erect Brightly Colored Fencing Around Sensitive Riparian Habitat

DWR shall install brightly colored protective fencing along the outer edge of the riparian forest vegetation to protect the patches of Great Valley oak riparian forest and the bank of Cache Creek from construction activities. No construction activities shall be allowed in these areas.

Mitigation Measure BIO2: Maintain a 20-foot Buffer Around Elderberry Shrubs

- If possible, DWR shall establish and maintain a minimum buffer of 20 feet around each elderberry shrub through the duration of project construction.
- Buffer areas shall be clearly marked in the field with brightly colored, temporary construction fencing and flagging. No project activity shall occur within the buffer areas.
- Following USFWS guidelines (USFWS 1999), construction crews shall be informed about the status of the beetle and the need to protect its elderberry host plant. If requested by USFWS, a qualified biologist shall monitor construction activities to ensure that the buffers remain protected throughout the construction period.
- If the establishment of a 20-foot buffer is not feasible, then USFWS shall be consulted. It is anticipated that shrubs that cannot be adequately protected will need to be transplanted to a protected onsite area before construction begins, in accordance with USFW guidelines (USFWS 1999).

Mitigation Measure BIO 3: Conduct Pre-Construction Surveys for Special-Status Birds and Nesting Raptors

The following measures would reduce potentially significant adverse impacts to Swainson's hawk and common raptors:

- If project activity is scheduled to occur during the raptor nesting season (March 1 – September 15), a focused survey for raptors shall be conducted by a qualified biologist before commencement of activities to identify active nests on and in the vicinity of the project site. Surveys for Swainson's hawk nests shall include all areas of suitable nesting habitat within 0.25 mile of the project site. Surveys for other raptors shall include suitable nesting habitat within 500 feet of the areas where construction would occur. If no active nests are found, no further mitigation shall be required.
- If active nests are found during the surveys, appropriate buffers shall be established to minimize impacts. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. The size of the buffers may be adjusted, depending on the project activity and stage of the nest, if a qualified biologist determines that activity within a reduced buffer would not be likely to adversely affect the adults or their young.

The following measures would reduce potentially significant adverse impacts to tricolored blackbird:

- If project activity is scheduled to occur during the breeding season for tricolored blackbirds (March 1 – September 15), a preconstruction survey shall be conducted by a qualified biologist in any areas of potentially suitable nesting habitat located within a 0.25 mile of the project site. If no nesting tricolored blackbirds are observed during the preconstruction surveys, then no further mitigation is required.
- If tricolored blackbirds are observed nesting on the project site, project-related construction impacts shall be avoided and minimized by establishment of a 0.25-mile buffer around the colony during the nesting period (March 1 – September 15) for all project-related construction activities. The size of the buffers may be adjusted if a qualified biologist determines that project activity within a reduced buffer would not be likely to adversely affect the adults or their young.

The following measures would reduce potentially significant adverse impacts to burrowing owls:

- Prior to any ground-disturbing project-related construction activity, a focused survey for burrowing owls shall be conducted by a qualified biologist in accordance with DFG protocol (DFG 1995) to identify active burrows on and within 250 feet of each project site. The surveys shall be conducted no more than 30 days prior to the beginning of construction
- If no occupied burrows are found in the survey area, the biologist shall document survey methods and findings in a letter report to DFG, and no further mitigation is required.
- If an occupied burrow is found, a buffer shall be established – 165 feet during the nonbreeding season (September 1 through January 31) or 250 feet during the breeding

season (February 1 through August 31) – for all project-related construction activities. The size of the buffer area may be adjusted if a qualified biologist and DFG determine project-related construction activities would not be likely to have adverse effects. No project-related construction activity shall commence within the buffer area until a qualified biologist confirms that the burrow is no longer occupied, or consultations with DFG specifically allow certain construction activities to continue.

- If avoidance of occupied burrows is infeasible for project-related construction activities, on-site passive relocation techniques approved by DFG shall be used to encourage owls to move to alternative burrows outside of the project site. However, no occupied burrows shall be disturbed by project-related construction activities during the nesting season unless a qualified biologist verifies through noninvasive methods that the burrow is no longer occupied.

3.6 CULTURAL RESOURCES

This section discusses cultural resources in the project vicinity, potential effects resulting from the Proposed Action, and mitigation measures needed to reduce any potentially significant effects to cultural resources. A cultural resource is the term used to describe several different types of resources and properties, including archaeological, architectural, and traditional cultural properties. Archaeological sites may include both prehistoric and/or historic deposits. The project area and its vicinity are known to contain numerous traces of past human activity ranging from early Native American sites and human interments to the remains of early agricultural and ranching activities. Such materials can be found at many locations on the landscape and, along with prehistoric and historic human remains and associated grave goods, are protected under various Federal, state, and local statutes including Section 106 of the National Historic Preservation Act (NHPA), NEPA, and CEQA.

3.6.1 Existing Conditions

The Cache Creek area and the Central Valley region of California in general, was one of the most densely populated areas in North America during prehistoric times. Summaries and overviews of the prehistory of the vicinity can be found in California Archaeology (Moratto 1984:167–216) and Summary of the Prehistory of the Lower Sacramento Valley and Adjacent Mountains (Johnson 1978). A more detailed discussion of the broad cultural patterns proposed for Central California can be found in A Proposed Integrative Taxonomy for Central California Archaeology (Bennyhoff and Fredrickson 1969).

The general project area is within the ethnographic territory of the Patwin, a series of linguistically and culturally related groups who occupied a portion of the lower Sacramento Valley west of the Sacramento River and north of Suisun Bay. Major sources of information on these groups include the works of Bennyhoff (1977), Johnson (1978), Kroeber (1925), McKern (1922, 1923), Powers (1877), and Work (1945). Although these groups had no common name, they spoke dialects of a single historically related language.

In general, Patwin lifeways remained stable for centuries until the large-scale incursions of European populations during the early decades of the 19th century. Trappers from the Hudson's Bay Company, Russian traders, and Spanish missionaries were the first non-Native peoples to

venture into Patwin territory but probably had little impact on their culture. Several epidemics broke out in the Central Valley during the early decades of the 19th century that severely reduced population levels among many Native American groups and put great stress on their cultural systems. However, it was not until the Gold Rush period starting in 1848–1849 that intensive pressure from miners, farmers, ranchers, and other entrepreneurs and settlers significantly and permanently disrupted Patwin lifeways.

Euro-American settlement in the vicinity of the project site began in earnest with the granting of the 26,637-acre *Rancho Rio Jesus Maria* to John M. Harbin (and others) in 1846. By 1849, the town of Cochran's Crossing (named for the founder, Thomas Cochran) was established and by 1857, it was already known as Cacheville (now called Yolo) and was shown as such on an 1857 U.S. General Land Office plat map of the area. Due at least in part to its early establishment, Cacheville/Yolo served as the Yolo County seat during 1857–1860 and by 1870 boasted three stores, two saloons, a hotel, the county courthouse, and a number of homes and other businesses. Today, many of these buildings remain in use, and the town contains a higher concentration of buildings from the earliest period of American settlement than anywhere else in the county (Les 1986).

Although the Gold Rush initially sent thousands of people into the region in search of their fortunes, it was agriculture that quickly proved to be the most profitable enterprise. The development of agriculture within the Sacramento Valley and Yolo County specifically was dependent upon irrigation systems. The first was constructed in 1864 when James Moore completed a dam across Cache Creek and 9 miles of canals that supplied water to county farmers. A series of droughts in the 1860s necessitated the need for increasingly larger projects; however, it was not until the 20th century and implementation of the federal Central Valley Project that agriculture, aided by construction of a railroad network, vastly increased its contribution to the economic and subsequent political development of the Sacramento Valley, which has lasted to the present day.

3.6.2 Environmental Consequences

For the purposes of this EA, impacts on cultural resources are considered significant if the proposed Project would:

- Cause a substantial adverse change in the significance of a unique archaeological or historical resource.
- Disturb any human remains, including those interred outside of formal cemeteries.

A records search conducted through the Northwest Information Center (NWIC) focused on the immediate project site and within approximately ¼ mile from the project boundaries. Although no cultural resources have been documented directly within the project site, several prehistoric and historic-era resources have been documented in the immediate vicinity. Apart from numerous buildings within the present-day town of Yolo, two prehistoric sites have been recorded along the banks of Cache Creek in the vicinity of the project site. These include CA-Yol-135, an extensive early Native American occupation and interment site situated near the south bank of Cache Creek, across from the town of Yolo, and CA-Yol-187, a burial site near the intersection of Casa Linda Lane and Second Street in Yolo. Although neither of these sites

would be affected by the proposed project at Cache Creek LM 3.9L and LM 4.2L, their presence illustrates the highly sensitive nature of the surrounding area to contain Native American cultural and human remains and traces of early historic-era activities.

A concurrence letter issued by the State Historic Preservation Office (SHPO) on October 26, 2007 (Appendix C) indicates that the only cultural resource identified (P-57-000573) as a result of the cultural resources studies conducted by DWR under California Public Resources Code 5024(f) for the proposed project was the Cache Creek levee.

An additional cultural resource, Cache Creek Historic Site #1 (CCHS#1) was identified during field investigations prior to geotechnical exploration in August of 2011. A historic-area evaluation was conducted on the northeast edge of LM 3.9L Area of Potential Effects (APE) near the relocation of CR 17A. The site contains remnants of an old homestead. Agricultural activities in the adjacent field likely displaced archaeology remains based on follow-up surveys. USACE will consult with the SHPO on Section 106 of the NHPA seeking concurrence with their finding of No Adverse Effect based on existing and recent archaeological investigations.

DWR initiated consultation in 2007 with Local Native American groups for LM 3.9L and 4.2L and follow-up phone call in early 2012. No concerns have been brought up to date to DWR. The USACE continued consultation in February 2012 for LM 3.9L and LM 4.2L and two additional setback locations at LM 2.8L and LM3.4L. Responses specific to resources present on the project site have not been received.

No Action Alternative

Under the no-action alternative, no action would be taken to repair the existing erosion and protect the levee at the erosion sites, therefore eliminating the possibility of discovering undocumented cultural resources. This alternative would allow forces of erosion to persist.

Continued erosion at the erosion sites would increase the risk of levee failure and possible flooding of surrounding areas. Potential effects to cultural resources associated with implementation of the no-action alternative are identified below.

Potential impacts to documented and undocumented cultural resources associated with the no-action alternative would result from the erosion becoming so severe that pre-failure emergency repairs are required or the levee fails, resulting in flooding. When repairs are conducted under these conditions, there is little to no opportunity to properly conduct environmental studies, assess environmental impacts, and incorporate environmental protection and mitigation measures into the project design. Also given that the erosion would have been allowed to continue, a larger disturbance area would be required to repair the levee, resulting in a larger footprint of environmental impact.

Failure of the levee and subsequent flooding would result in greatly accelerated erosion and the need for post-failure emergency repairs. Flooding could result in significant damage to cultural resources in a large geographic area through erosion and inundation. The required postfailure emergency repairs could have a significantly large footprint and the urgent need to immediately repair the levee would preclude proper planning and environmental protection.

Proposed Action

Under the proposed action, bank protection measures would be implemented to prevent ongoing erosion and increase levee stability. Setback levees would be built at the sites. Potential impacts to cultural resources associated with implementation of the proposed action are identified below:

Impact CR 1: Cause Substantial Change in the Significance of Historical Resources or Archaeological Resources

Two prehistoric or historic-era cultural resources were identified and the APE within the project site at LM 3.9L, though it will not be significantly impacted by temporary ground-disturbing activities associated with the proposed project and the road location. A portion of the adjacent property would be purchased by DWR for construction of the proposed project. The buildings located on the adjacent property would not be impacted by the proposed project. The identified levee within the project area will not be significantly impacted by the proposed project but the relocation of CR 17A/99A may disturb the recently identified historic period-period archaeological deposits at CCHS #1, as structures may have stood in this area as recently as 1993. Undiscovered subsurface remains may be present in the area and could be disturbed by the proposed project. In light of the potential to uncover unknown or undocumented subsurface cultural remains, this effect would be potentially significant. Implementation of Mitigation Measure CR-1 would reduce this potential impact to a less-than-significant level.

Impact CR 2: Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature

Based on soil borings and a geotechnical reports prepared by DWR (2007, 2011), project-related construction activities would take place in Holocene-age (11,000 years Before Present and younger) alluvium. By definition, in order to be considered a fossil, an object must be more than 11,000 years old. Therefore, project related construction activities would have no impact on unique paleontological resources.

Impact CR 3: Disturb Any Human Remains, Including Those Interred Outside of Formal Cemeteries

Although no evidence of human remains was found in documentary research and a field reconnaissance investigation, future ground-disturbing activities in the project area could adversely affect presently unknown prehistoric burials. California law recognizes the need to protect interred human remains, particularly Native American burials and associated items of patrimony, from vandalism and inadvertent destruction. In light of the potential to uncover unknown or undocumented Native American burials, this effect is considered potentially significant. Implementation of Mitigation Measure CR-2 would reduce this impact to a less-than-significant level.

3.6.3 Mitigation

The following mitigation measures would be incorporated into the proposed action to avoid the potential for significant impacts to cultural resources.

Mitigation Measure CR 1: Immediately Halt Construction Activities if Any Cultural Materials are Discovered

- The palm trees and debris pile located at LM 3.9L (CCHS#1) contain the potential to have intact subsurface cultural deposits. As such, they shall remain in place and will not be disturbed during construction activities. Additionally, qualified professional archaeologist will be required to monitor project related activities in the vicinity of the palm trees and debris pile.
- Any trenching that is to take place for the setback construction will require a qualified professional archaeologist to monitor ground disturbing activities. An archaeological monitor is also required when the notch are cut into the existing levee.
- If an inadvertent discovery of cultural materials (e.g., unusual amounts of shell, animal bone, flaked stone, bottle glass, ceramics, structure/building remains, etc.) is encountered during project-related construction activities, ground disturbances in the area of the find will be halted immediately and a qualified professional archaeologist will be notified regarding the discovery. The archaeologist shall determine whether the resource is potentially significant as per the California Register of Historic Resources (CRHR) and the National Register of Historic Places and develop appropriate mitigation. Implementation of this mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure CR 2: Immediately Halt Construction Activities if Any Human Remains are Discovered

- The procedures for the treatment of discovered human remains are contained in California Health and Safety Code Sections 7050.5 and 7052, and California Public Resources Code Section 5097.
- In accordance with the California Health and Safety Code, if human remains are uncovered during ground disturbing activities, all such activities within 75 feet of the find shall be halted immediately and DWR or their designated representative shall be notified. DWR shall immediately notify the county coroner and a qualified professional archaeologist. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). DWR's responsibilities for acting upon notification of a discovery of Native American human remains are identified in detail in the California Public Resources Code Section 5097.9. DWR or their appointed representative and the professional archaeologist will consult with a Most Likely Descendent (MLD) determined by the NAHC regarding the removal or preservation and avoidance of the remains and determine if additional burials could be present in the vicinity.
- Assuming an agreement can be reached between the MLD and DWR or their representative with the assistance of the archaeologist, these steps will minimize or

eliminate adverse impacts to the uncovered human remains. Therefore, Mitigation Measure CR-2 would reduce the potential impact to a less-than-significant level.

3.7 GEOLOGY, SOILS, AND GEOMORPHOLOGY

This section provides a description of the geologic conditions of the project area, identifies potentially significant effects of the proposed action, and mitigation if needed to reduce significant effects to geologic resources.

3.7.1 Existing Conditions

The project site is located in the western Sacramento Valley, near the boundary between the Great Valley and Coast Ranges geomorphic provinces. Cache Creek originates at Clear Lake and drains the eastern slope of the Coast Ranges. East of the Dunnigan Hills, Cache Creek has formed a broad, low-relief alluvial fan across the western Sacramento Valley.

The Sacramento Valley is underlain by thick sedimentary deposits. On the western boundary of the Great Valley geomorphic province the thick sedimentary deposits have been folded by Cenozoic basin contraction due to plate convergence (Unruh et al., 1995). In the vicinity of the proposed setback levee sites, surficial deposits consist of Holocene alluvium (clay, silt, sand, and gravel) deposited by Cache Creek during floods and high water stages (Helley and Harwood, 1985). The proposed setback levee sites lie approximately six miles southeast of the Dunnigan Hills.

Borehole data show clay deposits are common at depths in excess of 20 to 35 feet from the ground surface, whereas more recently deposited silt and sand generally characterize sediments above the 20- to 35-foot depth (USACE 1958; Wahler Associates 1982 cited in USACE 2002).

Soils in the project site and vicinity are Reiff very fine sandy loam. This soil type is found on alluvial fans and is a well-drained soil. Slopes are typically 0 to 1 percent. Reiff soils are used for row, field, and orchard crops. Uncultivated areas have annual grasses and forbs. Surface runoff for Reiff soils is slow to very slow, and the erosion hazard is slight (Soil Conservation Service 1972).

Several faults are located in the vicinity of the project site. The Dunnigan Hills Fault and Gordon Valley Fault are the nearest faults to the project site. The Dunnigan Hills Fault is located approximately 3 miles northwest of the project site and is considered potentially active. The Gordon Valley Fault is located approximately 10 miles west of the project site and is capable of generating a magnitude 6.5 earthquake (DWR 2007). Other faults in the region include the Zamora Fault and the Capay Fault, both of which are considered to be inactive (Jennings 1994 cited in USACE 2002).

The potential exists for liquefaction to occur in the project site. The presence of shallow groundwater and the potential for moderate ground shaking due to faulting and seismicity in the area make the soils in the project site potentially susceptible to liquefaction (DWR 2007).

3.7.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA. For the purposes of this EA, impacts on cultural resources are considered significant if the proposed Project would:

- Expose people or structures to potential substantial adverse effects, including risk of loss, injury or death involving rupture of a known earthquake fault, strong sesmic shaking , and landsides;
- Result in substantial soil erosion or the loss of topsoil;
- Exacerbate levee erosion, or
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project.

No-Action Alternative

Under the no-action alternative, no activities would be conducted to halt erosion and protect the levees at the erosion repair sites. The banks would continue to erode, increasing the risk of levee failure and subsequent flooding in the surrounding areas. Eventually, emergency repair measures would likely need to be implemented to protect the levee system from failing. Impacts associated with the no-action alternative would include cessation of bank erosion, elimination of IWM stored at the site, compromising the riparian forest in a manner that would likely eliminate hillslope in the short and long term, and a much higher likelihood than the proposed action of channel bed and bank erosion associated with changes in velocity.

