# ATTACHMENT F

# CEQA DOCUMENTATION

# Draft
# Environmental Assessment/Initial Study (EA/IS) for Seepage Repair in Reclamation District 404, San Joaquin River, River Mile 42.1 To 42.3, Right Bank Stockton, California

## Department of Water Resources Levee Stability Program

State of California
Department of Water Resources
Division of Flood Management
Levee Repair Branch

Attn: Deborah Condon
Chief, Environmental Support Section
3464 El Camino Ave, Room 200
Sacramento, CA 95821
(916) 574-1426

June 21, 2009

**DATE**: June 21, 2010

**TO:** Responsible and Trustee Agencies, Interested Parties, and Organizations

SUBJECT: NOTICE OF AVAILABILITY AND INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR A SEEPAGE REPAIR IN RECLAMATION DISTRICT 404, SAN JOAQUIN RIVER, RIVER MILE 42.1 TO 42.3, RIGHT BANK STOCKTON, CALIFORNIA, DEPARTMENT OF WATER RESOURCES LEVEE STABILITY PROGRAM

The Department of Water Resources (DWR) has directed the preparation of this Environmental Assessment/Initial Study and intends to adopt a Proposed Mitigated Negative Declaration (MND) for the proposed Project in compliance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines. DWR is the lead agency for the proposed project under CEQA.

**Project Location:** The proposed project would be located in the southeast incorporated area of the City of Stockton, San Joaquin County along a 1,200 foot reach of the San Joaquin River right bank (R) levee of the federal San Joaquin and Tributaries Flood Project at the midline of the levee crown between San Joaquin River Miles (RM) 42.1R and RM 42.35R. The proposed Project is immediately upstream of the State Highway 4 Garwood Bridge and downstream of the Van Buskirk Golf Course.

**Description of the Proposed Project:** DWR is proposing to implement seepage remediation by constructing a cement-bentonite slurry wall through the existing levee that protects an urban residential area and State Highway 4 near the Garwood Bridge where it crosses the San Joaquin River. The proposed construction would remediate the seepage threat to complete the repair of a critically designated erosion site at RM 43.2 R. The waterside erosion repair work at the site was completed in 2008.

The construction of the slurry wall will prevent damage to or loss of the levee integrity that may result from through and under-seepage and boils, as observed during prior high water conditions at the site (1997, 1998 and 2006). The construction would be carried out in accordance with the regulations and standards prescribed by the United States Army Corps of Engineers (USACOE) for providing levee protection. This site was identified as being critical and the highest priority for repair in November 2008 from among over 150 erosion sites initially documented in 2006 in responses to the Governors' Declaration of a State of Emergency for California Levees in February 24, 2006. Exploratory geotechnical borings in 2008 and 2010 documented subsurface conditions underlying the threat of through and under seepage of the levee. These assessments coupled with the history of seepage and boils on the landside underscore the need for immediate remediation to prevent levee failure.

The 2-feet wide cement-bentonite slurry wall would be constructed to an average depth of approximately 40 feet below the levee crown to extend into competent clayey soils. The proposed repair would temporarily degrade the levee crown approximately 3 feet to provide a more stable platform for slurry wall construction. The crown would be reconstructed and the levee crown aggregate base road surface rebuilt. The repairs will protect-in-place existing waterside vegetation consistent with guidelines set forth in the California Levees Roundtable *California's Central Valley Flood System Improvement Framework*, February 27 2009 (Framework Agreement). However, 8 landside non-native eucalyptus trees will be removed to be compliant with the Framework Agreement. No excavation would occur in the channel and construction would occur from landside.

This work is also being done in advance of federal authorization and a Section 408 permission (Section

14 of the Rivers and Harbors Act of 1899 (33 United States Code [USC] 408) which is concurrently being pursued. This is the basis for preparation of a joint State and federal document.

DWR has directed the preparation of an EA/IS/MND on the proposed project in accordance with the requirements of CEQA and NEPA. An EA/IS/MND describes the project and its potential impacts on the environment and concludes that any potentially significant impacts that may result from the proposed project can be avoided, eliminated, or reduced to a level that is less than significant, by the adoption and implementation of specified mitigation measures.

**Public Review Period:** The EA/IS/MND is being circulated for public review and comment for a review period of 30 days starting June 25, 2010. Written comments should be submitted and received at the following address or via email no later than close of business (4:00 p.m.) on July 24, 2010:

Deborah Condon,
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Copies of the EA/IS/MND may be reviewed at the Cesar Chavez Central Library branch of the Stockton County Library, located at 605 N. El Dorado St, Stockton, CA, during normal business hours. Your views and comments on how the project may affect the environment are welcomed.

# PROPOSED MITIGATED NEGATIVE DECLARATION

**PROJECT:** A Seepage Repair in Reclamation District 404, San Joaquin River, River Mile 42.1 To 42.3, Right Bank, Stockton, California, Department Of Water Resources Levee Stability Program

**LEAD AGENCY:** California Department of Water Resources (DWR)

**PROJECT BACKGROUND:** This site at RM 42.3 R was identified as critical and of the highest priority for repair in November 2008 from among over 150 erosion sites initially documented in 2006 in responses to the Governors' Declaration of a State of Emergency for California Levees in February 24, 2006. Under this declaration, the Department of Water Resources was directed to perform all necessary activities to alleviate the emergency in accordance with the State Emergency Plan. Exploratory geotechnical borings in 2008 and 2010 documented subsurface conditions underlying the threat of through and under seepage of the levee. These assessments coupled with the history of seepage and boils on the landside underscore the need for immediate remediation to prevent levee failure. The seepage remediation would complete the repair of the critical erosion site at RM 43.2R. The waterside erosion repair work at the site was constructed in 2008.

**Project Location:** The proposed project would be located in the southeast incorporated area of the City of Stockton, San Joaquin County along a 1,200 foot reach of the San Joaquin River right bank (R) levee of the federal San Joaquin and Tributaries Flood Project at the midline of the levee crown between San Joaquin River Miles (RM) 42.1R and RM 42.35R. The proposed Project is immediately upstream of the State Highway 4 Garwood Bridge and downstream of the Van Buskirk Golf Course.

**Project Description:** The Project would implement seepage remediation by constructing a slurry wall (seepage cutoff wall) through the existing levee that protects an urban residential area and State Highway 4 near the Garwood Bridge where the bridge crosses the San Joaquin River. The construction of the slurry wall will prevent damage to or loss of the levee integrity that may result from through seepage and boils, as observed during prior high water conditions at the site (1997, 1998 and 2006). The construction would be carried out in accordance with the regulations and standards prescribed by the United States Army Corps of Engineers (USACOE) for providing levee protection.

The 2-feet wide cement-bentonite slurry wall would be constructed to an average depth of approximately 40 feet below the levee crown to extend into competent clayey soils. The proposed repair would temporarily degrade the levee crown approximately 3 feet to provide a more stable platform for slurry wall construction. The crown would be reconstructed and the levee crown aggregate base road surface rebuilt. The repairs will protect-in-place existing waterside vegetation consistent with guidelines set forth in the California Levees Roundtable *California's Central Valley Flood System Improvement Framework*, February 27, 2009 (Framework Agreement). However, 8 landside non-native eucalyptus trees will be removed to be consistent with the Framework Agreement guidelines. No excavation would occur in the channel and construction would occur from landside.