Proposed Action

The setback levee design to be implemented at these sites would be constructed between 50 and 200 feet landward from the existing levee crest, thereby creating a floodplain area between the setback levee and the present-day streambank. At LM 3.9L and LM 4.2L, the existing levee crowns would remain, but would be notched down to the floodplain elevation in several locations along their lengths in order to allow inundation of the reconnected floodplain area during high winter and spring flows.

Levee design and construction will be in accordance with USACE's *Engineering Design and Construction of Levees*, the primary Federal standards applicable to levee improvements. Because the design, construction, and maintenance of levee improvements must comply with the regulatory standards of USACE and the CVFPB, the design and construction of all levee modifications under the proposed project would meet or exceed applicable design standards for static and dynamic stability, secondary impacts related to ground shaking, liquefaction, and seepage.

In terms of restoring geomorphic function to a river segment, a setback levee provides several benefits. The existing bank and levee erosion adjacent to the stream channel is allowed to

continue at present rates, thereby providing for sediment and IWM recruitment. Setback levees also create a floodplain area capable of storing flood waters during high winter and spring flows.

Riparian vegetation recruitment and overbank deposition of fine sediment would also be expected on the floodplain (Bozkurt et al. 2000). Floodplain trees would eventually serve as an IWM source as the stream continued its gradual migration into the floodplain. The local hydraulics and shear stresses would not be expected to increase but, rather, may potentially decrease as the channel width increases through the continued erosion of the existing bank and levee (Larsen and Greco 2002, U.S. Army Corps of Engineers 2004). Finally, the absence of in-water construction would avoid potential construction-related erosion and sedimentation effects, assuming that BMPs are adequately implemented on the landside during construction of the setback levee and notching of the existing levee. Overall, construction of the setback levees is not anticipated to result in significant geologic or geomorphic impacts.

Impact GEO 1: Result in Substantial Soil Erosion or the loss of Topsoil

The Proposed Action would be constructed on Yolo soils that have a low potential for erosion. Construction of the setback levees would occur before the rainy season, further reducing the risk of water erosion. Most of the construction activities would be on the landside of the existing levee; however, a 10-foot wide notch would be cut into the existing levee at and two 10-foot notches would be cut into the existing levee. Disturbance of topsoil for levee construction and creating the notches in the existing levees could increase the potential for wind and water erosion in the project area; therefore, this impact is potentially significant. Implementation of Mitigation Measure Hydro-1 would reduce this impact to a less-than significant level.

Impact GEO 2: Be Located on a Geologic Unit or Soil that is Unstable, or Become Unstable as a Result of the Project, and Potentially Result in on-or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction or Collapse.

The Proposed Action would not be constructed on expansive or unstable soils. The project area is in an area with soils exhibiting low shrink-swell potential. The setback levees would increase the stability of the existing levee system, resulting in a flood control benefit. Because the soils in the project area are stable and have a low shrink-swell potential, the Proposed Action would have no effect on expansive or unstable soils.

Impact GEO 3: Expose People or Structures to Potential substantial Effects.

Because the Proposed Action is located near the Dunnigan Hills Fault and Gordon Valley Fault, which are considered active, the potential exists for ground shaking and liquefaction in the project area. However, no structures for human occupancy, as defined in Section 3601 of the CCR, would be placed across any fault or within 50 feet of any fault. Construction of the setback levees would not increase risk to people or property associated with seismic activity or landslides; rather, it would further protect the integrity of the Cache Creek levee system and would increase the protection of people and property in the project area from flooding. Because the Proposed Action would add stability to the Cache Creek levee system and no structures would be constructed in the fault zone, this impact would be less than significant.

3.7.3 Mitigation

Implementation of the proposed action would not result in significant effects to Geology, Soils, and Geomorphology. No mitigation is required.

3.8 HYDROLOGY AND WATER QUALITY

This section provides information on water quality and hydrology conditions in the project area and mitigation if needed to reduce potentially significant project effects to hydrology and water quality.

3.8.1 Existing Conditions

Hydrology

Cache Creek emanates from Clear Creek in Lake County and flows through a narrow and steep 30-mile long canyon to Capay Valley in Yolo County. Significant tributaries include Bear Creek and the North Fork of Cache Creek and the watershed has a total of 1,140 square miles. Mean annual runoff is approximately 374,000 acre-feet at the town of Yolo. Significant water diversions have occurred on Cache Creek since the mid- to late-1800s. Today, Cache Creek flows are partially controlled by the dam at Indian Valley Reservoir on the North Fork of Cache Creek and the control structure at the Clear Lake outlet. Two diversions supply irrigation water to Capay Valley and large farm areas northwest and southwest of Woodland.

Flow in Cache Creek has large seasonal and annual variability. There is also a significant spatial variation in flow along the creek due to water diversions. At the nearby town of Yolo, annual peaks have ranged from near zero to 40,000 cfs (EIP Associates et al. 1995). Four major floods have been documented for the Cache Creek basin during the last half of the 20th century, and 20 severe floods have occurred since 1900. The most severe floods of recent years in the Cache Creek basin downstream from Clear Lake occurred in 1939, 1955, 1956, 1958, 1964, 1965, 1970, 1983, 1995, and 1997 (USACE 2002).

Prior to significant gravel mining, Cache Creek was described as being a wide, relatively steep braided channel upstream from Yolo and a narrow, incised channel flowing in fine-grained overbank deposits and tule marsh downstream from Yolo (EIP Associates et. al. 1995). In general, average channel width in gravel-mined reaches of Cache Creek has decreased from historic conditions because of bridge and levee construction and aggregate extraction. Conversely, average channel depths have increased as a result of channel degradation and confinement by levees and bridges.

Downstream of Yolo, near the Yolo Bypass, the Cache Creek Settling Basin was constructed to prevent sediment being carried by Cache Creek from adversely affecting the hydraulic capacity of the Yolo Bypass through excess sediment deposition. It is bounded by levees on all sides and covers 3,600 acres. The basin was originally constructed by USACE in 1937. The levee heights and locations have been modified to control sediment deposition and enhance basin sediment storage (USACE 2002).

Water Quality

The Cache Creek watershed drains a large area that encompasses a wide variety of land uses. These land uses have the potential to contribute to water quality problems such as fecal coliform from septic systems and cattle; boron, mercury, and other minerals from geothermal springs and abandoned mines; fertilizers, pesticides, and herbicides from agriculture activities; and sediment from erosion. Although Cache Creek is not used as a municipal drinking water supply, water quality problems do affect fish and wildlife, as well as recreational and agricultural uses along the creek. Fertilizer, pesticide, and herbicide levels in the creek are not of local concern (USACE 2003).

There is a local concern about high levels of boron in Cache Creek. Boron is a result of geothermal releases found in the upper reaches of the basin. Boron concentrations vary depending on the volume of flow in Cache Creek. During low flows in late spring, boron-containing materials precipitate out on the rocks along the creek. In late fall, when flows increase, boron-containing minerals are dissolved and carried into the Yolo Bypass and then to the Sacramento-San Joaquin River Delta.

Groundwater quality is generally very good except for localized areas along Cache Creek that contain high boron levels. Boron levels in these areas range from 2 to 4 parts per million (ppm), in comparison to background levels of 0.6 to 1.0 ppm in other parts of Yolo County (USACE 2002).

The Central Valley Regional Water Quality Control Board (Central Valley RWQCB) currently designates Cache Creek as an Impaired Water Body due to high levels of mercury in fish populations. Studies have indicated that Cache Creek is a major source of mercury to the Sacramento-San Joaquin River Delta estuary. This has caused concern because the Delta is a highly favorable environment for methylation. The methylation of mercury is common in anaerobic environments. Methyl-mercury is more bio-available than metallic mercury and can be found in toxic concentrations in species at the top of food chains. Mercury is present throughout the basin, originating from geothermal springs, agricultural runoff, atmospheric deposition, and erosion of naturally mercury-enriched soils. However, the majority of mercury comes from mercury-laden mine and retort wastes. There are three inactive mercury-mining districts in the upper watershed, including Sulfur Bank Mercury Mine at Clear Lake, which is a EPA Superfund site, and the Sulfur Creek and Knoxville mining districts. Elevated mercury concentrations have been observed in invertebrates and fish species sampled from Cache Creek (USACE 2002).

The Central Valley RWQCB listed Cache Creek on the EPA list of priority water bodies that do not meet beneficial uses. The Central Valley RWQCB developed Total Maximum Daily Load (TMDL) limits related to the Cache Creek mercury management strategy and released the draft TMDL report in 2004. The final staff report for Basin Plan Amendments for Control of Mercury in the Cache Creek Watershed was adopted in 2005 (Central Valley RWQCB 2005).

3.8.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA**.** For the purpose of this EA, impacts to hydrology and water quality are considered significant if the proposed Project would:

- violate any water quality standards or waste discharge standards;
- cause increases in sediment and other contaminants generated during construction or operation that would result in degraded surface water quality in violation of existing ambient water quality standards of the Sacramento-San Joaquin River Basin Plan adopted by the CVRWQCB;
- otherwise substantially degrade water quality; or
- expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a levee or dam.

No Action Alternative

Under the no-action alternative, no action would be taken to halt erosion and protect the levees at the erosion sites. Forces of erosion would persist, including flood flows, and human disturbances. Continued erosion of the levee system would increase the risk of levee failure and possible flooding of surrounding areas

Should levee failure result from the no-action alternative, resultant emergency measures would likely be of a nature that limits the ability to properly implement BMPs, site specific mitigation, and other measures that would minimize impacts on hydrology and water quality.

Potential effects on water quality from this alternative include increases in total suspended solids and turbidity, both chronically (as levees continue to erode) and acutely (in the event of a levee failure). Water quality impacts from a levee failure in which water floods urban, suburban, and agricultural areas have a potential to be wide-ranging and severe. Of particular concern would be those water quality impacts affecting public health, such as the spread of bacteria and viruses that cause disease. Less immediately threatening, but nevertheless adverse, would be water quality degradation from chemical pollution such as oil and grease, pesticides, heavy metals, and nutrients.

Proposed Action

Potential impacts to hydrology and water quality resulting from implementation of the proposed action includes the inadvertent release of petroleum products and other hazardous materials associated with construction equipment.

Impact WQ 1: Violate Water Quality Standards or Waste Discharge Requirements

Notching of the levee at the project site could contribute to increased sediment to Cache Creek. Approximately 20 feet of the existing levee at LM 3.9L, and 10 feet of the existing levee at

LM4.2L, would be degraded to the elevation of the levee setback areas. These exposed slopes could be subject to rainfall and erosion and could cause temporary discharges of sediment and other contaminants in stormwater runoff to Cache Creek. Large-scale erosion and generation of contaminated runoff are highly unlikely, and there would be no fill associated with this action. Because some soil erosion and sedimentation of Cache Creek could occur, this is considered to be a potentially significant impact on water quality. Implementation of Mitigation Measure WQ-1 would reduce this impact to a less-than-significant level.

3.8.3 Mitigation

The following mitigation measure would be incorporated into the proposed action to avoid the potential for significant impacts to Hydrology and Water Quality.

Mitigation WQ 1: Prepare a Storm Water Pollution Plan

Before the start of any construction work, site grading, or excavation associated with the setback levees, the construction contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP) detailing measures to control soil erosion and waste discharges from the construction areas and submit a Notice of Intent (NOI) to the Central Valley RWQCB for storm water discharges associated with general construction activity. The SWPPP will include an erosion control and restoration plan, a water quality monitoring plan, a hazardous materials management plan, and post construction BMPs. The BMPs will be maintained until all areas disturbed during construction has been adequately stabilized.

The specific BMPs that will be incorporated into the SWPPP will be determined during the final stages of project design. However, the SWPPP is likely to include one or more of the following standard practices, which are commonly used during the construction and post construction phases of levee setback projects:

- *Soil and Vegetation Disturbance*. Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, spoils and soil stockpile areas, and equipment exclusion zones prior to the commencement of any construction operations.
- *Hazardous Materials*. Use and store hazardous materials, such as vehicle fuels and lubricants, in designated staging areas located away from surface waters. Implement a spill prevention and control plan that specifies measures that will be used to prevent, control, and clean up hazardous materials spills.

All contractors conducting construction-related work shall be required to implement the SWPPP to control soil erosion and waste discharges of other construction-related contaminants. The general contractor and subcontractor(s) conducting the work shall be responsible for constructing or implementing, regularly inspecting, and maintaining the measures in good working order.

3.9 LAND USE AND AGRICULTURAL RESOURCES

The land use analysis is based on a review of agricultural characteristics of lands in the project area; it is further based on consideration of actions that could result in adverse physical changes

to the environment or degrade physical attributes that historically supported native riparian habitat and that have supported agricultural production in recent times. Agricultural characteristics include lands designated by the California Department of Conservation (DOC) as being of prime, unique, or Statewide importance and exhibit relative values of active agricultural operations in the study area and local counties. The affected environment with respect to agricultural resources in the project area is described below.

3.9.1 Existing Conditions

Land Use

The agricultural fields at LM 3.9L contain orchards and row crops. Agricultural fields at LM 4.2L appear to be in fallow condition. The developed portion of the project site consists of the intersection of CR 99A and 17A that enters the project site from the north and east. On the waterside of the existing levee (south of both project sites), remnant patches of riparian forest grow on the upper banks of the creek. Lands to the south of the project site are characterized by agricultural fields and row crops.

The town of Yolo is mostly residential in nature. There is little commercial development, and most of these facilities are related to highway-oriented businesses and agriculture-related industrial operations (Yolo County 2002a).

The project site is currently designated as Agriculture (AG) by the Yolo County General Plan. This land use designation is applied to lands best suited for agriculture, and serves to preserve them from the encroachment of nonagricultural uses. The Agriculture designation is intended to include lands in contracted agricultural preserves and Farmland Security Zones, or lands suitable for such use. Uses approved on lands in agricultural preserves or Farmland Security Zones must be consistent and compatible with the provisions of State law and the Yolo County ordinance.

Examples of uses that are considered appropriate under the Agriculture designation include, but are not limited to, growing and harvesting field crops, grain, and hay crops; growing and harvesting fruit and nut trees, vines, and vegetables; wildlife preserves; growing and harvesting forest resources; pasture and grazing land; animal raising operations; agricultural-related essential industry and support services; uses related to natural resources; wineries; recreational uses; lodging; and residential uses, generally limited to housing for farm owners, family members, and farm laborers.

The project area is zoned Agricultural Preserve (A-P) and Agricultural Exclusive (A-E) under the Yolo County Zoning Code (Yolo County 2008a). The A-P zone provides uses on lands best suited for agricultural purposes. The minimum lot area for A-P zones is 80 acres and for A-E zones is 20 acres (Yolo County 2008b).

Agriculture Resources

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 by the State of California to continue the Important Farmland mapping efforts begun in 1975 by the Soil Conservation Service (SCS). The intent of the SCS (renamed the U.S. Natural Resources

Conservation Service [NRCS] in 1998) was to produce agricultural resource maps based on soil quality and land use across the nation. The DOC sponsors the FMMP and is also responsible for establishing agricultural easements in accordance with Public Resources Code Sections 10250–0255 (DOC 2008a).

The FMMP provides data for decision makers for use in planning for the current and future use of the State's agricultural lands. Under the FMMP, land is delineated into the following eight categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban or Built-Up Land, other Land, and Water. Mapping is conducted on a county-wide scale, with minimum mapping units of 10 acres unless otherwise specified.

The Important Farmland map for Yolo County designates the project area as Prime Farmland. Prime Farmland is defined under the FMMP as "… farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields." Land must have been cropped at some time during the 4 years before the mapping date to be included in these classifications (DOC 2008a).

Since 1965, the State has encouraged landowners to protect agriculture and open space via the California Land Conservation Act of 1965, commonly referred to as the Williamson Act. Under this law, agricultural, recreational, and other related open space uses are protected with property tax incentives when the landowner enters into a restrictive use contract with the State. Counties benefit when they formally adopt the program as they are then able to claim Open Space Subvention Act Payments that partially replace property tax losses associated with Williamson Act enrollees. The DOC estimates that Williamson Act Contracts save agricultural landowners from 20 percent to 75 percent in property tax liability each year.

Yolo County administers the Williamson Act contracts within the study area. The program is intended to preserve farmland although a landowner could have other activities on the same land, including a permitted mining operation or processing operations for agricultural products. The annually renewing 10-year period clause in the contract automatically renews the contract each year. Either party to the contract may file a "notice of nonrenewal," which ends the automatic renewal; however, the property will remain subject to the contract for the remaining 9-year term of the contract. Outright cancellations and rescissions of the contracts, which can be initiated only by the landowner, are subject to specific legal findings supported by substantial evidence by the county or city involved. There has been only one instance of cancellation in Yolo County throughout the 39-year history of the Williamson Act (Yolo County 2005).

By State law, only land located in an agricultural preserve is eligible for a Williamson Act contract. In Yolo County, this agricultural preserve has the zoning designation A-P. In 2007, Yolo County had 415,913 acres enrolled in Williamson Act contracts. Of that, 243,040 acres are classified as Prime and 172,714 acres are nonprime soils (DOC 2008c).

Yolo County has approximately 270,403 acres of prime agricultural land (Capability Class I, II, and portions of III), which account for 48 percent of the total agricultural land in the County. Yolo County has the lowest loss of agricultural land compared to other counties in the State, and

is second lowest to Kings County in percentage loss of Prime Farmland. Factors that contribute to these statistics in Yolo County include restrictive land use policies, the high amount of land enrolled in Williamson Act contracts, and the natural barrier formed by the Yolo Causeway.

Agricultural crops reports from 1963 to the present indicate that small grains such as barley and wheat and other field crops have been the County's primary agricultural crops. Although tomato processing was a large industry in the County in the past, recently there has been a sharp decline due to the closure of two large canneries. In 1999, total agricultural revenues in Yolo County amounted to $339.9 million, up from $276.6 million in 1998 and $297.8 million in 1994. The leading crop was process tomatoes, at $132.7 million, with approximately 67,000 acres in production. Other important crops included wine grapes, seed crops, rice, and alfalfa (Yolo County 2002c).