**FINDINGS:** An EA/IS has been prepared to assess the proposed project's potential effects on the environment and the significance of those effects. Using the results of the IS, DWR has determined that the proposed project would not have any significant effects on the environment once mitigation measures are implemented. This conclusion is supported by the following findings:

- The Project would result in no impacts to agricultural and forestry resources; population and

housing; land use and planning; mineral resources; public utilities and service systems, and environmental justice.

- The Project would result in less-than-significant impacts to aesthetics/visual resources; recreation, and climate change.

- Mitigation would be implemented to reduce potentially significant impacts to less-than-significant levels for cultural resources (potential discovery of previously unknown resources or human remains during construction); wildlife, fish and vegetation resources; special-status species; hydrology and water quality (potential turbidity from soil dispersal and spills of hazardous substances during construction); geology and soils (potential soil escape to air and water); air quality (dust generation); transportation/traffic (increased traffic circulation); noise (short-term construction-related noise); and hazards and hazardous materials (potential spills of hazardous substances during construction).

**Mandatory Findings of Significance:**

- The Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of a special-status species, or eliminate important examples of California history or prehistory.

- The Project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals.

- The Project would not have environmental effects that are individually limited but cumulatively considerable.

- The Project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

- No substantial evidence exists that the project would have a significant negative or adverse effect on the environment.

**MITIGATION MEASURES:** The following mitigation measures will be implemented by DWR to avoid or minimize potential environmental impacts. Implementation of these mitigation measures would reduce the potential environmental impacts of the proposed project to a less-than-significant level.

- **Mitigation Measure 4.4.4 Cultural Resources**: Immediately halt construction activities if any cultural resources are discovered until an evaluation is made by a qualified archaeologist. Immediately halt construction activities if any human remains are discovered and report to the applicable county and other officials.

- **Mitigation Measure 4.5.4 Vegetation and Wildlife Resource:** Conduct bird surveys during the same calendar year that construction is planned. Establish “no disturbance” buffers near any active nest of migratory bird species. Implement Best Management Practices (BMPs) to protect water quality and aquatic habitat from increased suspended sediment, sedimentation, and chemical pollutants during construction.

- **Mitigation Measure 4.6.4 Special Status Species:** Conduct Worker Environmental Awareness Program (WEAP) training for crews prior to construction activities.

    - *Swainson's hawk and other raptors:* Conduct pre-construction surveys for raptor nests and avoid any active nests onsite during breeding and nesting season (March through August).

    - *Burrowing Owls:* Conduct pre-construction surveys for owl burrows and follow DFG protocol for avoidance and relocation if active burrows and owls are found.

    - *Special Status Fish:* Contact appointed biological monitor for dead, injured or entrapped fish species. Fish shall be photographed and returned to the river downstream of the project site. Prepare a Cement-Bentonite Spill Prevention and Emergency Response Plan.

    - *Special Status Plants:* Avoid direct impact or relocate to a temporary nursery and replant in the same area following construction.

    - *Giant Garter Snake:* Conduct pre-construction surveys within 24-hours of work commencement for evidence of snake presence. Halt all activity and contact appointed biological monitor if a snake is encountered during construction. Allow any snakes encountered during construction to move away on their own. Report any incidental take to the Sacramento U.S. Fish and Wildlife Service by phone within one working day. Construction activities will be conducted between May 1 and October 1 to the extent possible. If work will extend past October 1, clear, grub and grade all areas no later than October 1 to fill in rodent burrows and cracks.

- **Mitigation Measure 4.7.4 Hydrology and Water Quality:** Prepare and implement a Storm Water Pollution Prevention Plan (SWPPP), Hazardous Materials Management Plan, and a Cement-Bentonite Spill Prevention and Emergency Response Plan. Schedule construction to avoid the rainy season if possible, but if rains are forecast, implement erosion control measures.

- **Mitigation Measure 4.8.4 Geology and Soil:** Prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and BMPs.

- **Mitigation Measure 4.9.4 Air Quality:** Maintain properly functioning emission control devices on all vehicles and equipment. Use diesel fuel vehicles manufactured in 2003 or later or retrofit vehicles to meet 2003 diesel standards. Implement all appropriate dust control measures including covering of stockpiled materials; periodic watering of construction area to reduce dust generation; suspending all grading and earthmoving activities when winds exceed 20 MPH, covering all material or maintaining sufficient top-of-load freeboard while transporting by truck. Revegetate cleared area in a timely manner to control fugitive dust.

- **Mitigation Measure 4.11.4 Transportation/Traffic:** Prepare a Traffic Control Plan for review and approval of Caltrans prior to construction; maintain access for emergency vehicles at all times. Though none are planned, if road closures were to occur, coordinate with local fire, police and emergency medical responders. Do not block driveways or any roadways; use flag personnel as needed to avoid conflict with construction vehicles or equipment; select haul routes to avoid schools, parks and high pedestrian use area; repair roads damaged by construction.

- **Mitigation Measure 4.12.4 Noise:** Construction equipment shall be properly maintained and equipped with noise control devices. Construction would be limited to between 6:00 a.m. to 8:00

p.m., Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturday. A disturbance coordinator will be designated to take public complaints and implementing any feasible measures to alleviate complaints.

- **Mitigation Measure 4.13.4 Hazards and Hazardous Materials:** All construction materials shall be certified by the suppliers as being free of hazardous, toxic or radioactive waste (HTRW); the contractor shall prepare a Hazardous Material Control and Response Plan, an Environmental Protection Plan, a Hazardous Materials Contingency Plan, and a SWPPP. BMPs shall be implemented to prevent possible discharge of hazardous materials.

The Project incorporates all applicable mitigation measures, as listed above and described in the EA/IS.

This MND reflects the independent judgment of the lead agency, DWR.

**AVAILABILITY OF DOCUMENTS:** The environmental assessment/initial study (EA/IS) and proposed mitigated negative declaration (MND) is available for review at the Cesar Chavez Central Library branch of the Stockton County Library, located at 605 N. El Dorado St, Stockton, CA.

Any questions or comments regarding this IS/MND may be addressed to:

Deborah Condon, Chief
Environmental Support Section
Department of Water Resources
Division of Flood Management
3464 El Camino Ave, Room 200
Sacramento, CA 95821

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In accordance with Section 21082.1 of the California Environmental Quality Act, DWR has independently reviewed and analyzed the environmental assessment, initial study and proposed mitigated negative declaration for the proposed Project and finds that the environmental assessment; initial study and proposed mitigated negative declaration reflect the independent judgment of DWR. The lead agency further finds that the Project mitigation measures will be implemented as stated in the mitigated negative declaration.