Loss of farmland is an important concern that is captured by the development of Federal and State policies calling for protection of Prime, Unique, or Statewide Important Farmland. Under the Federal Farmland Protection Policy Act (FPPA) (Subtitle I of Title XI, Section 1539–1549), projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by, or with the assistance of, a federal agency. However, as the U.S. Department of Agriculture's Farmland and Conversion Impact Rating form advises, "The purpose of the rating process is to insure that the most valuable and viable farmlands are protected from development projects sponsored by the Federal Government. Accordingly, a site with a large quantity of non-urban land surrounding it will receive a greater number of points for protection from development." The form advises that the Land Evaluation-Site Assessment System (LESA) "is used as a tool to help assess the options for land use on an evaluation of productivity weighed against commitment to urban development." (USDA Farmland Conversion Impact Rating Form AD-1006 [10-83].)

Under the California LESA model, the proposed project would not qualify as "Land Committed to Nonagricultural Use" as such land is designated as having received discretionary development approvals such as a tentative subdivision map, tentative or final parcel map, or recorded development agreement (DOC Agricultural LESA Model 1997 Instruction Manual [Manual]). In contrast, the proposed project falls within the California LESA model definition of "protected resource lands." The model defines protected resource lands as "those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following: publicly owned lands maintained as park, forest, or watershed resources; and lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses." Because the proposed project concerns protected resource lands and not "Land Committed to Nonagricultural Use" by virtue of urban development, evaluation under the LESA Model was not deemed appropriate.

3.9.2 Environmental Consequences

This section analyzes the potential effects of the proposed project on land use and agricultural resources and recommends mitigation as necessary under NEPA. For the purposes of this EA, effects on land use and/or agricultural resources were considered significant if the project would:

- conflict with any Yolo County land use or zoning plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect; or
- result in the conversion of Prime, Unique, or Statewide Important Farmland to non-agricultural use.

No Action Alternative

Under the no-action alternative, no action would be taken to halt erosion at the erosion sites. Land uses associated with the existing levees would remain unchanged for the immediate future. There would be no direct effect on existing land uses, no conversion of existing land uses would occur, and there would be no conflict with any land use policy, plan, or regulation.

However, continued erosion at the erosion sites would increase the risk of levee failure and possible flooding of surrounding areas. Levee failure and flooding could result in significant impacts to surrounding land uses and established communities as a result of flooding caused by levee failure.

Proposed Action

Under the proposed action, construction of the setback levees would result in changes in land use in areas adjacent to the existing levees.

Impact Land 1: Changes in Land use Due to Construction of Setback Levees

The proposed project would use 3.4 acres total of Prime Farmland at LM 3.9L and LM 4.2L that would be taken out of production. The proposed project would convert 0.3 acres of orchard to new floodplain habitat. These acreages include the footprint of the proposed setback levees, the areas between the proposed new levees and the existing levee, and an additional 20 feet on the landside of the levees that could be used in the future to raise the setback levees. As such, the proposed project would change a portion of the project area's land uses from agricultural uses to non-agricultural uses.

Approximately 1.2 acres of agricultural land would be temporarily disturbed during construction of the setback levees to provide access and staging areas for construction vehicles. Impacts on agricultural land resulting from the staging area would be temporary, and would be returned to agricultural uses after completion of the proposed project.

A Farmland Conversion Impact Rating form (AD-1006, Appendix D) indicates that this farmland conversion requires no further evaluation, based on NRCS site assessment criteria. This form was submitted to the NRCS for consultation under the Farmland Protection Policy Act. There are a total of 66,633 acres in Yolo County that have the same quality soil type (Storie Index=98) in the impacted area. The percentage of farmland converted with the same or relative higher value in Yolo County is five tenths of one percent (NRCS response to form AD-1006, Appendix D). This conversion would not substantially affect overall farmland acreage or agricultural productivity in Yolo County or increase the potential for urban development in the proposed project area. Because the conversion of Prime Farmland attributable to the proposed

Project would represent such a small fraction of the total farmland and Prime Farmland in the County this would be considered a less-than-significant impact.

3.9.3 Mitigation

Implementation of the proposed action would not result in significant effects to Land Use and Agricultural Resources. No mitigation is required.

3.10 NOISE

This section includes a description of ambient-noise conditions, summary of applicable regulations, and an analysis of potential short-term construction and long-term operational-source noise impacts of the proposed project. Mitigation measures are recommended as necessary to reduce significant noise impacts to a less-than significant level.

3.10.1 Existing Conditions

Existing noise sensitive land uses in the vicinity include rural residences off of CR 17A, of which the closest is within approximately 100 feet to the north of LM 4.2L. The Migrant Headstart Preschool Facility is located approximately one-quarter mile east of the project site on CR 17A. The existing noise environment within the project vicinity is primarily influenced by surface-transportation noise emanating from vehicular traffic on nearby roadways (e.g., CRs 17a and 98A, State Route (SR) 113, and I-5, the Southern Pacific Railroad (particularly horn blasts from the grade crossings in the City of Woodland to the south), and routine agricultural activities (e.g., use of heavy-duty equipment). Intermittent noise from outdoor activities at the surrounding residences (e.g., people talking, operation of landscaping equipment, car doors slamming, and dogs barking) though minor, also influences the existing noise environment.

Dominant noise source in the vicinity of the project site is vehicular traffic on nearby roadways. Traffic on I-5 contributes the highest background noise levels at the project site and vicinity. Existing roadway traffic noise levels were modeled for I-5 using the Federal Highway Administration (FHWA) Traffic Noise Prediction Model (FHWA-RD-77-108) based on traffic data obtained from the California Department of Transportation (DOT) (DOT 2007). The FHWA model is based on CALVENO reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. Truck usage and vehicle speeds on study area roadways were estimated from field observations and DOT data where available (DOT 2007).

The modeled Community Noise Equivalent and Day-Night noise levels (CNEL/Ldn) at 50 feet from the centerline of the near travel lane and the distance from the roadway centerline to the 55-, 60-, 65-, and 70-dBA (A-weighted decibels) CNEL/ Ldn contours for existing average daily traffic (ADT) volumes is presented in Table 3-5. Based on the modeling conducted, existing traffic on I-5 would result in noise levels between 45 and 50 dBA CNEL/Ldn at approximately 5,000 feet, which is the distance to the residence closest to LM 3.9L from I-5.

Table 3-5. Summary of Modeled Existing Vehicular Traffic-Noise Levels

Roadway Segment	Distance (ft) from Roadway Centerline to CNEL/L_{dn} Contour				CNEL/L_{dn} 50 Feet from Centerline of Nearest Travel Lane
	70 dBA	65 dBA	60 dBA	55 dBA	
I-5 to the west of LM 3.9L and 4.2L (south of County Road 17 Interchange)	175 ft	377 ft	813 ft	1,751 ft	78.2 dBA

Notes: Modeled noise levels do not consider any shielding or reflection of noise by existing structures or terrain features or noise contribution from other sources and where:
► A-weighted Decibel (dBA) is a measure on a logarithmic scale which indicates the squared ratio of sound pressure to a reference sound pressure. A-weighted (A) refers to the specific frequency-dependent rating scale that is used to approximate human response.
► Community Noise Equivalent Level (CNEL) is the energy-average of the A-weighted noise levels during a 24-hour period with 5 dBA added to the evening (7 to 10 p.m.) hours and 10 dBA to the night (10 p.m. to 7 a.m.) hours.
► Day-Night Level (L_{dn}) is the energy-average of the A-weighted noise levels during a 24-hour period with 10 dBA added to the night (10 p.m. to 7 a.m.) hours.
See modeling results in Appendix E for further details. Source: Data modeled by EDAW in 2008

The current Noise Element of the Yolo County 2030 General Plan contains the following policy framework (Yolo County 2009):

- Policy NO-1.1 Ensure that existing and planned land uses are compatible with the current and projected noise environment.
- Policy NO-1.2 Ensure the compatibility of permitted land use activities within the Primary Delta Zone with applicable properly adopted noise policies of the Land Use and Resource Management Plan of the Delta Protection Commission.
- Policy NO-1.3 Protect important agricultural, commercial, industrial, and transportation uses from encroachment by land uses sensitive to noise and air quality impacts.
- Policy NO-1.4 For proposed new development, where it is not possible to reduce noise levels in outdoor activity areas to 60 dB CNEL or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB CNEL may be allowed, provided that all available reasonable and feasible exterior noise level reduction measures have been implemented.
- Policy NO-1.5 Minimize the impact of noise from transportation sources including roads, rail lines, and airports on nearby sensitive land uses.
- Policy NO-1.6 Support improvements to at-grade crossings to eliminate the need for train whistle blasts in, near, or through communities.
- Policy NO-1.7 Encourage railroad companies to adopt operational strategies that reduce the potential for noise and interrupted traffic flow.
- Policy NO-1.8 Encourage local businesses to reduce vehicle and equipment noise through fleet and equipment modernization or retrofits, use of alternative fuel vehicles and installation of mufflers or other noise reducing equipment.

According to Yolo County, a noise ordinance has not been adopted (Yolo County 2008c).

3.10.2 Environmental Consequences

This section analyzes the potential effects of the proposed project and recommends mitigation as necessary under NEPA. Based upon general assessment standards, temporary construction-related noise for the project would be considered significant if noise levels exceed 80 dBA (eight-hour L_{eq}) near residential areas during daytime (7 a.m. to 10 p.m.) hours or 70 dBA (eight-hour L_{eq}) during night time hours. Similarly, temporary construction-related vibration for the proposed Project would be considered significant if vibration levels in residential areas exceed 72, 75 or 80 VdB for frequent, occasional, or infrequent events, respectively.

No Action Alternative

The no-action alternative would not affect ambient sound levels on the levee or conflict with any noise ordinance, plan, or regulation. The current erosion processes would continue, and it is likely that the levees could be degraded to the point that pre-failure emergency repairs would be warranted, or to the point that the levee could actually fail, necessitating emergency repairs. Noise levels under such emergency repairs would not be constrained to normal construction hours, which would result in greater noise disturbance than under more controlled circumstances. The length of repair and the volume of materials needed for emergency repairs would be greater than those needed for repair under existing conditions, prolonging the exposure of surrounding land uses to construction-generated noise.

Proposed Action

The proposed action would temporally increase noise levels at the erosion sites. Potentially significant impacts resulting from implementation of the proposed action are identified below, followed by migration measures that would reduce the impacts to less-than-significant levels.

Impact Noise 1: Construction Noise

Construction activities at LM 3.9L and 4.2L would include site preparation (e.g., excavation, grading, and clearing), material transport, levee construction, road realignment, and other miscellaneous activities. On-site construction equipment would include graders, dozers, and excavators. Noise levels for individual equipment can range from 79 to 101 dBA at 50 feet, as indicated in Table 3-6.

The simultaneous operation of on-site construction equipment could result in combined intermittent noise levels up to 88 dBA at 50 feet from the project site. Based on these noise levels and a typical noise-attenuation rate of 6 dBA per doubling of distance, exterior noise levels at noise-sensitive receptors located within 550 feet from the project site (e.g., rural residences, Migrant Headstart Preschool) could exceed 60 dBA without feasible noise controls.

Specifically, construction-generated noise levels could reach 80 dBA at the closest rural residence within approximately 100 feet from LM 4.2L. The Migrant Headstart Preschool is approximately 1,200 feet to the east of the project site. Construction-generated noise levels at the facility could reach 52 dBA. However, the facilities manager for the Migrant Headstart Preschool stated that the building is equipped with air conditioning and that windows are closed

during the day for proper use of the air conditioning system (Herrara, pers. comm., 2008). Windows and building facades typically reduce interior noise levels by 15 dBA (Lipscomb and Taylor 1978). Thus, inside the school noise levels from project construction would be less than 37 dBA which is within acceptable levels for interior spaces (OPR 2003).

Table 3-6. Typical Construction-Equipment Noise Levels

Type of Equipment	Noise Level in dBA at 50 feet	
	Without Feasible Noise Control	With Feasible Noise Control1
Pile Driver	101	95
Dozer or Tractor	80	75
Excavator	88	80
Scraper	88	80
Front-end Loader	79	75
Backhoe	85	75
Grader	85	75
Crane	83	75
Truck	91	75

1 Feasible noise control includes the use of intake mufflers, exhaust mufflers, and engine shrouds in accordance with manufacturers' specifications. Sources: EPA 1971, FTA 2006

Construction of the project would also result in a short-term increase in traffic on the local area roadway network, but this increase would not be sufficient to increase traffic noise levels. It is expected that up to 95 daily trips (consisting of 52 haul and 43 employee trips) would occur during the maximum construction activity periods.

Construction-related traffic would be distributed over the roadway network identified below. The daily haul truck trips would occur through designated haul routes. Since the added traffic is minimal and on designated haul routes, it would not increase the overall traffic noise levels a significant amount. See "Transportation/Traffic" section for additional information.

In most cases, the local noise ordinance contains standards for residential uses affected by construction source noise. Included in these ordinances are provisions that noise from construction activities that do not occur during the more noise-sensitive hours (e.g., evening, nighttime, and early morning) are exempt from the provisions of the applicable ordinances. However, as discussed above, Yolo County has not adopted a noise ordinance or any other construction noise standards for which construction-generated noise levels would exceed. Nevertheless, if construction activities were to occur during the more noise-sensitive hours (e.g., evening, nighttime, and early morning) or construction equipment was not properly equipped with noise control devices, construction-generated source noise could result in annoyance and/or sleep disruption to occupants of the nearby existing noise-sensitive land uses (e.g., rural residences, Migrant Headstart) and create a substantial temporary increase in ambient noise levels in the project vicinity. As a result, this impact is considered potentially significant. Implementation of Mitigation Measures Noise-1 through Noise-4 would reduce short-term construction source noise to a less-than significant level.

3.10.3 Mitigation

The following mitigation measure would be incorporated into the proposed action to avoid the potential for significant impacts to Noise.

Mitigation Noise 1: Maintain and Equip Construction Equipment with Noise Control Devices

Construction equipment shall be properly maintained and equipped with all feasible noise control, such as mufflers, in accordance with manufacturers' specifications.

Mitigation Noise 2: Limit Construction to the Hours of 7:00 a.m. to 6:00 p.m.

Construction activities shall be limited to the hours of 7:00 a.m. to 6:00 p.m. Monday thru Friday, and 8:00 a.m. to 5:00 p.m. on Saturdays, during which times such noise levels from activities are typically exempt. No activities are permitted on Sundays or federal holidays.

Mitigation Noise 3: Arrange Construction Equipment Travel to Minimize Disturbance to Occupied Residences and Limit Idling Time

Construction equipment travel shall be arranged to minimize disturbance to occupied residences and shall remain in staging areas when not in use. Equipment not in use shall not be left idling for more than 15 minutes.

Mitigation Noise 4: Designate a Disturbance Coordinator to Receive All Public Complaints

A disturbance coordinator shall be designated and the person's telephone number shall be conspicuously posted around the project site and supplied to nearby sensitive receptors. The disturbance coordinator shall receive all public complaints and be responsible for determining the cause of the complaint and implementing any feasible measures to alleviate the problem.

Implementation of the above mitigation measures would reduce construction-generated noise levels by 15 dB to 25 dB at noise-sensitive receptors in the project vicinity. Furthermore, restriction of operation of construction related equipment during less-sensitive daytime hours would reduce sleep disturbance and human annoyance. As a result, short-term construction-generated noise levels would be reduced to a less-than-significant impact after mitigation.

3.11 TRANSPORTATION AND CIRCULATION

This section focuses on the landside transportation systems, particularity access roads to the erosion sites and truck routes that may be needed for construction.

3.11.1 Existing Conditions

All roadways within the project vicinity are traveled by automobiles, trucks, motorcycles, emergency vehicles, and with the exception of I-5, agricultural equipment (USACE 2002).

State Highways

SR 113, SR 16 and I-5 are the primary highways in the project vicinity. Both SR, 113 and I-5 provide north-south circulation within the project vicinity and SR 16 travels in east to west direction. I-5 lies southwest of the project site, SR 113 is located east of the project site, and SR 16 is located south of the project site. With the exception of I-5, a four-lane highway, all other roads in the project vicinity are two lanes. Average annual daily traffic counts (AADT) for I-5 in the project vicinity are presented below in Table 3-7.

Table 3-7. Interstate 5 Average Annual Daily Traffic Counts

		South			North		
Post Mile	**Description**	**Peak Hr**	**Peak Mo**	**AADT**	**Peak Hr**	**Peak Mo**	**AADT**
10.81	Junction SR 16 and CR 18	3,050	37,000	30,500	2,950	33,500	28,500
12.34	Yolo Interchange, CR 17	2,950	33,500	28,500	2,750	30,000	25,000

[1] Source: DOT 2007.

County Roads

County roads in the project vicinity include CRs 97B, 98, 98A, 98E, 99a, and 99W (north-south circulation) and CR 16A, 17a, and 18 (east-west circulation). Average daily traffic (ADT) for Yolo County roads within the project vicinity are presented in Table 3-8.

Table 3-8. Yolo County Road Average Daily Traffic Counts

Roadway	**ADT**
CR 97B	–
CR 98 between CR 14 and CR 15	204
CR 98A between CR 16A and CR 17	31
CR 98E	–
CR 99A	–
CR 99W (Cacheville Rd) between CR 17and 2nd St	1073
CR 16A between SR 113 and CR 98	361
CR 17A	280
CR 17 between CR 96B and CR 98A	–
CR 18 between CR 99W and CR 99E	550

Source: Suellen Coast at Yolo County, pers. comm. October 2, 2008.

Other Transportation

Two general aviation airports and a number of private airports are located in Yolo County. Yolo County Airport is about 11 miles west of Woodland, and the Watts-Woodland Airport is located approximately 6 miles southwest of the project site. Commercial flight services are provided by Sacramento International Airport about 20 miles east of Woodland (USACE 2002). Sunrise Dusters, the closest private airport, is located approximately 7 miles north of the project.

The California Northern Railroad (CNRR) travels alongside I-5 between Cache Creek and the City of Woodland/Yolo County line. CNNR is a branch of a larger line and locally it serves the community's industries. The train does not carry passengers; it is solely a freight train serving local demand. The train schedules depend on necessity and do not run on a consistent basis (USACE 2002).