I hereby approve this project:

_____ _____

Gary Bardini, Chief
Division of Flood Management
California Department of Water Resources

Date

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AB | California State Assembly bill |
| ADT | average daily traffic |
| AG | Agriculture |
| AQAP | Air Quality Attainment Plan |
| ARB | California Air Resources Board |
| BMP | best management practices |
| CAA | Clean Air Act |
| CAAA | Clean Air Act amendments |
| Cal OSHA | California Occupational Health and Safety Administration |
| Cal/EPA | California Environmental Protection Agency |
| Caltrans | California Department of Transportation |
| CARB | California Air Resources Board |
| CCIC | Central California Information Center |
| CCR | California Code of Regulations |
| CDMG | California Division of Mines and Geology |
| Central Valley RWQCB | Central Valley Regional Water Quality Control Board |
| CEQA | California Environmental Quality Act |
| CFR | Code of Federal Regulations |
| Cfs | cubic feet per second |
| CHP | California Highway Patrol |
| CNDDB | California Natural Diversity Database |
| CNEL/$L_{dn}$ | Community Noise Equivalent and Day-Night noise levels |
| CNPS | California Native Plant Society |
| CO | Carbon monoxide |
| CR | County Road |
| CRHR | California Register of Historic Resources |
| CVFPB | Central Valley Flood Protection Board |
| CWA | Clean Water Act |
| CY | cubic yards |
| dBA | A-weighted decibels |
| DFG | California Department of Fish and Game |
| DOC | California Department of Conservation |
| DTSC | California Department of Toxic Substances Control |
| DWR | California Department of Water Resources |
| EA | Environmental Assessment |
| EIR | Environmental Impact Statement (State) |
| EIS | Environmental Impact Statement (Federal) |
| EO | Executive Order |
| EPA | U.S. Environmental Protection Agency |
| ESA | Federal Endangered Species Act |
| FHWA | Federal Highway Administration |
| FONSI | Findings of No Significant Impact |
| FPD | Fire Protection District |
| FTA | Federal Transit Administration |
| GHG | Greenhouse Gas |
| HCP | Habitat Conservation Plan |
| HTRW | hazardous, toxic, or radioactive waste |

| | |
|---|---|
| I-5 | Interstate 5 |
| in/sec | inches per second |
| IS/MND | Initial Study/Proposed Mitigated Negative Declaration |
| IWM | Instream woody material |
| MLD | Most Likely Descendent |
| MRZs | Mineral Resource Zones |
| NAHC | Native American Heritage Commission |
| NCCP | Natural Communities Conservation Plan |
| NMFS | National Marine Fisheries Service |
| NOI | Notice of Intent |
| NO X | Nitrogens of oxide |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | U.S. Natural Resources Conservation Service |
| OAP | Ozone Attainment Plan |
| OES | Office of Emergency Services |
| 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 |
| PPV | peak particle velocity |
| Proposed project | San Joaquin Flood Protection Project 2008 Five Critical Erosion Repair Sites |
| RM | River Mile |
| ROG | reactive organic gases |
| RWQCB | Regional Water Quality Control Board |
| SB | California State Senate bill |
| SCS | Soil Conservation Service |
| SH | State Highway |
| SIP | State implementation plan |
| SJ | San Joaquin |
| SJFPP | San Joaquin Flood Protection Program |
| SJMSCP | San Joaquin Multi-Species Habitat Conservation and Open Space Plan |
| SJVAPCD | San Joaquin Valley Air Pollution Control District |
| SMARA | California Surface Mining and Reclamation Act |
| SOX | oxides of sulfur |
| SPAL | Small Projects Analysis Level – SJVAPCD's pre-calculated thresholds |
| SR | State Route |
| SWPPP | Storm Water Pollution Prevention Plan |
| TMDL | Total Maximum Daily Load |
| tpy | tons per year |
| TSS | Total Suspended Solids |
| URBEMIS | Urban Emissions air quality model |
| USACE | U.S. Army Corps of Engineers |
| USFWS | United States Fish and Wildlife Service |
| VELB | Valley elderberry longhorn beetle |
| vibration decibels | VdB referenced to 1 microinch per second and based on the root mean square |
| VMT | vehicle miles traveled |
| µin/sec | 1 micro inch per second |

# 1. PROJECT PURPOSE AND NEED FOR ACTION

## 1.1 Proposed Action

The Department of Water Resources (DWR) is proposing construction of an approximately 40 foot deep and 2 foot wide cement-bentonite slurry wall along a 1,200 linear foot length of the right bank levee the San Joaquin River within the city limits of southwest Stockton, California to remediate seepage potential (Figure 1). This river reach was identified in 2006 as being critically in need of erosion repair which was remediated at several locations in 2008 and 2009 waterside repair (rock slope protection). However the area immediately landside of one of the erosion repairs, RM 43.2R has a history of seepage and sand boils occurring approximately within 70 feet of the landside levee toe during the high flow event of April 2006. Under and through seepage has been reported along various sections of this levee reach during earlier high flow events in 1997 and 1998. Detailed geologic explorations indicate that the levee is underlain by a thick zone of silty sand, poorly-graded sand and clayey sand that permits under seepage. The previous occurrences of sand boils and these subsequent geotechnical analyses indicate that the levee is vulnerable to catastrophic failure during high flow events. Though erosion repairs were complete in 2008 at RM 43.2R, the vulnerability of the levee from through and under seepage retains its critical status and the highest priority for repair under the Governor's Emergency Declaration. The slurry wall would penetrate the levee at the midpoint of the crown and subsurface soils and sand horizon and tie into in the thick low permeability clay at approximately 40 feet in depth thereby remediating this threat.

The Project would be constructed in accordance with the regulations and standards prescribed by the Corps for providing levee protection. The repair as proposed would serve to protect the integrity of the levee system and provide flood protection to the immediately adjacent residential community neighborhood, State Highway 4 - a major east-west transportation corridor, and the City of Stockton Van Buskirk Public Golf Course.

The purpose of the Project is to remediate through seepage on the levee of the San Joaquin River to protect life and property from levee breach and potential flooding. The final goal is to maintain levees that will not fail under flood conditions.

Key objectives of the project are as follows:

1) Construct a slurry wall to remediate critical under and through seepage of the in accordance with regulations and standards prescribed by Corps to provide levee protection along the San Joaquin River at RM 42.1R through RM 42.3 R in the City of Stockton in San Joaquin County, California.

2) Construct the repairs before the start of the 2010–11 flood season, and

3) Minimize environmental impacts during project construction and operation.

**Figure 1. Regional location of Project Area**

## 1.2 Project Location

The Project is located within RD 404 along the federal levee of the San Joaquin River in the south west incorporated area of Stockton, San Joaquin County, California (Figure 1). This location is within the legal boundary of the Secondary Zones of the Sacramento-San Joaquin Delta (Delta) and is approximately 45 miles south of Sacramento. The San Joaquin River flows

in a south to north direction at the Project site and turns in a westerly direction Stockton harbor, approximately 2.5 miles downstream to join the Sacramento River approximately 40 miles to the west. The nearest tributary entering the river is French Camp Slough, less than a mile upstream. The Stanislaus River converges with the San Joaquin River approximately 30 miles upstream.

The Project is west of Interstate 5 (I-5) and immediately upstream and south of the State Highway 4 Garwood Bridge which spans the San Joaquin River (Figure 2). The levee repair reach extends south starting at from 10 feet south of the bridge footing for approximately 1,200 feet ending near the City outfall pump located at the former West 8th Street Bridge location and will tie into the remnant bridge foundation. A six acre vacant parcel is located on the landside of the levee to the east. Two of these acres will be used for a staging and storage area for construction equipment and material stockpiles. A residential street separates the parcel from properties east of the site consisting of single family homes and associated streets including Sunny Creek Court and McCloud River Road. Upstream and to the south of the project is the Van Buskirk Stockton Municipal Golf Course. The vacant parcel is owned by the City of Stockton, as is the golf course. The San Joaquin River is immediately to the west. The levee along the left bank of the San Joaquin River across from the Project site protects farmland and farmsteads and State Highway 4.

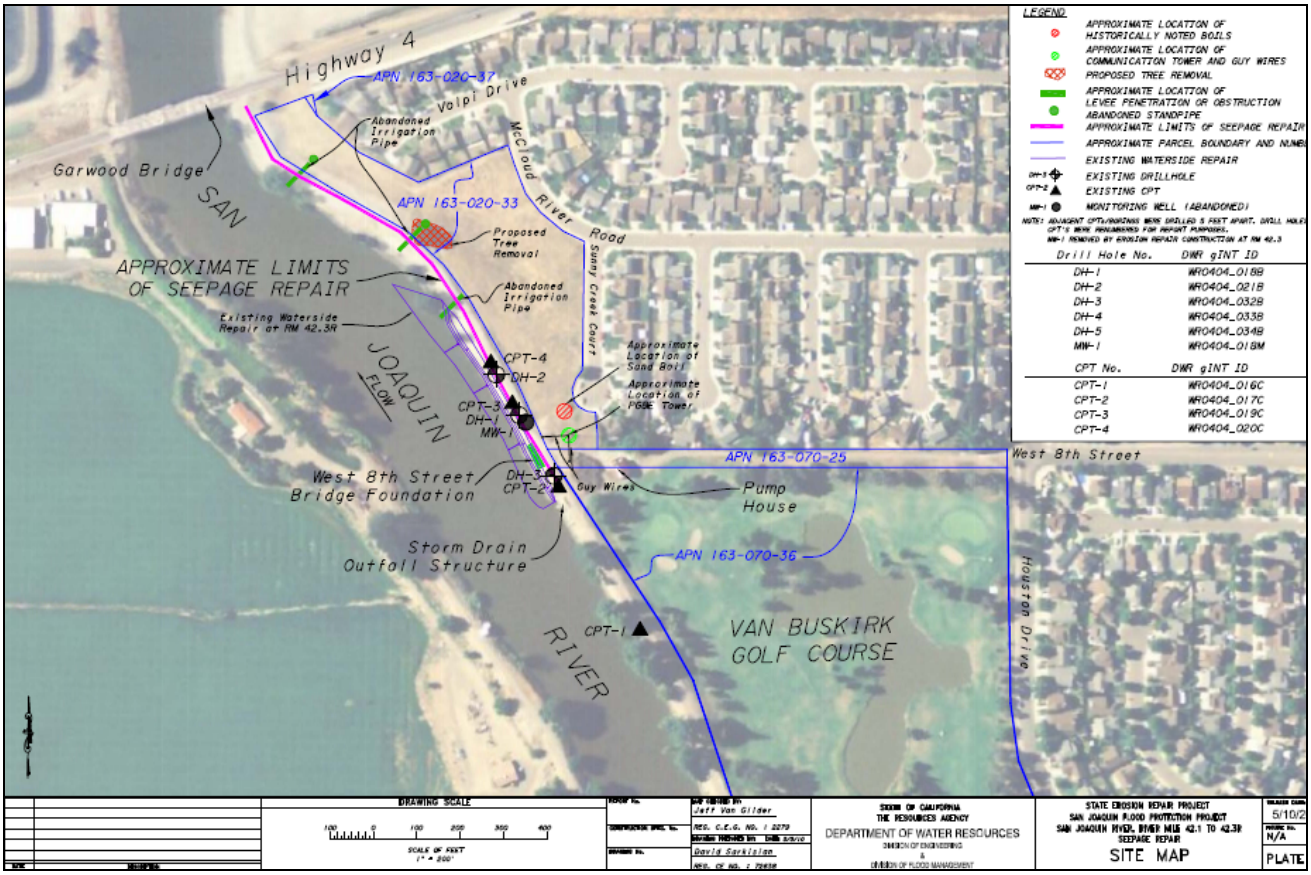


**Figure 2. Aerial view of the Project seepage repair location**

## 1.3 Background

The California Department of Water Resources (DWR) proposes to implement the Project under DWR's Levee Stability Repairs Program. The area immediately landside of the levee has a history of seepage and sand boils noted during the high water events of 1997, 1998 and 2006. The Project would complete the seepage repair of one of the 15 critical erosion sites identified for the levees of the federal Lower San Joaquin River and Tributaries Project (LSJRTP) in the DWR 2006 reconnaissance survey of the LSJRTP. (DWR 2006)

In February 2006, the Governor of California declared that a State of Emergency exists for the State's levee systems following extensive statewide flooding of winter 2005/2006. All State government agencies were directed to perform all necessary activities to alleviate the emergency in accordance with the State Emergency Plan (Governor Schwarzenegger 2006). DWR was directed to identify and repair critically eroded levee sites on California's levee system to prevent catastrophic flooding and loss of life. DWR immediately established a Critical Erosion Repairs Program with the goal of providing public safety through critical erosion repairs to levees in the Sacramento and the San Joaquin River Basins that are at risk of erosion failure during flood or normal flow conditions.

DWR quickly established the San Joaquin Flood Protection Project (SJFPP) to evaluate and repair the levees of the federal LSJRTP that protect areas of the San Joaquin Basin region from the effects of levee failure. The LSJRTP is a congressionally authorized flood control project that includes portions of the San Joaquin River, Old River, Middle River, Calaveras River, Stanislaus River, Fresno River, Kings River, Eastside Bypass, Mariposa Bypass, Chowchilla Canal Bypass, Ash Creek, Bear Creek, Berenda Slough, French Camp Slough, Mormon Slough and Paradise Cut.

In September 2006, DWR's Flood Project Integrity and Inspection Branch conducted a reconnaissance survey of the LSJRTP to evaluate approximately 150 sites in 14 for flood damage and other structural deficiencies. DWR used the Corps' erosion criteria for these flood damage assessments and to prioritize and fund levee repairs. Although initially developed to focus on erosion damage, the survey methodology has been applied to address other mechanisms of levee damage such as through seepage, under seepage, slope instability, rodent activity, and overtopping. The evaluation includes historical and maintenance information, hydrologic records, and visual observations from site reconnaissance trips used along with the best existing topographic information to approximate inundation areas and the likelihood of failure. The most severely damaged sites that are determined to likely fail during the next major flood event are designated as *critical.* DWR repaired six critical levee erosion sites during the late summer and fall of 2008 and 2009 and will repair a7th critical erosion during summer/fall of 2010.

## 1.4 Authority

In 2009, DWR established a new Levee Stability Program for both the Sacramento and San Joaquin flood control system to more specifically address mechanisms of levee damage other than only erosion such as through seepage, under seepage, and slope instability. DWR is authorized and funded by the State of California to carryout levee repairs under the Levee Stability Program along the LSJRTP that protect areas of the San Joaquin Valley region. This Project is an additional phase of a waterside critical erosion repair completed in 2008 at San Joaquin RM 42.3R. At that time, DWR repaired a 550-foot section of waterside erosion at RM 42.3R with erosion control protection (rock slope protection) under the Sacramento-San Joaquin Erosion Repair Program. This 2008 erosion repair is located within the southerly extent of the Project length and included the construction of a riparian bench and on-site environmental mitigation-planting of trees, willow pole cuttings, shrubs and native grasses.