There are no Yolo County Transportation District Yolobus routes that serve the project site. There are no bikeways within the immediate project vicinity or within the project site (USACE 2002).

3.11.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA. For purposes of this EA, impacts on traffic and transportation are considered significant if the project would:

- cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system; or
- substantially increase transportation-related hazards due to a design feature or incompatible use.

No Action Alternative

Under the no-action alternative, no activities would be conducted to halt erosion at the erosion sites. Traffic conditions near the erosion sites would remain unchanged; no impacts would occur from erosion site-related construction traffic. Over time, wave wash, flood flows, and human disturbance would contribute to continued erosion and risk of levee failure. Given the extent of existing erosion, erosion would likely increase in severity to the point that prefailure emergency repairs would be warranted or the levee would fail, resulting in flooding, greatly accelerated erosion, and the need for post-failure emergency repairs.

Pre-failure and post-failure emergency repairs would result in substantial traffic increases during transportation of equipment and personnel to the erosion sites. Lane closures and traffic delays might be necessary to accommodate emergency staging and construction activities. The duration of traffic impacts might be greater than under the proposed action because a larger repair area would likely be required. Additionally, the need for emergency repairs would allow minimal opportunity for planning haul routes and traffic detours to minimize impacts to traffic. Levee failure and flooding could result in county roads, I-5, SR 113, and rail line closures and other restrictions in traffic flow, including access by emergency vehicles.

Proposed Action

The proposed action would involve the steady transport of large loads of quarry stone and soil fill for a substantial portion of the construction timeframe. The proposed haul route from the borrow location will be from SR 113 however alternatives may be considered based on County recommendations. The proposed action also includes realignment of 1,300-foot segment of CRs 99A/17A and shortened to approximately 1,100 feet for the LM 3.9L setback levee. The road

realignment would be completed prior to construction of the setback levee. Potentially significant impacts resulting from implementation of the proposed action to Transportation and Traffic are identified below.

Impact Traffic 1: Temporary Impacts to Transportation and Traffic from Construction Activities

Borrow material for the setback levee would be hauled from an off-site location. During construction, there would be approximately 52 11-mile round trip hauls trips to the project site for transport of fill material during the maximum construction activity periods. There would also be approximately 43 additional vehicle trips per day for construction employee commute trips. The increased traffic due to construction of the project would be temporary and would be spread out over a 2-month period. Any damage to roads caused by construction operations shall be repaired to pre-project conditions. Implementation of the Mitigation Measure Traffic 1 would result in a less-than-significant impact to

Operation of the project would not require any additional vehicle trips. Maintenance and monitoring of the setback levee would be consistent with the existing maintenance and monitoring schedule for levees on the project site. Parking for construction and crew vehicles would be provided within the proposed construction staging area. The proposed project would not result in any new or different land uses or population increases. Because the increased traffic due to construction would be temporary and there would be no increased traffic due to operation of the setback levee, this impact would be less than significant and no mitigation is required.

The proposed setback levee would be designed to USACE standards including the proper slopes and ingress and egress. The road realignment at LM 3.9L would be designed and constructed according to County safety standards. CR 99A/17A may be closed to all traffic during realignment and an alternate detour would be provided. Emergency access to the project site would be maintained at all times, including during construction of the road realignment. Therefore, the project site would not reduce response times for emergency services, such as fire protection, police, and ambulance. This would be a less-than-significant impact. Because project features would be designed to the appropriate standards and would not cause an increase in hazards due to design features, this impact would be less than significant.

3.11.3 Mitigation

The following mitigation measure would be incorporated into the proposed action to avoid the potential for significant impacts to Traffic and Transportation.

Mitigation Traffic 1: Construction Vehicles and Road Realignment

Construction vehicles that meet the Surface Transportation Assistance Act definition of heavy freight vehicles, as found in the California State Vehicle Code, shall be required to follow established truck routes to the greatest extent possible. These routes have been designed to minimize the problems caused by trucks that are oversized, overweight, or too tall for specific roads and to reduce potential hazards to pedestrians and bicyclists.

The construction contractor shall prepare a traffic management plan to be implemented during construction, which shall be monitored and approved by DWR and Yolo County. The contractor shall verify that all roads, bridges, culverts, and other infrastructure along the access routes can support haul vehicle loads. The traffic control plan shall include the intended haul route, location of signage, location of flaggers, approved permits, documentation of coordination with local and state agencies, and the location of potential traffic delays to vehicle and pedestrian traffic.

Temporary closure of CR 99A/17A may be required with the set back alternative. Contractors would employ traffic control measures as necessary to ensure the public's safety. CR 99A/17A would be closed during realignment and new road placed, but may afford emergency vehicle access. A detour should be established. Access to driveways and private roads shall be maintained. Construction warning signs shall be posted in accordance with the local standards or those set forth in the Manual on Uniform Traffic Control Devices (FHA 2007) in advance of the construction area and at any intersection that provides access to the construction area. A sign, at least one square yard in size, shall be posted at all active construction sites that gives the name and telephone number or electronic mail address to contact with complaints regarding construction traffic. Measures shall be implemented as needed to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. The construction contractor shall minimize the amount of mud transported onto paved public roads by vehicles or runoff. Rock, dirt, and/or other fill materials shall be prevented from being accidently dropped from trucks traveling on highways to and from the project.

As a result, short-term construction-generated traffic and CR 17A/99A realignment impacts would be reduced to a less-than-significant impact after mitigation.

3.12 UTILITIES, PUBLIC SERVICES, AND SERVICE SYSTEMS

This section provides an overview of utilities and service systems in the project vicinity, including water supply, wastewater service, solid waste management, and storm water drainage. Impacts are evaluated in relation to increased demand for utilities and service systems associated with the proposed project.

3.12.1 Existing Conditions

Within the project site, there are no major utility corridors. However, an existing Pacific Gas and Electric Company (PG&E) power line and six power poles are located in and immediately adjacent to the project site at LM 3.9L. The majority of the residents in the unincorporated area have septic systems and wells that eliminate the need for water and sewer mains originating from the town of Yolo or the City of Woodland. An existing leach field is located within the project boundaries at LM 4.2L. Utilities such as electrical transmission lines, gas pipelines, and communications lines run primarily along the major roads through the project area (SR 113, SR 16, CR 17A, and CR 99A) before branching out to serve more remote customers. Closer to the town of Yolo and the Woodland city limits, there are gas, water, and sewer pipes, as well as electric and communications that serve local businesses and residents (USACE and State Reclamation Board of California 2003).

3.12.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA. For purposes of this EA, impacts on traffic and transportation are considered significant if the project would:

- disrupt or significantly diminish the quality of the public utilities and services for an extended period of time, or
- damage public utility and service facilities, pipelines, conduits, or power lines.

No Action Alternative

Under the no-action alternative, no action would be taken to repair the existing erosion and protect the levee at the erosion sites. Forces of erosion would persist, including wave wash, flood flows, and human disturbances. Continued erosion at the erosion sites would increase the risk of levee failure and possible flooding of surrounding areas.

Proposed Action

Potentially significant impacts resulting from implementation of the proposed action to Public Utilities and Service Systems are identified below.

Impact Utilities 1: Impacts to Public Utilities and Service Systems

The Proposed Action does not have components that would require electricity, natural gas, or communication services. However, five existing PG&E power poles that are located within the project area would be relocated by PG&E. These power poles are located within the construction area for the setback levee at LM 3.9 and would be moved to the north along the realignment of CR 17A/99A. Although these power poles would need to be relocated, effects on electricity and communication services in the project area would be temporary, and the power poles would be relocated in coordination and compliance with PG&E's regulations. Therefore, this impact would be less than significant.

Construction of the setback levees would not create any new demands for water supply or generate any new source of wastewater, and therefore would not result in the construction of new or expanded water and wastewater conveyance or treatment facilities, or exceed any applicable wastewater treatment requirements. Therefore, this impact would be less than significant.

The Proposed Action does not include construction of impermeable surfaces and would not generate stormwater runoff or the need for new stormwater drainage facilities or expansion of existing facilities. The Proposed Action would not generate any additional solid waste, create a demand for solid waste disposal capacity, or cause any conflict with laws or statutes that relate to solid waste. Therefore, the Proposed Action would have a less-than significant impact on Public Utilities and Service Systems.

3.12.3 Mitigation

Implementation of the proposed action would not result in significant effects to Public Utilities and Service Systems therefore no mitigation is required.

3.13 POPULATION, HOUSING, SOCIOECONOMIC EFFECTS, AND ENVIRONMENTAL JUSTICE

This analysis documents the existing population, housing, and socioeconomic conditions in Yolo County and the town of Yolo. It presents estimates of changes to those conditions by implementation of the Proposed Action, or changes that could trigger adverse physical effects in the region. This section also discusses effects of the Proposed Action on environmental justice.

3.13.1 Existing Conditions

Population

The project area is located in Yolo County, near the town of Yolo. The area is primarily rural and sparsely populated. County has grown moderately in recent years, from 141,092 in 1990, 168,660 in 2000, and 200,849 in 2010. Population projections for the county are 228,944in 2020 and 244,315by 2025 (DOT 2011). The gain in new residents would be approximately 97,300 by 2025, or a little over 37 percent. Based on county land use policies and zoning and Local Agency Formation Commission policies, it is evident that most of that population increase would occur in the cities, with limited growth in the unincorporated communities. The population of the town of Yolo as of 1997 was 457.

Housing

The number of housing units in the unincorporated Yolo County increased by approximately 526 residential units between 2000 and 2008, resulting in a total of approximately 7,263 housing units in 2008 (Yolo County 2009). This represents an annual increase of approximately 1 percent in the unincorporated County for that period. The incorporated cities in the County experienced an average annual growth in residential units of approximately 2.5 percent, and countywide, residential units increased annually by 2.3 percent. However, approximately 450 parcels in the unincorporated area of Yolo County have been tentatively approved for development of single-family homes (Yolo County 2002, 2005). There were an estimated 161 housing units in the town of Yolo according to 1997 data (Yolo County 2005).

Socioeconomic Effects

Yolo County covers approximately 661,790 acres, with approximately 440,783 acres, or nearly 67 percent of the county, used or available for agriculture (row and field crops, orchards, vineyards, and grazing lands). Agriculture is an important source of employment and tax revenue for Yolo County. Agriculture employs two types of workers: migrant workers, who are bussed in for seasonal work, and permanent workers, who live in the area and work year-round (Yolo County 2002c, 2005). Besides scattered rural residences, the project area on the north side of Cache Creek is used almost exclusively for agricultural production.

Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations." Environmental justice refers to "nondiscrimination in federal programs substantially affecting human health and the environment" and "providing minority communities and low-income communities access to public information on, and an opportunity for public participation in, matters relating to human health or the environment". In particular, it involves preventing minority and low-income communities from being subjected to disproportionately high and adverse environmental effects of federal actions. In complying with NEPA, USACE is required to consider human health, economic, and social impacts of the Proposed Action on minority and low-income communities (Executive Order 12898).

The majority of the county's population (63.2 percent) is white or Caucasian. Minorities of African American, Asian, Hawaiian or Pacific Islander, and Hispanic ethnicity comprise the remaining 36.8 percent of the county's population (U.S. Census Bureau 2010). In 2010, per capita personal income for Yolo County was $27,420, below the State average of $29,188, although not below the State poverty level (California Department of Finance 2008). Yolo County had an unemployment rate of 13.2 percent in December 2011 (U.S. Bureau of Labor). There are no designated affordable housing units within the project area.

3.13.2 Environmental Consequences

The assessment of potential effects takes into consideration the significance of an action in terms of its context and its intensity as required under NEPA. An alternative would be considered to have a significant effect if it would:

- cause substantial changes in the local economy relative to current economic conditions; (Substantial changes may include changes in population movement or growth, public service demands, business patterns, and/or economic activity)
- substantially affect regional and community growth; community cohesion; or
- disproportionately affect low-income, and/or minority populations.

No Action Alterative

Under the no-action alternative, no action would be taken to halt erosion at the erosion sites. Conditions associated with the existing levees would remain unchanged for the immediate future. However, continued erosion at the erosion sites would increase the risk of levee failure and possible flooding of surrounding areas. Levee failure and flooding could result in significant social and economic impacts to local and regional economies and residents.

Proposed Action

Potentially significant impacts resulting from implementation of the proposed action to Population, Housing, Socioeconomic Effects and Environmental Justice are identified below.

Impact SR-EJ-1: Socioeconomic Impacts from Construction Activities

Construction of the Proposed Action could disrupt agricultural operations on lands used for the setback levees, resulting in a temporary loss of economic and fiscal benefits associated with agricultural production. Currently, 3.4 acres would be removed from agricultural production for project construction and operation. This is a minor loss relative to the total agricultural lands locally and regionally in Yolo County. Because the Proposed Action would not pave or permanently alter the land, the land used for the Proposed Action could potentially be farmed in the future. Moreover, by increasing flood protection, the Proposed Action provides a long-term socioeconomic benefit by protecting damage to farmland that could otherwise flood without the Proposed Action. Because the potential loss of these benefits would be small and are offset to an unknown degree by reduced flood damage, construction- and operations-related effects of the Proposed Action on economic and fiscal benefits associated with agricultural production would be less than significant.

Project implementation would employ construction workers, but would not significantly affect the local work force. According to the latest labor data available from the U.S. Census Bureau, 4,259 residents in the county are employed in the construction industry (U.S. Census Bureau 2002). This existing number of residents in the county who are employed in the construction industry would be sufficient to meet the demand for construction workers that would be generated by the proposed action. Therefore, implementation of the Proposed Action would result in no effect on socioeconomics

3.13.3 Mitigation

Implementation of the proposed action would not result in significant impacts related to Population, Housing, Socioeconomics or Environmental justice. No mitigation is required.

4 CUMULATIVE AND GROWTH INDUCING EFFECTS

The NEPA requires the consideration of cumulative effects of the proposed project combined with the effects of other projects. The NEPA defines a cumulative effect as the effect on the environment which results from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (CFR 40 Part 1508.7).

4.1 PROJECTS

The following projects are in the vicinity of the project area on Cache Creek.

Lower Cache Creek Feasibility Study. USACE, in partnership with the CVFPB and the City of Woodland, prepared a Lower Cache Creek General Investigation Feasibility Report Study (LCC Feasibility Study) in March 2003 which addresses flooding problems and identifies potential flood damage reduction projects in the lower reach of Cache Creek. The study area included in the report is the entire Cache Creek watershed, from the eastern foothills of the Coast Mountain Range to the western levee of the Yolo Bypass. The area includes parts of Yolo, Colusa, and

Lake Counties. The primary purpose of the study is to identify economically feasible and environmentally sensitive measures to reduce flood damages in the project area (the lower reach of Cache Creek). The project area includes the City of Woodland and unincorporated areas of Yolo County, and is bound by Cache Creek to the north and west, the Cache Creek Settling Basin to the east, and the Woodland city limits to the south.

The National Economic Development (NED) Plan proposed by that report was rejected by the public and the LCC Feasibility Study was abandoned. Structural and nonstructural plans were considered and evaluated based on their estimated costs, whether they met project objectives, and environmental feasibility. Plans that had excessive costs, did not meet project objectives, or had significant adverse environmental effects were eliminated from further study. Eliminated plans included flood storage on Cache Creek, channel clearing, raising the levees along approximately 8 miles of Cache Creek, and a combination of channelization and levees. Two plans were selected for further evaluation- the Lower Cache Creek Flood Barrier Plan (LCCFB) and the Modified Wide Setback Levee Plan (MWSL). Design details, costs, flood damage reduction benefits, potential environmental effects, and mitigation requirements were determined for these plans

The LCCFB Plan consists of constructing an approximately 6-mile-long levee along the northern limit of Woodland. The MWSL Plan consists of constructing approximately 19 miles of setback levees along lower Cache Creek, from the west levee of the settling basin to County Road 94B.

Based on the evaluation of estimated costs and benefits, and potential environmental and socioeconomic effects, the LCCFB Plan is the Tentatively Recommended Plan. It would generate the greatest net benefit and cause the least environmental damage.

In 2009, due to outreach efforts undertaken locally to identify plans that might receive public support, both the USACE and the City of Woodland (Woodland) expressed their intent to seek funding to reformulate alternatives for a new LCC Feasibility Study.

Cache Creek Improvement Program. The Yolo County Board of Supervisors adopted the Cache Creek Resources Management Plan (CCRMP) and Cache Creek Improvement Program (CCIP) in 1996, creating an integrated strategy for enhancing the resources of the lower Cache Creek. The CCRMP is a river management plan that eliminated in-channel commercial mining, restores habitat along the creek banks, and established an ongoing program for ensuring erosion control, bank stabilization, and floodway management. The CCRMP provides the policy framework for restoration of the 14.5 mile Lower Cache Creek. It includes specific implementation standards and the CCIP. The CCIP is the implementation plan for the CCRMP that identifies categories of specific restoration/protection projects along a precisely defined stretch of creek, including: bank stabilization, channel maintenance, revegetation, and habitat restoration. (Yolo County, 2011). The scope of the CCIP includes Cache Creek upstream of the I-5 bridge and outside of the project site.

Central Valley Flood Protection Plan. State of California law, enacted through the Central Valley Flood Protection Act of 2008 and codified in Sections 9600 through 9625 of the California Water Code, requires the DWR to prepare the Central Valley Flood Protection Plan (CVFPP). The CVFPP proposes a State Systemwide Investment Approach (SSIA) for

sustainable, integrated flood management in areas currently protected by facilities of the State Plan of Flood Control (SPFC).

In preparing the CVFPP, DWR examined a range of potential approaches for improving flood management. The recommended approach, SSIA, sets forth a strategy for responsibly meeting the State's objectives to improve public safety, ecosystem conditions, and economic sustainability, while recognizing the financial challenges facing local, State, and federal governments today. Under this approach, the State will prioritize investments in flood risk reduction projects and programs that incorporate ecosystem restoration and multi-benefit projects, without precluding future actions should additional State and Federal funding become available.

The SSIA outlines a sustainable flood management strategy that will support the State's vital agricultural economy, maintain agricultural land uses, limit growth in undeveloped floodplains, and provide policies, programs, and incentives to encourage wise long-term floodplain management. The SSIA includes significant capital investments to strengthen levees that protect existing urban areas and small communities, prioritizing improvements to the 1,600-mile levee system included in the SPFC. The SSIA also will help improve system resiliency in the face of climate change by expanding flood conveyance capacities, coordinating reservoir operations, and restoring floodplains.