DWR will actively seek local and federal cost-share partnerships to carry out these repairs**.** But unlike the Sacramento River Flood Control Project in the Sacramento River Basin, the LSJRTP in the does not have an active US Army Corps of Engineers(Corps)-State levee repair partnership parallel to the congressionally authorized Sacramento River Bank Protection Project. The Central Valley Flood Protection Board (CVFPB) is the State agency designated for the non-federal responsibility and cost-share with the Corps under a Federal Cost Share Agreement (FCSA). The CVFPB is requesting permission from the Corps to implement this projected under the authority of Section 14 of the Rivers and Harbors Act of 1899 (33 United States Code [USC] 408, hereinafter referred to as "Section 408" for alteration of federal project levees and will also seek advanced crediting under an additional Section 104 of Public Law 99-662 for local work to be credited toward future cost sharing after receiving Corps approval prior to construction, taking into account the economic and environmental feasibility of the project. If the proposed Project is approved for Section 408 authority, all designs and specifications will receive Corps technical review and approvals at multiple levels up to the level of the Chief of Engineers.

## 1.5 Purpose of the EA/IS

DWR has prepared this EA/IS in compliance with CEQA and NEPA to address the environmental consequences of the proposed construction of a slurry wall – the Project. The primary purpose of this EA/IS is to determine whether the proposed action would have a significant impact on the environment, and therefore require the preparation of an Environmental Impact Report/Environmental Impact Statement (EIR/EIS). This document describes existing environmental resources, evaluates the significance of environmental effects that may occur to those resources due to the proposed work; and, if the effects are determined to be significant, identifies measures that would mitigate the environmental effects. If potentially significant impacts are found to be insignificant after adoption of mitigation measures, it is anticipated that the Corps and DWR will adopt a Finding of No Significant Impact and a Mitigated Negative Declaration, respectively.

CEQA requires that all state and local government agencies consider the environmental consequences of projects they propose to carry out, or over which they have discretionary authority, before implementing or approving those projects. As specified in State CEQA Guidelines §15367, the public agency that has the principal responsibility for carrying out or approving a project is the lead agency for CEQA compliance. DWR is the CEQA lead and the

Corps would be the NEPA lead through the decisions and approvals required through the FCSA and under Section 408 approval process.

As specified in State CEQA Guidelines, if there is substantial evidence (such as the results of an IS) that a project, either individually or cumulatively, may have a significant effect on the environment, the lead agency must prepare an EIR. DWR, as lead agency may instead prepare an IS if it determines there is no substantial evidence that the project may cause a significant impact on the environment. The lead agency may prepare an MND if, in the course of the IS analysis, it is recognized that the project may have a significant impact on the environment but that implementing specific mitigation measures would reduce any such impacts to a less-than significant level. Therefore, an MND has been prepared for this project.

## 1.6 Decisions Needed

If this proposed Project receives approval from the Corps to be implemented under Section 408, under NEPA, the Corps' Sacramento District Engineer would decide whether the proposed work qualifies for a FONSI, or if an EIS is required. DWR has prepared this EA/IS as a joint document to evaluate the potential environmental effects of the proposed project and has incorporated mitigation measures to reduce or eliminate any potentially significant project-related impacts. This document includes: (1) an EA/IS to satisfy CEQA and NEPA requirements; (2) a MND to satisfy CEQA; and (3) a notice of availability and intent to adopt a MND for the proposed project. If the Corps decides to authorize this proposed Project under Section 408 authority, and after review of the EA/IS, the Corps would at that time prepare a FONSI to satisfy NEPA requirement and a notice of availability and intent to adopt the FONSI for the proposed Project.

After completion of the required 30-day public review of this document, DWR intends to adopt the MND and a Mitigation Monitoring Reporting Program, and approve the proposed Project. The Corps may seek to adopt the FONSI/EA, consistent with the approval process for Section 408.

# 2 ALTERNATIVES

## 2.1 Alternatives Eliminated From Further Consideration

As part of the project design process, the engineering and geotechnical staff from the DWR Levee Repairs Section prepared an Alternatives Analysis Report (May 2010) that addressed various approaches to repair of the site. The report identified the primary cause of seepage and sand boils at the site using geotechnical exploratory drill hole data, bathymetric surveys and monitoring well data to evaluate seepage and slope stability conditions. Three alternative designs were considered for the purpose of mitigating seepage deficiencies. The three alternatives were (1) a Slurry Wall, (2) a Seepage Berm with Pressure Relief Wells, and (3) a Slurry Wall with Add-on Levee.

The criteria for evaluating each alternative included the ability of each design to remediate both under seepage and through seepage included the ability to remedy the levee deficiency (through and under seepage), the need to acquire in-fee property, the construction cost, the maintenance requirements, and the longer-term safety of the repairs.

Through seepage occurs when water moves outward from the river channel through the levee cross section (Figure 3). The key problem associated with through seepage is levee breach or collapse, which occurs when the earthen material within the levee becomes internally eroded by the pressure of the seeping water. Soil piping can occur as the result of seepage. Soil piping is when a hole in a levee becomes exploited by moving water, causing the hole to rapidly increase and threaten the levee integrity. Several factors contribute to seepage, including high water pressure, and pervious earth material within the levee.

Similar to through seepage, under seepage is where water moves outward and downward from the river channel below the levee and surrounding land surface (see Figure 3). The key problem with under seepage is when the underlying soils are eroded and the levee becomes undermined by the pressure of the seeping water especially at the landside toe of the levee. Pressurization leads to piping and internal erosion of the foundation layers. As with through-seepage, soil piping may occur and threaten levee integrity. Piping undermines the levee leading to potential collapse of the levee into the undermined region.

The *Seepage Berm with Pressure Relief Wells* would require the construction of a 5-foot thick seepage berm of variable width between the levee and existing residential improvements east of the levee. The average width of the seepage berm is assumed to be 100 feet, but may vary between 40 and 150 feet and would consist of a 1.5-foot thick blanket drain extending from the levee embankment toe, a 2-foot thick gravel (ballast) layer, and a 1.5-foot thick compacted fill. To fully remediate the seepage and sand boil potential, the addition of pressure relief wells would be needed to reduce uplift pressures which may otherwise cause sand boils and piping of foundational materials. The wells would be installed near the terminus of the seepage berm and penetrate at least the upper 40 feet of coarse-grained soils.

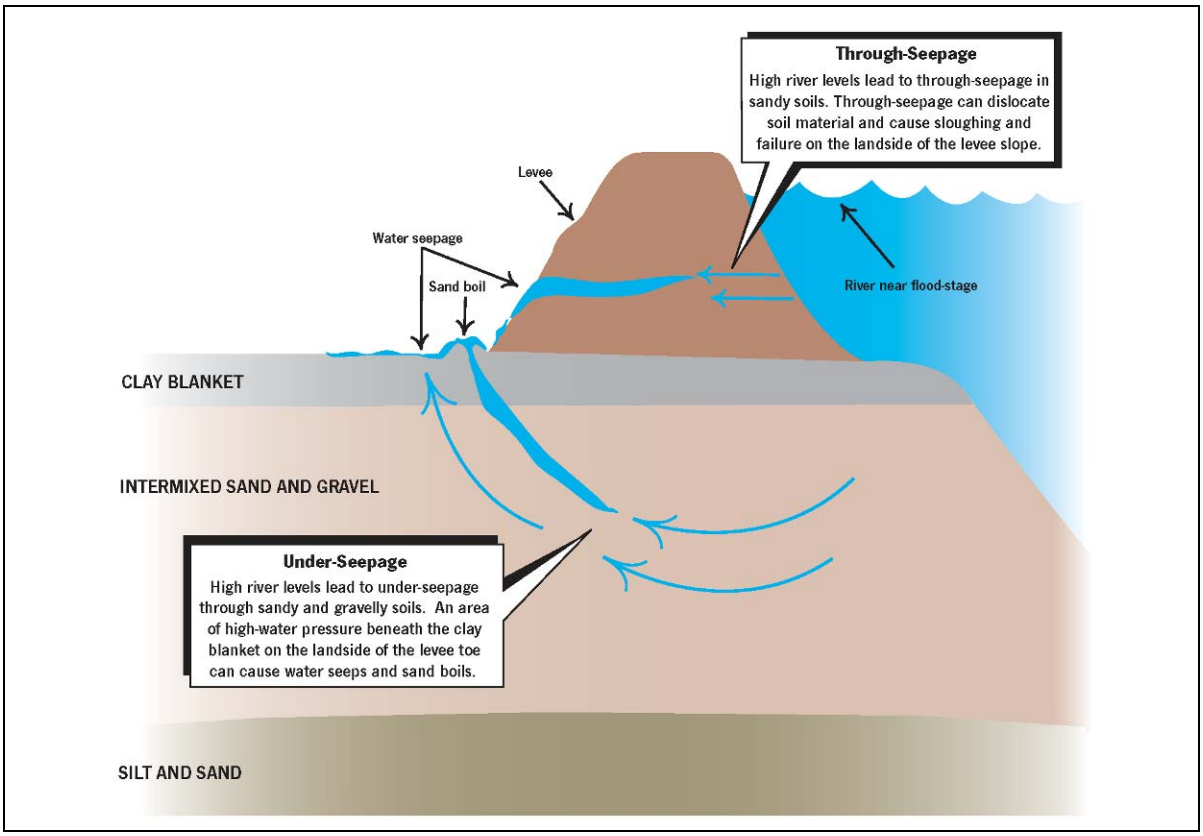


**Figure 3. Example of levee through and under seepage during high water levels**

The spacing of the wells would need to be sufficient to intercept enough seepage to effectively reduce hydrostatic pressures between and beyond the wells to safe levels. The pressure relief wells would be concentrated between the terminus of the seepage berm and adjacent residential improvements.

The *Seepage Berm with Pressure Relief Wells* alternative, though a technically feasible repair, it would not prevent through seepage. It also has greater the land acquisition requirement that would add additional cost and construction delays. Land acquisition costs would include an approximately 6 acre lot owned by the City of Stockton and two private residential lots with relocation of owners as an additional cost. On-going maintenance of both the wells and the associated collection system would be necessary for this alternative. The Reclamation District would be responsible for the monitoring and maintenance efforts needed to ensure that the system is fully operational. Such efforts would be necessary in perpetuity. This Alternative is vulnerable to failure if the wells become clogged due to corrosion, precipitation of minerals, or bacterial and algae growth. This alternative was eliminated as it only indirectly addresses seepage, has high land acquisition costs and a longer term and costly maintenance requirement.

The *Slurry Wall and Add-on Levee* would provide for the installation of the 2-feet wide cement-bentonite slurry wall at the toe of the landside slope with a shorter wall depth, an average depth of 35 feet. Following its installation, an add-on levee would be constructed against the landside slope. Under this alternative, the adjacent 6 acre parcel would need to be acquired since the footprint of the add-on levee would extend beyond the CVFPB/RD404 property boundary.

The *Slurry Wall and Add-on Levee* provides a low-maintenance solution similar to the slurry wall alone and would provide some additional enhancement in flood protection and levee stability by widening the levee. However, this would be at a greater cost and delay due to the need for land acquisition, for a greater amount of imported levee material, longer construction duration and for utility relocations. This alternative was eliminated due to these factors and because most of the flood protection benefits were not appreciably greater that the slurry wall alone.

These two alternatives have been dismissed from further analysis. The *Slurry Wall* alternative is the least costly alternative, can be constructed with the minimum delays (land acquisition can take several years), fully remediates the seepage problem and has minimal long-term operations and maintenance costs. These remaining two alternatives – *No Action* and the *Slurry Wall* alternatives are considered in this document.

After comparing and weighing the benefits and impacts of all of the feasible alternatives, that include *Seepage Berm with Pressure Relief Wells, Slurry Wall and Add-on Levee, and Slurry Wall alone,* the project development team has identified the Slurry Wall Alternative as the preferred alternative, subject to public review. Final identification of a preferred alternative will occur after the public review and comment period.

## 2.2 No Action Alternative

Under this alternative, no action would be taken and the levee condition would remain the same, through-seepage and under-seepage problems would continue to threaten the integrity of the levee structure. If flooding were to occur, economic damage is estimated to range from between $41 million (10-year event) to $300 million (100 year event). Over half of the flood damage cost would be attributed to damage to residential buildings. The entire basin area between I-5, the San Joaquin River, French Camp and Walker Sloughs would be inundates with great damage to the adjacent residential community great monetary damages and potential loss of life. (Figure 4).

Should levee failure occur, resultant emergency measures including flood fighting would likely be of a limited nature that ultimately would not remediate seepage to prevent further damage but could result in greater impact to aquatic and terrestrial natural communities.

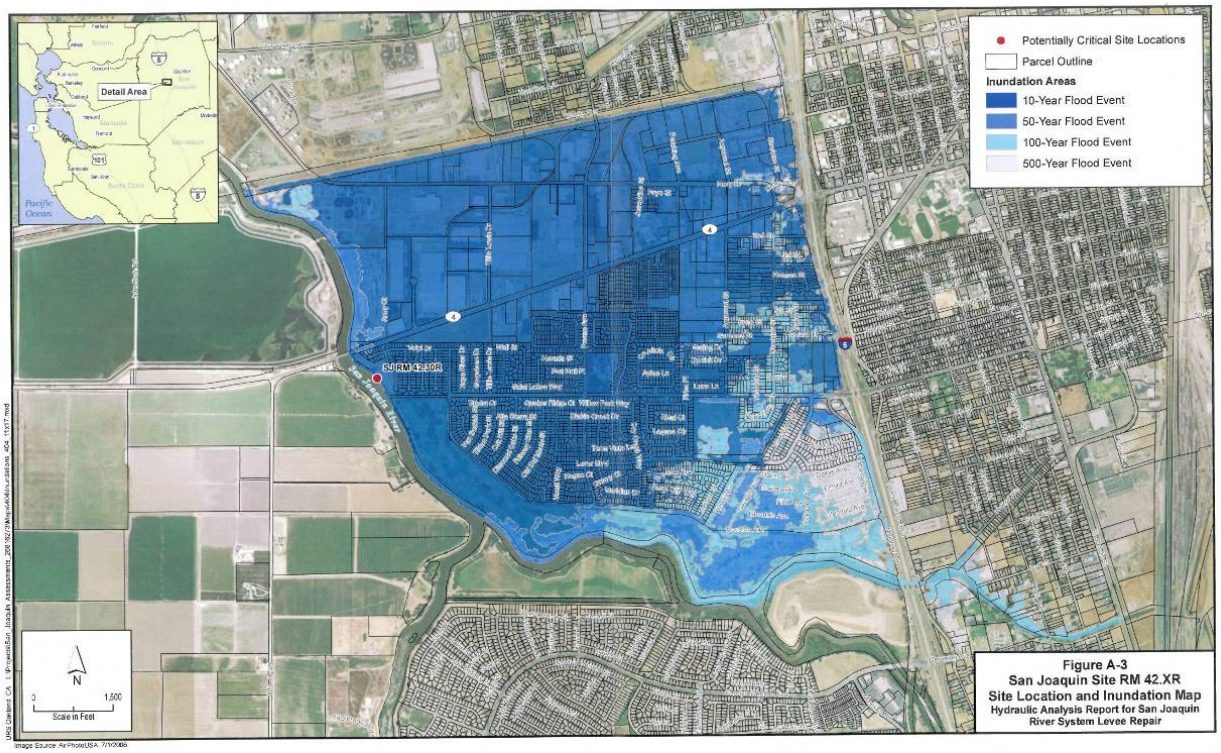


**Figure 4. Inundation map for Project Area Flood Events**

# 3 PROPOSED LEVEE IMPROVEMENT

This section describes the proposed action. This includes a discussion of features, construction details, staging and stockpile area, borrow and disposal sites, construction workers and schedules, and operations and maintenance for the Project.