During the next five years (2012 to 2017), flood managers will continue to build infrastructure improvements that upgrade levees in high risk urban areas and will begin other flood management improvements. Subsequent infrastructure improvements will be based on results of detailed feasibility studies that consider improvements for high risk urban areas, small communities, rural-agricultural areas, and more complicated systemwide facilities, such as bypass expansions. Integral to these improvements will be the inclusion of environmental considerations in all phases of flood management planning and implementation.

The Project actions for the proposed erosion repairs at Cache Creek LM 3.9L and LM4.2L are consistent with language presented in the CVFPP section for Rural-Agricultural Area Flood Protection.

In general, the State will consider the following rural-agricultural flood protection options, with a focus on integrated projects that achieve multiple benefits:

- *SPFC levee improvements in rural-agricultural areas will focus on maintaining levee crown elevations and providing all-weather access roads to facilitate inspection and flood fighting.*
- *Levee improvements, including setbacks, may be used to resolve known performance problems (such as erosion, boils, slumps/slides, and cracks). Projects will be evaluated that reconstruct rural SPFC levees to address identified threat factors, particularly in combination with small community protection, where economically feasible.*
- *Agricultural conservation easements that preserve agriculture and prevent urban development in current agricultural areas may be purchased, when consistent with local land use plans and in cooperation with willing landowners.*

The CVFPP also specifically identified that DWR will continue participation in the Lower Cache Creek, Yolo County Woodland Area Feasibility Study, which considers modifications to the Cache Creek Settling Basin and other facilities to determine their feasibility and contribution toward achieving urban and rural agricultural flood improvement in the area. Also evaluate the Cache Creek Settling Basin to identify a long-term program for managing sediment and mercury to maintain the flood conveyance capacity of the Yolo Bypass.

Sacramento River Bank Protection Project. USACE and DWR conduct annual field reconnaissance surveys of the SRFCP to monitor and identify sites of erosion. Erosion sites are defined for the purpose of the annual field reviews as sites ―at risk of failure as the result of erosion during floods and/or normal conditions. In addition to the four Cache Creek erosion sites, LM 2.4L, LM 3.4L, LM 3.9L, and LM 4.2L indentified to be repaired with setback levee under the Section 408 application, two additional erosion sites remain on the erosion inventory for future repair. Identified erosion sites at LM 2.4L and LM 5.4L are planned to be repaired under SRBPP future 80,000 linear feet authorization but dates for actual repair may be up to 10 years depending on other higher priority erosion sites.

4.2 CUMULATIVE EFFECTS

Implementation of the proposed project with other actions occurring at the same time could have the potential to create and contribute to cumulative impacts on the environment. Cumulative effects would not be considered cumulatively considerable for one or both of these reasons:

- cumulative effects would be beneficial
- the effect of the proposed project would not be added to the effect of other projects (i.e., no cumulative impact would occur) or would be too minor or localized to be cumulatively considerable.

There would be no cumulative effects on Geology, Soils, and Geomorphology resources since proposed action would allow for continued bank erosion and maintain existing connection of floodplain areas and therefore have a cumulative beneficial impact.

Aesthetics. The presence of construction equipment clearing and excavating the landscape would have temporary visual effects. These effects would be limited to the construction period. Other projects have contributed to adverse effects on esthetics with the removal of vegetation and the addition of revetment structures. These effects are mitigated through the establishment of native trees, shrubs, and grasses that are not expected to have longterm significant effects. Due to the mitigation of other projects and the incremental effects, the cumulative effects on esthetics are considered to be less than significant.

Air Quality. All projects involving construction using earthmoving equipment generate criteria pollutants such as NO_x, ROG, PM_{10}, and CO. As such, all construction within the air basin would contribute pollutants, affecting the current air quality. Because of the nonattainment status of the air basin, any additional contributions are considered as potentially significant cumulative effects. However, all projects would be required to reduce or offset their emissions in compliance with Federal, State, and/or local standards. Thus, any cumulative effects would be expected to be less than significant. Emissions for the project would not exceed Federal

standards. Mitigation would consist of BMPs and implementation of measures including dust control, requiring the contractor to properly tune and maintain construction equipment, payment for exceeding NO_x emissions above 85 lbs/day from mobile source construction equipment, and the purchase of additional air quality credits, if necessary. Implementation of the BMPs and measures during construction would reduce any project contribution to cumulative effects to less than significant.

Biological Resources. The setback levees would not remove sensitive habitat and would not impact sensitive biological resources when avoidance measures would be implemented. The incremental effect of the proposed action on biological is not cumulatively considerable and is therefore less than significant

Cultural Resources. Ground-disturbing activities could inadvertently unearth and damage historical or prehistoric resources or remains that could be potentially buried. Any potential damage would be minimized by the implementation of mitigation measures and would be limited to resources in the location of the project site. The proposed action has a potential to result in impacts on potentially significant cultural resources and to uncover unknown or undocumented buried cultural resources. With implementation of the mitigation measures the incremental effect of the proposed action is not cumulatively considerable on cultural resources and is therefore less than significant.

Hydrology and Water Quality. The project could result in increased accidental spills or leaks that could affect surface and ground water resources. The implementation of site-specific stormwater BMPs would avoid and minimize the release of stormwater to offsite receiving waters. Related effects may also occur as a result of other local flood risk reduction projects but would be mitigated with similar site-specific stormwater BMPs and would mitigate for soil and sediment disturbance. The incremental effect of proposed action project would not contribute significantly to cumulative effects for hydrology and quality.

Hazards and Hazardous Materials. During construction activities, fuels, lubricants, and other potentially hazardous materials have the potential to be released into the environment and result in environmental and/or human exposure to these hazards. There is also a potential for undocumented hazardous materials or contamination to be discovered during site clearing. When completed, the proposed action would not generate any hazardous, toxic, or radioactive waste. Mitigation measures, including implementation of a contamination prevention plan and evaluation and treatment of undocumented hazardous materials, have been incorporated into the proposed action. With implementation of the mitigation measures, the incremental effect of the proposed action related to hazardous materials is not cumulatively considerable and is therefore less than significant.

Land Use and Planning. Construction of setback levees would result in the loss of approximately 3.4 acres of designated prime farmland. The purpose of the setback levees is to provide flood protection for land uses and agricultural production within the project area, and the portion of existing agricultural lands needed for the setback levees would be very small compared to the remaining agricultural lands to be protected from flooding. Because flood control projects are consistent with the historical use of the land within the project area and because a relatively small amount of land would be converted to nonagricultural use for

protection of the remaining agricultural lands and uses, these impacts would be less than significant. While overall there has been a significant cumulative impact on agricultural resources in the region, primarily from urban development, the incremental effect of the proposed action on land use is not cumulatively considerable and protects valuable agricultural lands from flooding.

Noise. The proposed action would result in increased ambient noise during project construction. Implementation of the mitigation measures would reduce potential impacts to a less-than-significant level. Given that impacts to noise resulting from the proposed action would be temporary (i.e., only during project construction), the incremental effect of the proposed action on noise is not cumulatively considerable and is therefore less than significant.

Transportation and Circulation. The impacts to traffic resulting from the proposed action would be temporary (i.e., only during project construction), the incremental effect of the proposed action on traffic is not cumulatively considerable and is therefore less than significant.

Utilities, Public Services, and Service Systems. The proposed project would not increase effects on electricity and communication services; increase any new demands for water supply or generate any new source of wastewater in the project area. The project action would be temporary), the incremental effect of the proposed action on utilities, public services, and service is not cumulatively considerable and is therefore less than significant.

Environmental Justice. The proposed action consists of the repair of an existing levee and would not result in substantial population growth in the project area, the construction of additional housing, or the removal of obstacles to population growth. The proposed action would reduce the potential for levee failure and flooding, and is not anticipated to result in any long-term adverse socioeconomic impacts. The Cache Creek erosion sites were selected based on the severity of erosion and the threat of levee failure, not on the demographics of the communities in which they occur. Contractors would be hired following standard State procedures and would not be disadvantaged by such factors as race or national origin. The proposed action would not result in adverse impacts as they relate to environmental justice. The incremental effects of the proposed action on socioeconomics and environmental justice is not cumulatively considerable and is therefore less than significant.

4.3 GROWTH INDUCING EFFECTS

Repair of the Cache Creek erosion sites with setback levees would not directly encourage or facilitate growth. The erosion repairs would have a less-than-significant effect on regional population increases, since such repairs would not remove any existing obstacles to growth. All new development must be consistent with Yolo County general plan policies and zoning ordinances related to land use, open space, conservation, flood protection, and public health and safety. In addition, all future development would need to comply with applicable environmental laws and regulations and would require approval by local, and in some cases, State and Federal authorities (e.g., projects requiring the discharge of fill into waters protected under the CWA). Therefore, the proposed action would not significantly contribute to any cumulative growth-inducing impacts in the project area.

5 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS

This chapter provides preliminary information on the major requirements for permitting, environmental review and consultation for implementation of the project. Certain Federal, State, and local regulations require issuance of permits before project implementation; other regulations require agency consultation but may not require issuance of any authorization or entitlements before project implementation.

5.1 FEDERAL LAWS AND REGULATIONS

Clean Air Act of 1972, as amended, 42 USC 7401, et seq. *Full Compliance*. The Clean Air Act (as amended in 1990; 42 U.S.C 7401, et seq. Section 176[c]) prohibits federal action or support of activities that do not conform to a state implementation plan. An analysis of air quality effects of the proposed Project was presented in this EA. The analysis of air quality effects from the proposed action determined that the estimated emissions and PM_{10} would not exceed Federal *de minimus* thresholds. USACE has also determined that the proposed action would have no adverse effect on the future air quality of the project area. Therefore, no conformity determination would be required.

Clean Water Act of 1972, as amended, 33 USC 1251, et seq. *Full Compliance.* Section 401 of the Clean Water Act (33 U.S.C. 1251 et seq. [1976 & SUPP II 1978]) requires that any project that will discharge a pollutant (including sediment) into a water body (e.g., wetlands riparian zones, streambeds, and lakes) acquire a permit from the RWQCB. With implemented mitigation measures, the proposed project will not result in any significant entrainment of sediment or other pollutants from the project area into storm water runoff or otherwise impair water quality in the project area or into Cache Creek. The proposed action does not include placement of materials in the waters of the U.S. based on determination of the ordinary high water elevation. A Section 404(b)(1) evaluation and Section 401 water quality certification will not be required for the setback levees.

Construction of the proposed project would involve earth-disturbing and construction activities that could result in the discharge of sediment or other pollutants (e.g., petroleum products) to Cache Creek via runoff from the construction site. Because activities associated with project development would disturb more than one ac of land, contractors would be required to obtain and comply with the State General Construction Activity Stormwater Permit. General Permit applicants are required to prepare an SWPPP that specifies BMPs to be implemented to minimize sedimentation and release of construction-related constituents into the stream.

Endangered Species Act of 1973, as amended, 16 USC 1531, et seq. *Partial Compliance.* A list of threatened and endangered species that may be affected by the project was obtained from the USFWS website on January 18, 2012 (Appendix B). The draft EA will be sent to the USFWS, requesting concurrence with the USACE's determination of may affect, not likely to adversely affect the valley elderberry longhorn beetle. No consultation is required with the National Marine Fisheries Service because USACE has determined there will be no effect on listed fish species.

Executive Order 11988, Floodplain Management. *Full Compliance.* This order directs all Federal agencies approving or implementing a project to consider the effects that project may have on flood plains and flood risks. The purpose of this directive is "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." A steady-state HEC-RAS model for the design flow of 30,000 cfs was developed for LM 3.9L and LM4.2L. The maximum velocity changes and water surface elevation from the existing conditions are not significant and would not adversely affect river conditions. Because the project will improve levee integrity, and does not directly support additional floodplain development, it satisfies Executive Order 11988.

Executive Order 11990, Protection Wetlands. *Full Compliance.* The project would avoid all work in any existing wetlands and will not result in the loss or degradation of any wetlands.

Executive Order 12989, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. *Full Compliance*. The proposed action would not adversely affect any minority or low-income populations.

Farmland Protection Policy Act, 7 USC 4201 et seq. *Full Compliance*. The Farmland Protection Policy Act (7 U.S.C. 4201 et seq.) requires a federal agency to consider the effects of its actions and programs on the Nation's farmlands. The project would affect 3.4 acres of designated Prime and Unique Farmlands within the project area. USACE has submitted and received a form AD 1006 with NRCS's farmland a rating (Appendix D). Construction of the setback levees is necessary to provide flood protection due to risk of erosional failure during flooding and/or during normal flow conditions. Given the necessity of providing adequate flood protection to surrounding lands and the small area of land needed to construct the setback levees, impacts to land use are considered to be less than significant.

Fish and Wildlife Coordination Act of 1958, as amended, 16 USC.661, et seq. *Partial Compliance*. The Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) provides the basic authority for USFWS involvement in evaluating impacts to fish and wildlife from water resource projects. The USFWS has participated as an active member of the team in evaluating the existing site and proposed mitigation project.

Magnuson-Stevens Fishery Conservation and Management Act. *Full Compliance*. The project would have no effects on Chinook salmon. This EA has concluded that essential fish habitat for Chinook salmon species will not be adversely affected.

Migratory Bird Treaty Act of 1936, as amended, 16 USC 703 et seq. *Full Compliance*. The Federal Migratory Bird Treaty Act (16 USC 703) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The project would be scheduled to avoid disturbance of active nests or young of migratory birds that breed in the area. In addition, a biologist would survey the area prior to initiation of construction. If active nests are located, a protective buffer would be delineated, and the area would be avoided until the nests are no longer active.

National Environmental Policy Act of 1969, as amended, 42 USC 4321, et seq. *Partial Compliance*. Comments received during the public review period will be considered and incorporated into the final EA. The final EA and signed FONSI will be in full compliance with this act.

National Historic Preservation Act of 1966, as amended. *Partial Compliance*. The National Historic Preservation Act of 1966 (amended through 2000; 16 U.S.C. et seq.) requires agencies to take into account the effects of their actions on properties listed in or eligible for listed in the NRHP. The project would have no effect on known historic properties. However, any unforeseen resources discovered during construction would be treated in accordance with the procedures set forth in Section 106 of the NHPA. USACE will be requesting the SHPO's concurrence with a finding of No Adverse Effect for the project. The response from the SHPO will be included in the final EA.

5.2 STATE OF CALIFORNIA LAWS AND REGULATIONS

California Environmental Quality Act. *Full Compliance*. An initial study and mitigated negative declaration (SCH No. 2008102072) was circulated for 30 day review in October to November 2008. The CVFPB adopted findings, mitigated negative declaration, and mitigation measures for the setback levees at LM 3.9 L and LM 4.2 L during the January 2009 Board meeting. The Notice of Determination was filed with the State Clearinghouse on January 22, 2009.

State Water Resources Control Board, Division of Water Quality, and California Regional Water Quality Control Board, Central Valley Region. *Full Compliance.* The proposed action does not include placement of materials in the waters of the U.S. based on determination of the ordinary high water elevation or impact wetlands. .

Porter-Cologne Water Quality Control Act of 1969. *Full Compliance* The Porter-Cologne Act defines "waters of the state" as water bodies with boundaries in the state, including any surface or groundwater, whether fresh or saline. The intent of the Act is to provide a comprehensive program for the protection of water quality and beneficial uses of water through the regulation of waste discharges. Waste discharges may include such substances as wastewater effluent and discharges of fill and dredged material into waters of the State. The project actions would not discharge waster water or dredge material into waters of the State.

California Department of Fish and Game, Sections 1600-1600 of the Fish and Game Code. *Full Compliance*. The project activity would not change the natural state of any lake, river, or stream in Cache Creek. A Streambed Alteration Permit would not be required.

State Lands Commission. *Full Compliance*. The State Lands Commission has exclusive jurisdiction over all ungranted tidelands and submerged lands owned by the State and the beds of navigable rivers, sloughs, and lakes. An amended lease would not be required for this project since work would occur outside of navigable stream channel.

Central Valley Flood Protection Board Encroachment Permit (California Water Code, Title 23). *Partial Compliance*. The CVFPB regulates any encroachments within an adopted plan of flood control and sets permissible work periods for regulated streams, including the excavation, borrow, and vegetation removal activities within the channel. Once the Section 408

5.3 LOCAL LAWS, PROGRAMS, AND PERMITS

Yolo County General Plan
On November 10, 2009, the Yolo County Board of Supervisors adopted the 2030 Countywide General Plan – the document which determines land use planning throughout the unincorporated area. The General Plan provides comprehensive and long-term policies for the physical development of the county and is often referred to as "the constitution" for local government.

6 CONCLUSION

The draft EA will be circulated for 15 days to agencies, organizations, and individuals known to have an interest in the proposed project. All comments received will be considered and incorporated into the final EA, as appropriate. The final Finding of No Significant Impact will then be signed. This project is being coordinated with all relevant government resource agencies including USFWS, NMFS, California SHPO, DWR, CDFG, and Yolo County.

7 LIST OF PREPARERS

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Tracy Walker, Biological Resources

Tammie Beyerl, Biological Resources

Leo Edson, Biological Resources

Tracy Walker, Biological Resources
Tammie Beyerl, Biological Resources
Leo Edson, Biological Resources
Brian Ludwig, Cultural Resources
Mark Bowen, Cultural Resources
Honey Walters, Air Quality and Noise Specialist
Jake Weirich. Air Quality and Noise Specialist
Gayiety Lane, Publications
Deborah Jew, Publications
Lorrie Jo Williams, Graphics
Lisa Clement, GIS

8 REFERENCES CITED

Bemis, Gerry. 2006. Final Staff Report; Inventory of California Greenhouse Gas Emissions and Sinks: 1990-2004. (CEC-600-2006-013).California Energy Commission, Sacramento, CA

Bennyhoff, James A. 1977. *Linguistics in California Prehistory*. Lecture delivered in the Department of Anthropology, San Francisco State University, San Francisco, CA.

Bennyhoff, James A. and David A. Fredrickson. 1969. A Proposed Integrative Taxonomic system for Central California Archaeology in Toward a New Taxonomic Framework for Central California Archaeology. edited by Richard E. Hughes.