## 3.1 Features

The proposed action (project) described below, and analyzed in this EA/IS, is being considered to correct seepage deficiencies identified by recent hydraulic and geotechnical investigations.

The work would involve the construction of a 2-feet wide cement-bentonite slurry wall to an average depth of 40 feet below the levee crown (Figure 5). This target depth should extend the slurry wall into the clayey soils that are encountered starting at about 37 feet in depth. The proposed repair would temporarily de-grading the levee crown approximately 3 feet to reduce the slurry wall installation depth and cost and provide a more stable working platform. Following the slurry wall installation, the levee crown would be reconstructed and a new aggregate base access road provided. The slurry wall length is approximately 1,200 linear feet from the edge of the State Highway 4 right-of-way at the north to the edge of the abandoned historic 8th Street bridge abutment to the south. All construction will be from the landside and no in-water work will occur nor will riprap be applied.

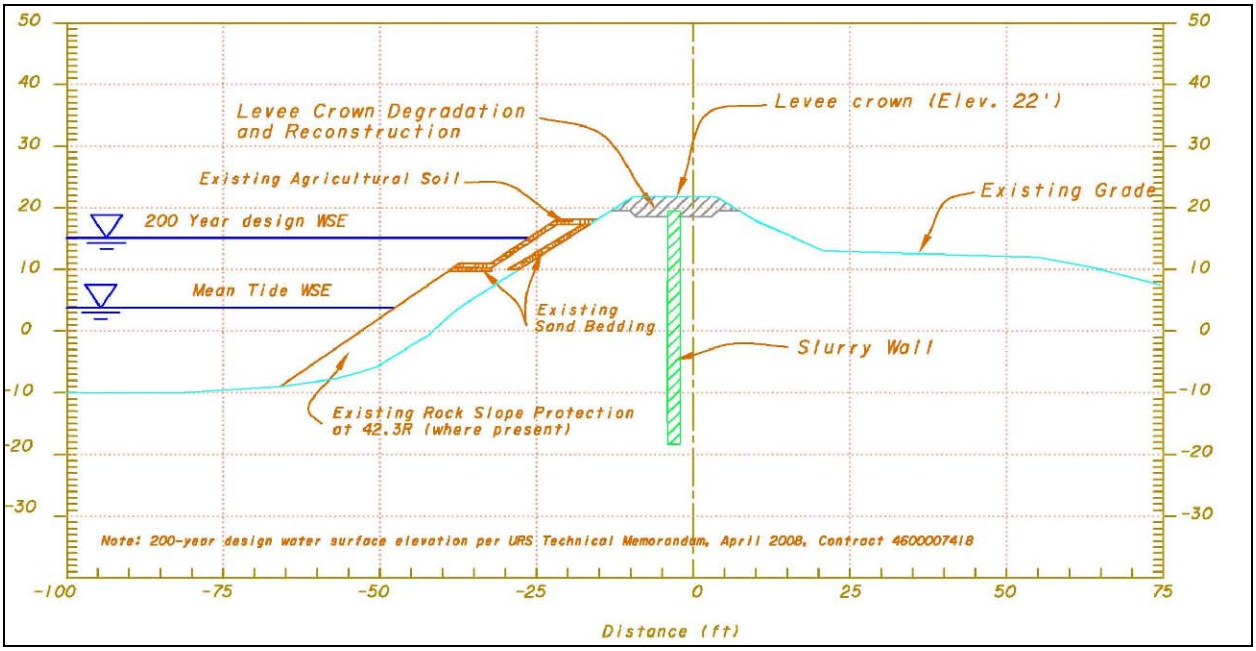


**Figure 5. Project typical cross section**

## 3.2 Construction Details

### 3.2.1 Access and Staging

The site would be accessed from Interstate 5 off-ramps at 8th Street by haul trucks and construction personnel traveling from the north and the south. (Figure 6.) As the haul trucks come off the freeway, they would proceed down West 8th Street and westward through the Van Buskirk neighborhood. The haul route would have several options for access to the levee and depending on the phase of construction, to be able to access both upstream and downstream sections during construction. Trucks could enter the proposed Project through a gated access utility road that extends west from West 8th street at the intersection with Houston Avenue along the northern edge of the Van Buskirk Golf Course to the levee. At the end of the utility road is a ramp to access the levee crown road. Another ramp is situated just a few yards north of the utility road ramp that would take the truck down the levee slope to the staging area adjacent to the repair reach. Another access route to the staging area is from West 8th St., to Houston Avenue and north on Houston to Mc Cloud River Road. McCloud River Road proceeds west to the edge of the opened staging area. The trucks would turn south onto Sunny Creek Court and access the staging area at the terminus of the Court. An additional ramp up the landside levee slope is located on the downstream end of the repair length which accesses a wider area of the levee crown next to the Highway 4 Garwood Bridge where a vehicle could turn around. The return route could also use either exits – along the access road to West 8th Street, or exiting by McCloud River Road to Houston and back out West 8th Street

A secondary haul route would follow the levee crown in both directions along the San Joaquin, French Camp Slough and Walker Slough. A gated access is located at Manthey Road that leads to the I-5 Freeway access at either West 8th Street or Carol Weston Blvd. This route is unlikely to be used during construction as the larger highway dump trucks would have difficulty maneuvering the narrow levee crown road width. Never the less it will be retained as an option for extreme circumstances.

The staging area totaling approximately two acres would be located east of the levee in the vacant City of Stockton-owned lot next to McCloud River Road and Sunny Creek Court. The slurry wall will be constructed within existing State-owned property with only temporary entry permits required from City of Stockton for use of staging area. Protective fencing will be installed to keep vehicles and construction equipment within the construction easement and to keep the public out of the staging and construction area. Construction materials and equipment would be temporarily stored at the staging area during the construction period. A jobsite trailer would be established in this staging area, as would the construction workers' parking area. All construction supplies would be delivered to the staging area. Specific areas will be established for material disposal.

**Figure 6. Project staging area and access routes**

### 3.2.2 Site Preparation

Before the start of construction, all construction areas would be fenced off to limit access, including the staging area. Any woody vegetation within the construction area would be removed, as necessary to facilitate movement of equipment and any onsite trash or concrete rubble would be removed and disposed of at an appropriate facility. Approximately 2 acres of the staffing area would be cleared and grubbed of all vegetation and surface material from all areas to be used for staging. An additional acre along the landside slope of the levee and the upper 1/3 of the waterside slope of the levee would also be cleared and grubbed. Other temporary erosion control methods would be implemented to prevent soil from running onto adjacent properties and local waterways. Disturbed areas, including staging areas, would be seeded and covered with mulch to prevent erosion following project completion.

All trees in the construction and staging footprint area would be tagged and identified for protection or removal. Trees to be retained protected will be protected in place with fencing. Some trees will require minimal trimming.