Bozkurt, S., P. Dekens, R. Gartland, J. Gragg, J. Lawyer, and M. McGoogan. 2000. Evaluation of setback levees on the Sacramento River. Master's thesis. University of California, Santa Barbara.

California Air Resource Board (ARB). 2009. *Air Resources Board Emissions Inventory*. Available at http://www.arb.ca.gov/desig/adm/adm.htm. Accessed December 1, 2011..

———.2011a. *Area Designation Maps / State and National*. Available at www.arb.ca.gov/desig/adm/adm.htm#state. Accessed December 1, 2011.

———. 2011b. *Air Quality Data Statistics.* Available at www.arb.ca.gov/adam . Accessed December 1, 2011

California Department of Conservation (DOC), Division of Land Resource Protection, Farmland Mapping and Monitoring Program (FMMP). 2008a. Programs to Conserve California's Farmland & Open Space Resources. Available <http://www.consrv.ca.gov/DLRP/>. Accessed October 1, 2008.

———. 2008b. Farmland Mapping and Monitoring Program. Important Farmland Categories. Available: <http://www.consrv.ca.gov/DLRP/fmmp/mccu/map_categories.htm> Accessed October 1, 2008.

———. 2008c. Division of Land Resource Protection, Williamson Act ProgramEnrollment Statistics. YoloCounty. Available: < http://www.consrv.ca.gov/ dlrp/lca/stats_reports/Pages/index.aspx > Accessed October 1, 2008.

California Department of Finance. 2008. Table D-22. *Lower Living Income Levels and Poverty Guidelines for California Counties. 2008*. Available: <http://www.dof.ca.gov/html/fs_data/stat-abs/documents/D22.pdf>. Accessed: February 2012.

California Department of Fish and Game (DFG). 1995. *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA.

California Department of Transportation (DOT). 2002 (February 20). Transportation Related Earthborne Vibrations. Sacramento, CA.

———. 2007. Traffic and Vehicle Data Systems Unit, 2007 All Traffic Volumes on California State Highway System. Available: < http://www.dot.ca.gov/hq/traffops/ saferesr/trafdata/2007all.htm >. Accessed: September 2008.

———. 2008. California Scenic Highway Mapping System. Available: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm>. Accessed October 1, 2008.

———. 2011. Yolo County Economic Forecast. Available: <http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic_files/2011/Yolo.pdf>. Accessed: February 8, 2012

California Division of Mines and Geology (CDMG). 1988. Mineral Land Classification: Portland Cement Concrete-grade Aggregate in the Sacramento-Fairfield Production –Consumption Region, Special Report 156, Plate 8.

California Native Plant Society. 2011. Electronic Inventory of Rare and Endangered Vascular Plants of California. Available at http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi.Last updated November 2011. Accessed December 1, 2011.

California Natural Diversity Database. 2011a. Rarefind: A Database Application for the Use of the California Department of Fish and Game's Natural Diversity Database. California Natural Heritage Division, California Department of Fish and Game, Sacramento, CA.

———. 20011b. California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. Sacramento, CA.

Central Valley Regional Water Quality Control Board (Central Valley RWQCB). 2005 (December 14). *Cache Creek, Bear Creek, Sulphur Creek, and Harley Gulch TMDL*. <http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/cache_sulphur_creek/index.shtml> Accessed: October 9, 2008.

Department of Water Resources (DWR). 2005 (June 24). *Reconnaissance Surveys for Presence and Nesting Activity of Bank Swallows.* Survey team: Duane Cornett (DWR), Deborah Condon (DWR) and Ron Schlorff (DFG). Sacramento, CA.

———. 2006a. Cache Creek North Levee Setback Project Initial Study/Environmental Assessment – Critical Erosion Sites 1 and 2. Sacramento, CA. Prepared by EDAW, Sacramento, CA.

———. 2006b. Cache Creek North Levee Setback Project Initial Study/Environmental Assessment – Critical Erosion Site 3. Sacramento, CA. Prepared by EDAW, Sacramento, CA.

———. 2007. Sacramento River Bank Protection Program Cache Creek North Levee Setback Project Locations: Levee Mile 3.9 and Levee Mile 4.2 Engineering Geology Report. Yolo County, CA.

———. 2008. Final Initial Study/Proposed Mitigated Negative Declaration, Cache Creek North Levee Setback Project – Critical Erosion Site LM 3.9L and LM 4.2L. Prepared by EDAW, Sacramento, CA.

———. 2011. Sacramento River Bank Protection Program Cache Creek North Levee Setback Project Locations: Levee Mile 3.9 and Levee Mile 4.2 Geotechnical Engineering Report. Yolo County, CA.

EIP Associates, Northwest Hydraulic Consultants, & David Keith Todd Consulting Engineers. 1995. *Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan*. Prepared for Yolo County Community Development Agency.

Federal Transit Administration. 2006. Transit Noise and Vibration Impact Assessment. Washington, D.C.

Garrison, B. A. 1999. Bank swallow (*Riparia riparia*). The Birds of North America Online (A. Poole, ed.). Accessed February 6, 2009, at http://bna.birds.cornell.edu/bna/species/414.

Jennings, C. W. 1994. *Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions*. California Division of Mines and Geology, Geologic Data Map No. 6, Scale1:750,000.

Johnson, P. J. 1978. Patwin. In: R. F. Heizer (ed.), *Handbook of North American Indians, Vol. 8: California*: 350–360. Smithsonian Institution, Washington, D.C.

Kroeber, Alfred L. 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington, D.C.

Larsen, E. W., and S. E. Greco. 2002. Modeling channel management impacts on river migration: A case study of Woodson Bridge State Recreation Area, Sacramento River, California, USA. *Environmental Management* 30:209-224.

Les, Kathleen. 1986. *Department of Parks and Recreation Primary Record, Town of Yolo*. Record no. 5697-19-9999 on file at the Northwest Information Center.

Lipscomb, David M., Ph.D., and Arthur C. Taylor, Jr., Ph.D. 1978. *Noise Control Handbook of Principles and Practices*. Van Nostrand Reinhold Company. New York, NY.

McKern W. C. 1922, 1923. Functional families of the Patwin. University of California Publications in American Archaeology and Ethnology 13(7):235–258.

Moratto, Michael J. 1984. *California Archaeology*. Academic Press, N.Y.

National Marine Fisheries Service. 2007. Technical assist letter for William Leet confirming that Cache Creek is not a migratory route or considered rearing habitat. Dated April 16, 2007, Reference No. 2007/0073 1.

Natural Resources Conservation Service (NRCS). 2012. Farmland Conversion Impact Rating, Cache Creek Setback Levee Site - Revised Form 1006, and Soil Map for Project Area. Dated January 17, 2012.

Powers, S. 1877. Tribes of California. U.S. Department of the Interior, Geographical and Geological Survey of the Rocky Mountain Region, *Contributions to North American Ethnology, III*. Washington, D.C.

Sacramento Area Council of Governments (SACOG). 2001 (March). *SACOG Projections – Yolo County*. Available: <http://www.sacog.org/demographics/projections/cities/yolo.pdf >. Accessed October 2008.

———. September 2003. Watts-Woodland Airport Comprehensive Land Use. Sacramento, CA. <Planhttp://sacog.org/airport/maps /Watts_Woodland.pdf> Accessed October 10, 2008.

Sacramento Metropolitan Air Quality Management District. 2008. CEQA Planning Information. Available:<http://www.airquality.org/cleanairplan/index.shtml>. Accessed October 2008.

Soil Conservation Service. 1972. *Yolo County Soil Survey.* Woodland, CA.

State of California Governor's Office of Planning and Research. 2003. *General Plan Guidelines*. Sacramento, CA.

U.S. Army Corps of Engineers (USACE). 1958. *Design Memorandum No. 10, Cache Creek, Yolo Bypass to High Ground Levee Construction*. Sacramento, CA.

———. 2000. Planning Guidance and Notebook, Engineering Regulation No. 1105-2-100. Washington D.C.

———. 2000a. Engineering and Design, Design and Construction of Levees, Engineer Manual 1110-2-1913, U.S. Army Corps of Engineers, Washington, D.C.

———. 2002 (October). *Lower Cache Creek, Yolo County, CA, City of Woodland and Vicinity Draft Environmental Impact Statement/Environmental Impact Report for Potential Flood Damage Reduction Project*. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.

———. 2003 (March). *Lower Cache Creek, Yolo County, CA, City of Woodland and Vicinity Draft Feasibility Report for Potential Flood Damage Reduction Projection*. U.S. Army Corps of Engineers, Sacramento District. Sacramento, CA.

U.S. Army Corps of Engineers, Sacramento District and State Reclamation Board of California. 2003 (March). *Lower Cache Creek, Yolo County, CA. City of Woodland and Vicinity. Draft Environmental Impact Statement/Environmental Impact Report for Potential Flood Damage ReductionProject*.Available:<http://www.spk.usace.army.mil/projects/civil/lowercachecreek/eisei r.html>.

U.S. Army Corps of Engineers. 2009. Draft Environmental Assessment/Initial Study for Levee Repair of 25 Erosion Sites: Sacramento River Bank Protection Project. Prepared by North State Resources, Inc., Redding, California, and Stillwater Sciences, Inc., Berkeley, California, for U.S. Army Corps of Engineers, Sacramento District and Central Valley Flood Protection Board, Sacramento, California. U.S. Army Corps of Engineers Contract W91238-07-D-0022. April 2009.

U.S. Bureau of Labor Stastistics. 2011. Local Area Unemployment Map, California, December 2011. Available:<http://data.bls.gov/map/MapToolServlet?survey=la&map=county&seasonal=u&datatype=unemployment&year=2011&period=M12&state=06>/ Accessed: February 2012.

U.S. Census Bureau. 2010. *Yolo County, California QuickFacts*. Available: <http://quickfacts.census.gov/qfd/states/06/06113.html>. Accessed: February 2012.

U.S. Environmental Protection Agency (EPA). 1971 (December). *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*. Washington, DC.

———. 2008 (October 31). *Envirofacts Data Warehouse*. <http://www.epa.gov/enviro/> Accessed: September 30, 2008. U.S. Fish and Wildlife Service. 1999 (July). *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*. Sacramento Fish and Wildlife Office. [Online] Available: <http://www.fws.gov/sacramento/es/documents/ velb_conservation.htm>.

U.S. Fish and Wildlife Service (USFWS). 1999 (July). *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*. Sacramento Fish and Wildlife Office. [Online] Available: http://www.fws.gov/sacramento/es/documents/ velb_conservation.htm

———. 2012. *Species List for Cache Creek North Levee Setback Project 1 – Critical Erosion Site LM 3.9L Left Bank and LM 4.2L Left Bank: Woodland Quad 514A.* Sacramento, CA.

Wahler Associates. 1982. *Geologic Report, Cache Creek Aggregate Resources*, Yolo County, California. For: Aggregate Resources Advisory Committee, County of Yolo, Community Development Agency.

Woodland Joint Unified School District. 2004. *School Accountability Report Card*. Cache Creek Continuation High School. Woodland, CA.

Work, John. 1945. *Fur Brigade to the Bonaventura: John Works California Expedition, 1832–1833, for the Hudson's Bay Company*. A. B. Maloney (ed.). California Historical Society, San Francisco.

Yolo County Community Development Agency. 1995. *Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan.* Prepared for the Yolo County Community Development Agency by EIP Associates, Sacramento, CA.

Yolo County. 1996. Final Off-Channel Mining Plan for Lower Cache Creek. Available <http://www.yolocounty.org/Index.aspx?page=375>. Accessed December 1, 2011.

———. 2001. Yolo County General Plan Open Space and Recreation Element. Adopted July 1983. Revised November 2001. Woodland, CA.

———. 2002a. Cache Creek Resources Management Plan and Cache Creek Improvement Program Draft Supplemental Program/Project-Level EIR.

———. 2002b. Revised Final Cache Creek Resources Management Plan for Lower Cache Creek. Adopted August 20, 1996. Revised August 15, 2002.

———. 2002c. Yolo County General Plan (updated), Agricultural Element.

———. 2005. Yolo County General Plan Update Background Report. Prepared by Jones & Stokes. Sacramento, CA.

———. 2008a. Yolo County Geographic Information System. Zoning Map. Available: <http://wwwgis2.yolocounty.org/website/public/viewer.htm>. Accessed December 1, 2011.

———. 2008b. Yolo County Municipal Code, Title 8, Land Development and Zoning. Available: http://www.yolocounty.org/Index.aspx?page=432#Title%201. Accessed December 1, 2011.

———. 2008c. Codes and Ordinances. Available: http://www.yolocounty.org/Index.aspx?page=576 . Accessed: December 2011.

———. 2009. 2030 Countywide General Plan and Draft Environmental Impact Report. SCH #2008102034. Available: http://www.yolocounty.org . Accessed: December 2011.

———. 2011. The Cache Creek Improvement Project (CCIP). Available: http://www.yolocounty.org/Index.aspx?page=1602. Accessed: December 1, 2011.

Yolo County Local Agency Formation Commission (LAFCO). . 2005 (September). *Yolo Fire Protection District. Final MSR/SOI*. Municipal Service Review Sphere of Influence. Woodland, CA.

Yolo-Solano Air Quality Management District. 2007. Handbook for Assessing and Mitigating Air Quality Impacts. Davis, CA. Available at:http://www.ysaqmd.org/documents/CEQAHandbook2007.pdf. Accessed: December 1, 2011.

Zhu, Yifang, W. C. Hinds, S. Kim, and S. Shen. 2002. Study of Ultrafine Particles Near a Major Highway with Heavy-duty Diesel Traffic. *Atmospheric Environment* 36:4323–4335.

Personal Communication

Herrara, Jesus. Yolo County Headstart, Facilities Manager, Marysville, CA. September 30, 2008—phone Conversation with Jake Weirich of EDAW regarding the facilities and operations of the headstart facility near the project site.

Hobbs, Jennifer. Biologist. United States Fish and Wildlife Service, Sacramento, CA. March 22, 2007—conversation with William O'Leary of the Department of Water Resources regarding potential effects on valley elderberry longhorn beetle from project implementation.

Royer, Joe. DWR, Dams and Canals Section, Geotechnical and Structures Branch, Division of Engineering. October 9, 2008—personal communication with Kendra Ryan, EDAW.

Salinas, Julio. Staff Toxicologist. Office of Health Hazard Assessment, Sacramento, CA. August 3, 2004—telephone conversation with Kurt Legleiter of EDAW regarding exposure period for determining heath risk.

Appendix A

Modeled Maximum Daily Construction Emissions

10/6/2008 2:40:23 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\weirichj\Desktop\Cache Creek 08110222.00\cache creek.urb924

Project Name: Cache Creek Ismnd

Project Location: Yolo County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2009	0.17	1.65	0.79	0.00	0.22	0.07	0.29	0.05	0.07	0.11	164.22
Fine Grading 10/01/2009-11/30/2009	0.17	1.65	0.79	0.00	0.22	0.07	0.29	0.05	0.07	0.11	164.22
Fine Grading Dust	0.00	0.00	0.00	0.00	0.22	0.00	0.22	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	0.15	1.26	0.62	0.00	0.00	0.06	0.06	0.00	0.05	0.05	110.01
Fine Grading On Road Diesel	0.02	0.38	0.12	0.00	0.00	0.01	0.02	0.00	0.01	0.01	49.82
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.39

Phase Assumptions

Phase: Fine Grading 10/1/2009 - 11/30/2009 - Default Fine Site Grading Description

Total Acres Disturbed: 9.6

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 575.58

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

1 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

10/6/2008 2:40:23 PM

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

10/6/2008 2:40:34 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\weirichj\Desktop\Cache Creek 08110222.00\cache creek.urb924

Project Name: Cache Creek Ismnd

Project Location: Yolo County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 10/1/2009-11/30/2009 Active Days: 43	**7.94**	**76.74**	**36.91**	**0.02**	**10.09**	**3.39**	**13.48**	**2.12**	**3.12**	**5.24**	**7,638.30**
Fine Grading 10/01/2009-11/30/2009	7.94	76.74	36.91	0.02	10.09	3.39	13.48	2.12	3.12	5.24	7,638.30
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	6.76	58.79	28.76	0.00	0.00	2.71	2.71	0.00	2.50	2.50	5,116.82
Fine Grading On Road Diesel	1.10	17.82	5.77	0.02	0.08	0.67	0.75	0.03	0.62	0.64	2,317.30
Fine Grading Worker Trips	0.08	0.13	2.37	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.18

Phase Assumptions

Phase: Fine Grading 10/1/2009 - 11/30/2009 - Default Fine Site Grading Description

Total Acres Disturbed: 9.6

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 575.58

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

2 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

10/6/2008 2:40:34 PM

1 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Appendix B

U.S Fish and Wildlife Quad List: Woodland (514A)

and

ESA Consultation Letter

These buttons will not appear on your list.

Revise Selection

Print this page

Print species list before going on to letter.

Make Official Letter

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 120118062645

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta lynchi
  - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
  - valley elderberry longhorn beetle (T)
- Lepidurus packardi
  - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
  - delta smelt (T)
- Oncorhynchus mykiss
  - Central Valley steelhead (T) (NMFS)
- Oncorhynchus tshawytscha
  - Central Valley spring-run chinook salmon (T) (NMFS)
  - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Ambystoma californiense
  - California tiger salamander, central population (T)

- Rana draytonii
  - California red-legged frog (T)

Reptiles

- Thamnophis gigas
  - giant garter snake (T)

Quads Containing Listed, Proposed or Candidate Species:

WOODLAND (514A)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.
See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be April 17, 2012.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO ATTENTION OF

Environmental Resources Branch

Ms. Susan Moore
Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, #W-2605
Sacramento, California 95825

Dear Ms. Moore:

This letter is to request concurrence of a may affect, not likely to adversely affect, determination for the effects of the proposed Cache Creek Setback Levee Project on the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) under Section 7 of the Endangered Species Act (16 U.S.C. 1536[c]). This work is being funded and performed by the State of California Department of Water Resources, Division of Flood Management (DWR) pursuant to 33 USC 408. The U.S, Army Corps of Engineers (USACE) is acting as the lead agency for the proposed project. The project and effects on Federally listed species are described in detail in the enclosed draft Environmental Assessment (EA) and summarized below.

DWR proposes to construct a setback levee along two sections, levee mile (LM) 3.9 and 4.2, of Cache Creek in Yolo County. The levees would be built on the landside of the existing levees. The setback levee at LM 3.9 would be constructed approximately 215 feet north of the existing levee and would be 1,259 feet in length. The setback levee at LM 4.2 would be constructed approximately 90 feet north of the existing levee and would be 670 feet in length. The existing levee in both locations would be notched to allow drainage of the setback area back into Cache Creek.

Based on field visits and availability of habitat, we have determined that the only Federally listed terrestrial species that occurs, or has the potential to occur, in the project area is the threatened valley elderberry longhorn beetle. Four elderberry shrubs are present on the waterside of LM 3.9 and one at LM 4.2 However, we have determined that the work may affect, but not likely adversely affect, the valley elderberry longhorn beetle.

DWR received a Technical Assistance Letter from the U.S. Fish and Wildlife Service (USFWS) on December 10, 2008. USFWS concluded that the proposed project is not likely to destroy or adversely modify designated critical habitat for the valley elderberry longhorn beetle because its designated critical habitat is outside the proposed action area.

In addition, avoidance measures will be implemented to avoid the potential for adverse effects to the valley elderberry longhorn beetle. They include, (1) maintaining a 20-foot buffer from the dripline of all elderberry shrubs, (2) using water trucks to reduce the amount of dust generated in the construction area, (3) all elderberries will be fenced and identified as an area to avoid, and (4) workers will be trained and made aware of the elderberry habitat and the need to avoid it.

Please provide your concurrence with our determination within 15 days, if possible. If you have any questions or need additional information, please contact Mr. Brian Luke, Environmental Resources Branch, at (916) 557-6629, e-mail: Brian.J.Luke@usace.army.mil. Thank you for your attention to this matter.

Sincerely,

Alicia E. Kirchner
Chief, Planning Division

Enclosure

Copies furnished (without enclosure):

Mr. Jay Punia, General Manager, The Reclamation Board, 1416 Ninth Street, Room 1148, Sacramento, California 95814

Mr. Gary Hobgood, Department of Fish & Game, 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670

Ms. Jennifer Hobbs, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room W-2605, Sacramento, California 95825-1846

Mr. Doug Weinrich, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, 2800 Cottage Way, Room W-2605, Sacramento, California 95825-1846

Mr. Kip Young, Department of Water Resources, Division of Flood Management, 3310 El Camino Avenue, Room 110, Sacramento, California 95821

Appendix C

Concurrence Letter Issued by the State Historic Preservation Officer

and

Section 106 Consultation Letter to the State Historic Preservation Officer

and

USACE Letters to Local Native American Groups

STATE OF CALIFORNIA – THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov

RECEIVED
OCT 31 2007

October 26, 2007

Derrick Adachi
Department of Water Resources
Division of Environmental Services
1723 23rd Street, Suite 220
Sacramento, CA 95816

RE: Cache Creek, Yolo County, Critical Levee Repair; LM 3.9 and LM 4.2

Dear Mr. Adachi:

Thank you for requesting my comments on the above cited project. The proposed project is to construct setback levees at two locations on the left bank of Cache Creek at the levee miles noted above. You seek my comments pursuant to Public Resource Code section 5024(f). My staff has reviewed the documentation you provided and I would like to offer the following comments.

A cultural resource inventory was conducted of the project area of potential effect. Ground visibility was described as being excellent. In addition, your archaeologists were present during the geological testing to observe subsurface soils for the presence of cultural resources. I concur that the cultural resource identification efforts were sufficient for the purposes for which they were intended.

The only cultural resource identified as the result of the inventory was the levee. As noted in your letter, the proposed project would leave the existing levee in place. You have concluded that this project would not have a significant effect on cultural resources. I concur with this conclusion.

Thank you again for providing my office the opportunity to comment on the proposed project. If my staff can be of any further assistance, please contact Dwight Dutschke at 916-653-9134.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, F.A.I.A.
State Historic Preservation Officer

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

REPLY TO
ATTENTION OF

Environmental Resources Branch

FEB 10 2011

Mr. Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
Office of Historic Preservation
P.O. Box 942896
Sacramento, California 94296-0001

Dear Mr. Donaldson:

I am writing to continue consultation on a Department of Water Resources (DWR) project on Cache Creek at 3.9L and 4.2L. Two additional locations, 2.8L and 3.4L, have been added to this project. DWR has asked for permission to setback Federal project levees pursuant to Section 408 of the Rivers and Harbors Act of 1899. DWR plans to construct a short setback levee at each of the locations. The Corps is asking for your concurrence with our determinations of eligibility and finding of No Adverse Effect to Historic Properties per CFR 800.5(b).

In 2007, DWR consulted with your office concerning locations 3.9L and 4.2L and it was determined that the only historic resource was the levee which was to be left in place (Enclosure 1). In 2011, two additional historic properties were identified within the area of potential effect for 3.9L: County Road 99A (P-57-573) and Cache Creek Historic Site #1 (CCHS #1). These sites are documented in Enclosure 2, "Supplemental Archaeological Survey Report and Historic Properties Evaluation Report, Cache Creek Critical Erosion Setback Levee Repairs Project: Levee Mile (LM) 3.9L and LM 4.2" (Enclosure 2).

Site P-57-573 is a single lane rural county road split into two parallel 0.5 mile segments. CCHS #1 appears to be the remnants of a historic homestead consisting of a historic barn, palm trees, and debris pile. According to aerial photographs, other buildings appear to have been present as late as 1993, but had been demolished by 1995. Archival research and physical analysis of the both of these resources indicate that they are likely related to 20th century activity. The Corps has determined that P-57-573 is not eligible for listing in the National Register of Historic Places (NRHP), as it lacks qualities necessary to qualify under Criteria A, B, C, or D. CCHS #1 similarly lacks associations with any event, person, or architectural style that would make it eligible for listing in the NRHP, however, there is potential for subsurface deposits that may yield information important to the early historic occupation of this area and it may be eligible under Criterion D. As this has yet to be demonstrated, the Corps concurs with the DWR recommendations that this site be avoided during construction and that an archaeological monitor be present during any ground disturbing activities near the palm tree (southwest) portion of the site.

In 2008, SWCA Environmental Consultants surveyed erosion sites 2.8L and 3.4L and recorded no cultural resources at either of these locations. These results were reported in

"Cultural Resources Survey for the Levee Repair Project at 20 Locations in Colusa, Sacramento, Sutter, Tehama, and Yolo Counties, California." As the entire report has been submitted to your office during previous Corps consultation (2009), only excerpts concerning these locations are included in Enclosure 3.

The existing Cache Creek Levee will be largely avoided; however, single notches at 2.8L, 3.4L, and 4.2L, and two notches at 3.9L will be cut into it, to allow high water flow to empty into the creek. As this effects only a small stretch of levee and the effects to it are minimal, the Corps has determined that this action will not represent an adverse effect to the site. As the levee is assumed eligible under Criterion A, the slight alteration in configuration and removal of a small portion will not affect those elements that would recommend this resource eligible for listing in the NRHP.

Consultation with Native American Tribes was initiated by DWR in 2007, with additional attempts in 2010 and 2012 (Enclosure 2). The Corps will follow up with additional consultation, informing them of our involvement and inviting them to participate in the Section 106 process. To date, no one has specified any particular concerns about the project.

In summary, the Corps has determined that P-57-573 is not eligible for listing in the NRHP, the levee will be assumed eligible and will be subject to only minor alterations, and CCHS #1 will be avoided and the area monitored during construction. Therefore, the Corps has determined that there will be No Adverse Effect to Historic Properties due to this undertaking. Comments or questions may be sent to Ms. Nikki Polson, CESPK-PD-RC, U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814; email at nikki.polson@usace.army.mil; or phone at (916) 557-6977.

Sincerely,

Alicia E. Kirchner
Chief, Planning Division

Enclosures

Copy furnished (w/o encl):
Kip Young, via email: kyoung@water.ca.gov

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

REPLY TO
ATTENTION OF

Environmental Resources Branch

FEB 27 2012

Wintun Environmental Protection Agency
P.O. Box 1839
Williams, CA 95987

To Whom it May Concern:

I am writing to continue consultation on a Department of Water Resources (DWR) project on Cache Creek at 3.9L and 4.2L. Two additional locations, 2.8L and 3.4L, have been added to this project (Enclosure 1). DWR has asked for permission to setback Federal project levees pursuant to Section 408 of the Rivers and Harbors Act of 1899. DWR plans to construct a short setback levee at each of the locations.

In 2007 and 2012, DWR consulted with your Tribe concerning locations 3.9L and 4.2L. No concerns have been brought up to date to DWR. In 2011, two historic properties were identified within the area of potential effect for 3.9L: County Road 99A (P-57-573) and Cache Creek Historic Site #1 (CCHS #1). Site P-57-573 is a single lane rural county road split into two parallel 0.5 mile segments. CCHS #1 appears to be the remnants of a historic homestead consisting of a historic barn, palm trees, and debris pile. Archival research and physical analysis of the both of these resources indicate that they are likely related to 20th century activity. No prehistoric sites are known within the project area.

In summary, the Corps is continuing consultation started by DWR. No known prehistoric resources are located within the project area. If there are any concerns not previously voiced to DWR, please feel free to contact us. Comments or questions may be sent to Ms. Nikki Polson, CESPK-PD-RC, U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814; email at nikki.polson@usace.army.mil; or phone at (916) 557-6977.

Sincerely,

Alicia E. Kirchner
Chief, Planning Division

Enclosure

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

REPLY TO
ATTENTION OF

Environmental Resources Branch

FEB 27 2012

Mr. Marshall McKay, Chairperson
P.O. Box 18
Brooks, CA 95606

Dear Mr. McKay:

I am writing to continue consultation on a Department of Water Resources (DWR) project on Cache Creek at 3.9L and 4.2L. Two additional locations, 2.8L and 3.4L, have been added to this project (Enclosure 1). DWR has asked for permission to setback Federal project levees pursuant to Section 408 of the Rivers and Harbors Act of 1899. DWR plans to construct a short setback levee at each of the locations.

In 2007 and 2012, DWR consulted with your Tribe concerning locations 3.9L and 4.2L. No concerns have been brought up to date to DWR. In 2011, two historic properties were identified within the area of potential effect for 3.9L: County Road 99A (P-57-573) and Cache Creek Historic Site #1 (CCHS #1). Site P-57-573 is a single lane rural county road split into two parallel 0.5 mile segments. CCHS #1 appears to be the remnants of a historic homestead consisting of a historic barn, palm trees, and debris pile. Archival research and physical analysis of the both of these resources indicate that they are likely related to 20th century activity. No prehistoric sites are known within the project area.

In summary, the Corps is continuing consultation started by DWR. No known prehistoric resources are located within the project area. If there are any concerns not previously voiced to DWR, please feel free to contact us. Comments or questions may be sent to Ms. Nikki Polson, CESPK-PD-RC, U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814; email at nikki.polson@usace.army.mil; or phone at (916) 557-6977.

Sincerely,

Alicia E. Kirchner
Chief, Planning Division

Enclosure

Copies Furnished (w/encl):
Mr. Leland Kinter, Native Cultural Renewal Committee, P.O. Box 18, Brooks, CA 95606
Ms. Cynthia Clarke, Native Cultural Renewal Committee, P.O. Box 18, Brooks, CA 95606
Mr. Reno Franklin, Cultural Resources Director, P.O. Box 18, Brooks, CA 95606

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

REPLY TO
ATTENTION OF

Environmental Resources Branch

FEB 27 2012

Mr. Kesner Flores
PO Box 1047
Wheatland, CA 95692

Dear Mr. Flores:

I am writing to continue consultation on a Department of Water Resources (DWR) project on Cache Creek at 3.9L and 4.2L. Two additional locations, 2.8L and 3.4L, have been added to this project (Enclosure 1). DWR has asked for permission to setback Federal project levees pursuant to Section 408 of the Rivers and Harbors Act of 1899. DWR plans to construct a short setback levee at each of the locations.

In 2007 and 2012, DWR consulted with you concerning locations 3.9L and 4.2L. No concerns have been brought up to date to DWR. In 2011, two historic properties were identified within the area of potential effect for 3.9L: County Road 99A (P-57-573) and Cache Creek Historic Site #1 (CCHS #1). Site P-57-573 is a single lane rural county road split into two parallel 0.5 mile segments. CCHS #1 appears to be the remnants of a historic homestead consisting of a historic barn, palm trees, and debris pile. Archival research and physical analysis of the both of these resources indicate that they are likely related to 20th century activity. No prehistoric sites are known within the project area.

In summary, the Corps is continuing consultation started by DWR. No known prehistoric resources are located within the project area. If there are any concerns not previously voiced to DWR, please feel free to contact us. Comments or questions may be sent to Ms. Nikki Polson, CESPK-PD-RC, U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814; email at nikki.polson@usace.army.mil; or phone at (916) 557-6977.

Sincerely,

Alicia E. Kirchner
Chief, Planning Division

Enclosure

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

REPLY TO
ATTENTION OF

Environmental Resources Branch

FEB 27 2012

Mr. Charlie Wright
P.O. Box 1630
Williams, CA 95987

Dear Mr. Wright:

I am writing to continue consultation on a Department of Water Resources (DWR) project on Cache Creek at 3.9L and 4.2L. Two additional locations, 2.8L and 3.4L, have been added to this project (Enclosure 1). DWR has asked for permission to setback Federal project levees pursuant to Section 408 of the Rivers and Harbors Act of 1899. DWR plans to construct a short setback levee at each of the locations.

In 2007 and 2012, DWR consulted with your Tribe concerning locations 3.9L and 4.2L. No concerns have been brought up to date to DWR. In 2011, two historic properties were identified within the area of potential effect for 3.9L: County Road 99A (P-57-573) and Cache Creek Historic Site #1 (CCHS #1). Site P-57-573 is a single lane rural county road split into two parallel 0.5 mile segments. CCHS #1 appears to be the remnants of a historic homestead consisting of a historic barn, palm trees, and debris pile. Archival research and physical analysis of the both of these resources indicate that they are likely related to 20th century activity. No prehistoric sites are known within the project area.

In summary, the Corps is continuing consultation started by DWR. No known prehistoric resources are located within the project area. If there are any concerns not previously voiced to DWR, please feel free to contact us. Comments or questions may be sent to Ms. Nikki Polson, CESPK-PD-RC, U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814; email at nikki.polson@usace.army.mil; or phone at (916) 557-6977.

Sincerely,

Alicia E. Kirchner
Chief, Planning Division

Enclosure

Appendix D

Natural Resource Conservation District

Form AD 1006: Farmland Conversion Rating

NRCS Natural Resources Conservation Service

CACHE CREEK SETBACK LEVEE
- IMPORTANT FARMLAND MAP -

Date: 1/4/2012

Customer(s): ARMY CORPS OF ENGINEERS

District: YOLO COUNTY RESOURCE CONSERVATION DISTRICT

Field Office: WOODLAND SERVICE CENTER

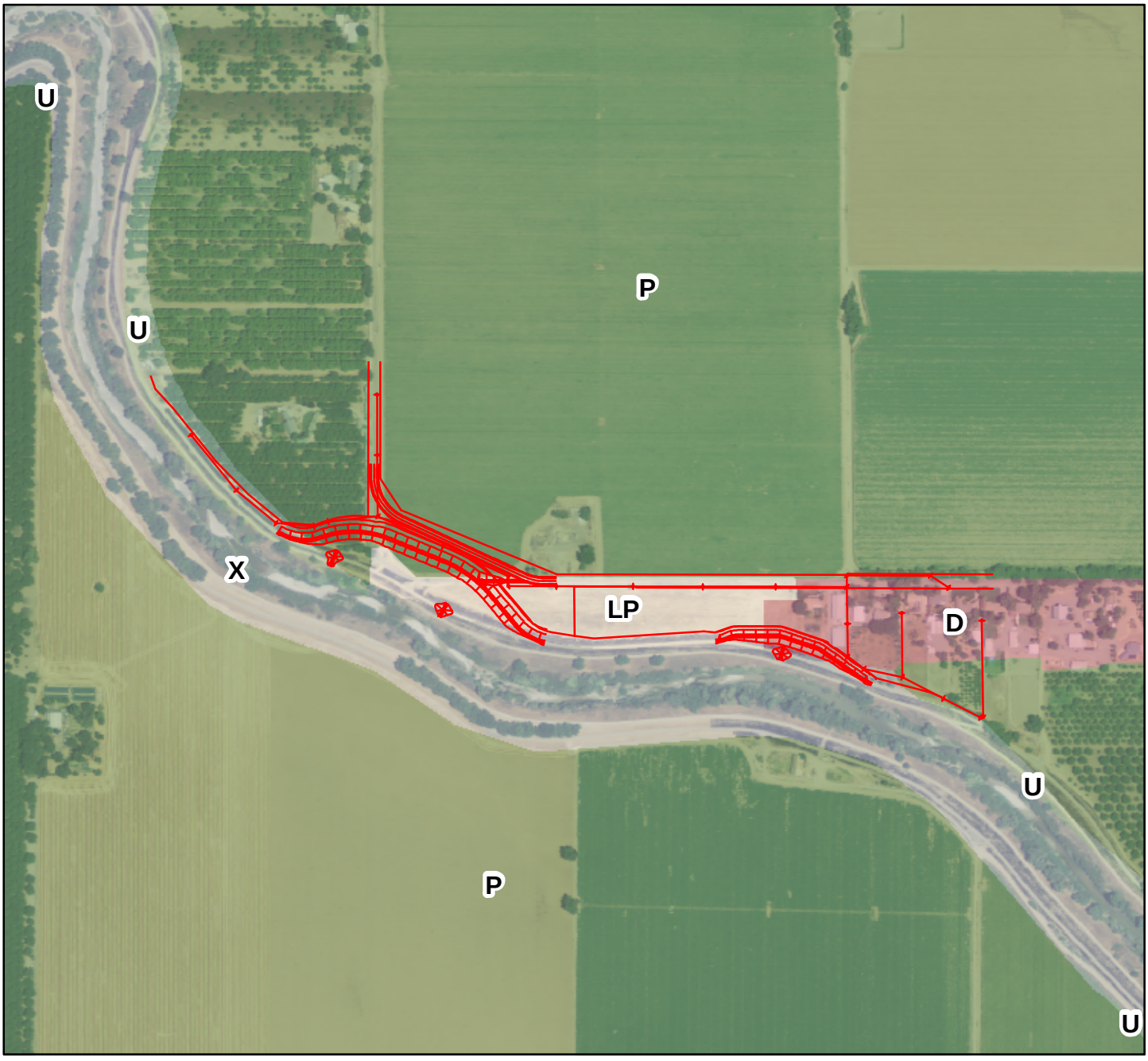
Agency: USDA Natural Resources Conservation Service

Assisted By: PHIL HOGAN

State and County: CA, YOLO

380 0 380 760 1,140 1,520

Feet



Legend

- CC_LM39_42_SBLevee_20120103
- Railroad
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Grazing Land
- Urban and Built-Up Land
- Other Land
- Water
- Farmland of Local Potential
- Irrigated Farmland
- Nonirrigated Farmland
- Not Surveyed

DATA:
CA Department of Conservation
Division of Land Resource Protection
Farmland Mapping & Monitoring Program

CACHE CREEK SETBACK LEVEE

Date: 1/4/2012

Customer(s): ARMY CORPS OF ENGINEERS

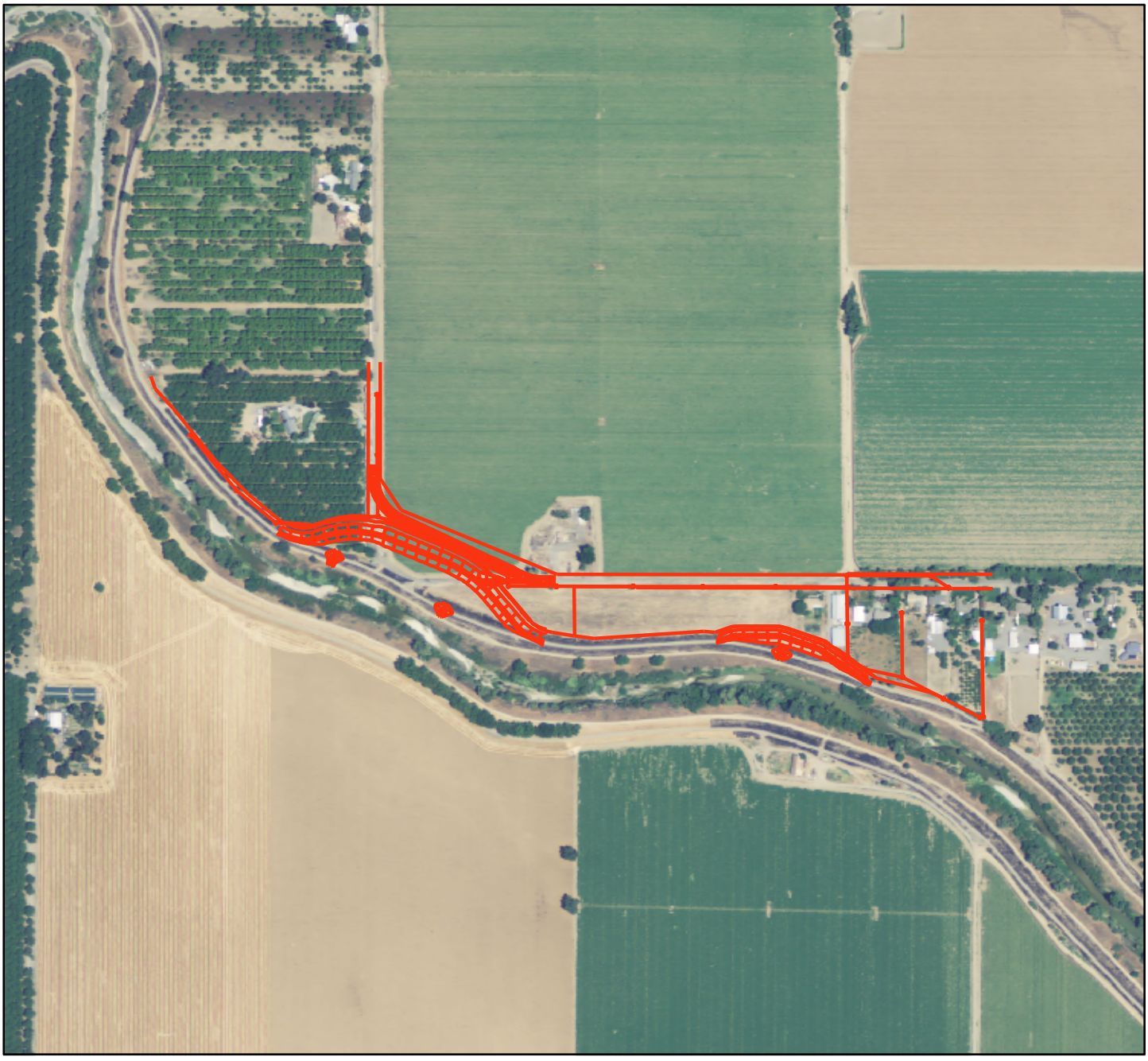
District: YOLO COUNTY RESOURCE CONSERVATION DISTRICT

Field Office: WOODLAND SERVICE CENTER

Agency: USDA Natural Resources Conservation Service

Assisted By: PHIL HOGAN

State and County: CA, YOLO



Legend

- CC_LM39_42_SBLevee_20120103
- Railroad

330 0 330 660 990 1,320

Feet

NRCS Natural Resources Conservation Service

IMAGE:
2009 Aerial Photography
USDA Farm Service Agency

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 12/30/11
Name Of Project Cache Creek Setback Levee Project	Federal Agency Involved U.S. Army Corps of Engineers
Proposed Land Use Setback Levee	County And State Yolo County, CA
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☑	No ☐	Acres Irrigated 246,341	Average Farm Size 488
Major Crop(s) Tomatoes, rice, wheat, grapes	Farmable Land In Govt. Jurisdiction Acres: 311,307 % 48		Amount Of Farmland As Defined in FPPA Acres: 390,252 % 60	
Name Of Land Evaluation System Used Revised Storie Index	Name Of Local Site Assessment System		Date Land Evaluation Returned By NRCS 1/17/12	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	8.4			
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	8.4	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	3.4			
B. Total Acres Statewide And Local Important Farmland	0.0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.0			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	17.0			
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	98	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use		15			
2. Perimeter In Nonurban Use		10			
3. Percent Of Site Being Farmed		5			
4. Protection Provided By State And Local Government		20			
5. Distance From Urban Builtup Area		15			
6. Distance To Urban Support Services		10			
7. Size Of Present Farm Unit Compared To Average		0			
8. Creation Of Nonfarmable Farmland		10			
9. Availability Of Farm Support Services		5			
10. On-Farm Investments		4			
11. Effects Of Conversion On Farm Support Services		0			
12. Compatibility With Existing Agricultural Use		0			
TOTAL SITE ASSESSMENT POINTS	160	94	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	98	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	94	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	192	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

This form was electronically produced by National Production Services Staff

Clear Form

Form AD-1006 (10-83)

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
Woodland Service Center (Yolo County)
221 West Court Street Suite 1
Woodland, CA 95932-3246
(530) 662-2037 X 111
(530) 662-4876 (Fax)

January 17, 2012

Natalie Houghton
US Army Corps of Engineers
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, CA 95814

Dear Ms. Houghton:

RE: Farmland Conversion Impact Rating, Cache Creek Setback Levee Site

Dear Ms. Houghton:

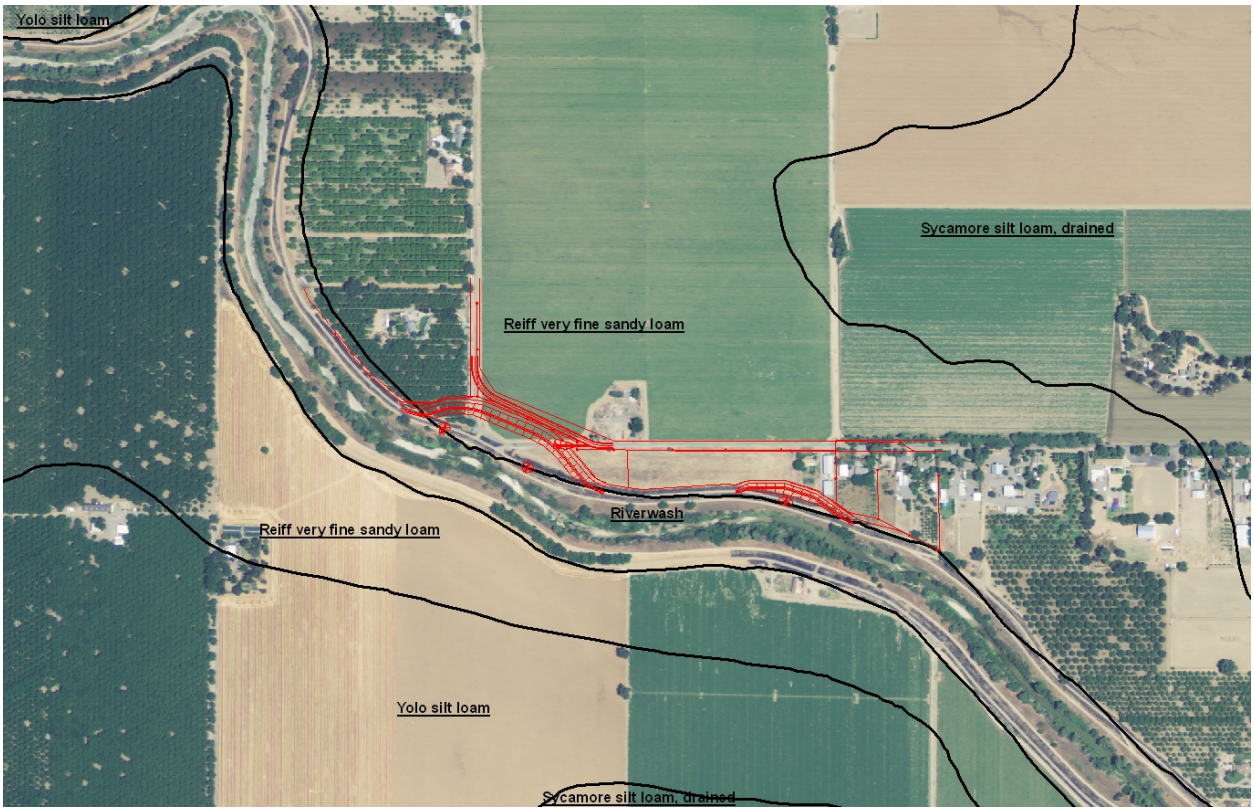
Please find enclosed a copy of the following:

1) Form 1006, Farmland Conversion Impact Rating
2) Soils Map for Project Area
3) Documentation for Part II and IV for the 1006 form.

Soil Map

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
Woodland Service Center (Yolo County)
221 West Court Street Suite 1
Woodland, CA 95932-3246
(530) 662-2037 X 111
(530) 662-4876 (Fax)



Soil Inventory

Soil Symbol	Acres	Storie Index	Category
Ra: Reiff very fine sandy loam	**3.4**	**98**	**Prime, if irrigated**
TOTAL:	**3.4**		

PART IVC, Form Ad-1006, Farmland Conversion Impact Rating

Acres to be converted/acres farmland in county X 100 = 3.4/390,252 X 100 = **.0009%**

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
Woodland Service Center (Yolo County)
221 West Court Street Suite 1
Woodland, CA 95932-3246
(530) 662-2037 X 111
(530) 662-4876 (Fax)

PART V

Soil Symbol	Acres	Storie Index	Product
Ra: Reiff very fine sandy loam	**3.4**	**98**	**333.2**
TOTAL:	**3.4**		**333.2**

333.2/3.4 = **98**

PART IVD

Acres to be converted/acres with soils with Storie Index **98** or higher.

Soil Symbol	Soil Name	Storie Index Rating	Acres in County
Ra	Reiff very fine sandy loam	98	6,847
TaA	Tehama loam, 0 to 2 percent slopes	98	16,622
Ya	Yolo silt loam	98	39,698
Za	Zamora loam	98	3,466
		TOTAL ACRES:	**66,633**

++(correlating with 1006 form): Percentage of farmland in government jurisdiction with same or relative higher value = 66,633 /390,252 X 100 = **17% (SEVENTEEN PERCENT)**

Note: What this tells us is that since the average weighted Storie Index for this parcel is 98, that there are a total of 66,633 acres in Yolo County that have a Storie Index of 98 or greater, and that the percentage of soils in Yolo County that are farmland that have a Storie Index of 98 or above is 17%

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
Woodland Service Center (Yolo County)
221 West Court Street Suite 1
Woodland, CA 95932-3246
(530) 662-2037 X 111
(530) 662-4876 (Fax)

+Percentage of farmland to be converted with same or relative higher value = 3.4/66,633 X 100 **= .005% (FIVE-TENTHs OF ONE PERCENT)**

If there are any questions, please feel free to contact me.

Sincerely yours

PHIL HOGAN
District Conservationist

CACHE CREEK SETBACK LEVEE
- SOILS MAP -

Date: 1/4/2012

Customer(s): ARMY CORPS OF ENGINEERS

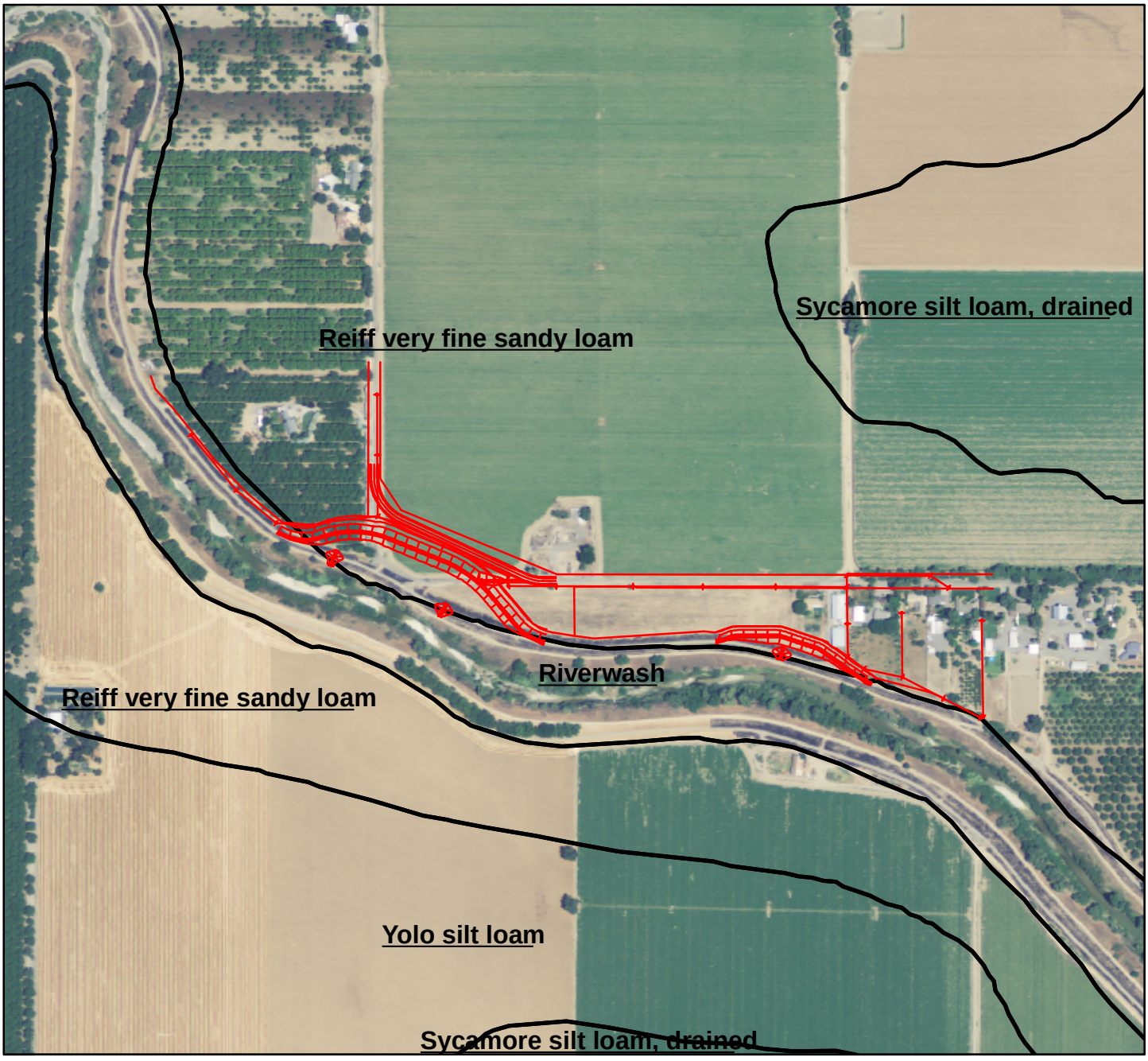
District: YOLO COUNTY RESOURCE CONSERVATION DISTRICT

Field Office: WOODLAND SERVICE CENTER

Agency: USDA Natural Resources Conservation Service

Assisted By: PHIL HOGAN

State and County: CA, YOLO



Legend

- CC_LM39_42_SBLevee_20120103
- Railroad
- Soils

370 0 370 740 1,110 1,480

Feet

NRCS Natural Resources Conservation Service

DATA:
USDA NRCS
Soil Survey of Yolo County, CA

Appendix E

Modeled Noise Levels

Project-Generated Construction Source Noise Prediction Model

Cache Creek North Levee Setback Project Critical Erosion Site Lm 3.9L and LM 4.2L

EDAW | AECOM

Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold*	1200	51.8
	50	88.1
	100	80.2
	150	75.5
	200	72.2
	250	69.7
	300	67.6
	350	65.8
	400	64.3
	450	63.0
	500	61.8
	550	60.7

Assumptions:	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Excavator	85	0.4
Dozer	85	0.4
Front End Loader	80	0.4
Scraper	85	0.4
Grader	85	0.4
Dump Truck	84	0.4

Ground Type	Soft
Source Height	5
Receiver Height	8
Ground Factor	0.63

Predicted Noise Level [2]	L_{eq} dBA at 50 feet[2]
Excavator	81.0
Dozer	81.0
Front End Loader	76.0
Scraper	81.0
Grader	81.0
Dump Truck	80.0
Combined Predicted Noise Level (L_{eq} dBA at 50 feet)	
88.1	

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006.

[2] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006.

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

*Project specific threshold (Madera 1995)