The retention of vegetation along federal levees in California Central Valley is governed until 2012 by the California Levees Roundtable, *California's Central Valley Flood System Improvement Framework*, and (February 2009). The California Levees Roundtable is an interagency group composed of both State and federal agencies that was convened to address the implications of the Corps' *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures, Engineering Technical*

*Letter (ETL) 1110-2-571*, (April 2009) . In April 2010, by letter to the State's Central Valley Flood Protection Board, the Corps approved the use of the Framework document in lieu of the ETL 110-2-571. The framework requires the removal of all trees on the landside of the levee within 15 feet of the levee toe, along the entire landside levee toe, and from the top third of the waterside slope. The 15-foot wide area is populated primarily with mostly ruderal vegetation consisting of annual grasses. However, a cluster of eight eucalyptus trees located on the levee landside that will require removal.

Along the waterside slope of the levee at the most upstream reach, DWR constructed a 525 foot long waterside erosion repair in 2008. Approximately 480 feet of this repair are within the project footprint. In this An upper and lower vegetated riparian bench were constructed on the waterside slope in 2008 and planted with native trees, shrubs and grasses that constituted on-site mitigation to meet federal and State resource agency's on-site requirements. The upper planted bench of the 2008 repair is below the top third of the levee slope.

No vegetation will be removed from below the upper one third of the waterside levee slope for the entire 1,200 foot repair length and will be fenced off with protective fencing from the construction activity.

### 3.2.3 Construction Sequencing and Equipment

Construction work would likely occur during one construction season starting no earlier than August 15 and extending no later than November 1. However, demobilization following the completion of construction may extend into November. The construction is scheduled to begin in late summer of 2010 during the two-month duration. The direction flow of the construction activities is likely to progress from downstream to upstream. The work would be phased starting with mobilization which would include securing the site, setting up construction offices and the slurry batch plant, transporting heavy earthmoving equipment to the site and clearing and grubbing. Mobilization activities would take approximately one week. The actual construction would begin with levee degradation followed by slurry wall excavation and installation for approximately 7 days. The rebuilding of the levee crown and road would require an additional week. Demobilization would include removal of equipment and materials from the project site, disposal of excess materials at appropriate facilities, and restoration of staging areas and temporary access roads to pre-project conditions. Demobilization activities would be completed by mid-November 2010.

Construction would include the following activities:

1) Any exiting gates or fencing within the project area will be removed.

2) The levee maintenance road on the crown, primarily gravel topped, would be removed with a scraper and material stockpiled.

3) An excavator would degrade the crown down 3 feet to provide a wider temporary work surface for construction equipment.

4) A short containment berm would be constructed at the waterside edge of the new crown surface to contain any excess slurry.

5) A large hydraulic excavator would dig a 2-foot wide, 1,200 foot long trench along the levee to a depth of approximately 40 feet.

6) There are then two methods that could be used to construct the slurry wall (Figures 7 and 8)

   a) the levee material would be removed from the trench and brought to a nearby location; mixed with the soil, Portland cement, and bentonite clay (SCB); then pumped back into trench, or

   b) the trench is filled with the SCB slurry to stabilize the excavation sidewalls as digging occurs; after a section of the trench is dug, the SCB slurry is backfilled into the trailing end of the trench to form the slurry wall (Figures 7 and 8).

7) Following completion of the slurry wall, the levee top surface would be capped with a clay cap and the top three feet of the levee crown reconstructed

8) The levee crown road base and gravel top would be reconstructed.

**Figure 7. Cutting Heads**

**Figure 8. Slurry Mixing**

### 3.2.4 Construction Equipment

All construction will be from landside only; no equipment will enter the active stream. No in-water excavation will occur. Contractor plant equipment would include construction office and equipment trailers; slurry batch plants, including bentonite storage facilities, mixing tanks, pumps, and piping; and water storage tanks.

The following heavy equipment is likely to be used for construction at the repair site:

- 1 Bobcat
- 1 Compactor,
- 1 Earth Mover
- 1 Grader
- 1 Off-road water truck
- 1 Excavator
- 1 Loader
- 1 Scrapper
- 4-10 highway dump trucks,
- Numerous pickup trucks.

Additional equipment would include air compressors and generator to operate tools and other equipment; welding equipment; pumps and piping; communications and safety equipment; erosion control materials; miscellaneous equipment customary to the mechanical and electrical crafts; and vehicles used to deliver and move equipment, materials, and personnel.

Approximately 420 round trips for hauling trucks would be needed for the total 14-day Project active construction period for an estimated 30 round trips per day either importing slurry wall and road construction material or exporting excavated soil. In addition, there would be up to 180 additional round trips during the construction period created by construction workers commuting to and from the project site each day.

## 3.3 Restoration and Cleanup

Once the levee work is complete, all equipment and excess materials would be transported offsite via neighborhood streets and regional highways. The barren earth and levee slopes would be seeded with a native grass seed mix to promote re-vegetation and minimize soil erosion. The access ramp and staging areas would also be restored to pre-project conditions. Any damage from construction activities would be repaired. Finally, the work sites and staging areas would be cleaned of all rubbish, and all parts of the work area would be left in a safe and neat condition suitable to the setting of the area

### 3.3.1 Borrow and Disposal Sites

The contractor would be responsible for obtaining slurry wall and levee embankment fill material from a permitted source that could include approved borrow sites or commercial sources. If a site other than a commercial site is used, appropriate NEPA/CEQA documentation would be required along with evidence of compliance with all other applicable laws and regulations.

It is estimated that a net total of approximately 6,000 cubic yards (cu. yd.) of borrow material would be required for the proposed project slurry wall and crown reconstruction. The need for off-site borrow material would be limited when possible by using excavated material. However, it is still anticipated that borrow material would be needed from off-site.

Approximately, 3,200 cu. yd. of material would be excavated from the existing slurry wall trenches and the material resulting from the degrading of the levee crown would be approximately 3,000 cu. yd. These excavated materials would be used to the extent practicable in the proposed improvements. It is estimated that half of the excavated material would be suitable for constituting the reconstructed levee crown. However, a conservative estimate for material disposal would be based on removal and disposal of all excavated material which totals 6,200 cu. yd. The material would be transported to the project area and from the site to the disposal sites by haul trucks on the identified access routes.

All disposal material would be temporarily stockpiled at the staging areas or disposed of at a commercial site or facility. The contractor would be responsible for determining and providing

certification to the DWR that the material is free from contaminants and is suitable for disposal at a commercial facility.

### 3.3.2 Construction Workers and Schedule

Although the numbers of workers on site would vary during construction, an estimate of 6 to 8 workers could be onsite each day during construction. These workers would access the area via regional and local roadways and would park their vehicles at the south east area of the staging area. Construction hours would be limited to the hours from 7 a.m. to 7 p.m. up to seven days a week.

### 3.3.3 Operation and Maintenance

After construction is complete, responsibility for the project would be turned over to the CVFPB, the non-Federal sponsor for the project. The CVFPB would transfer these responsibilities to RD 404, who would operate and maintain the levee in accordance with current Corps criteria. Regular maintenance activities would include mowing and spraying levee slopes, rodent control, clearance of maintenance roads, and levee inspections. The 2008 erosion repair construction along the water side of the most upstream repair segment includes on-site mitigation in the form of planted vegetation. This area is still being maintained by DWR during the course of a three-year establishment period which will end in 2011. At that time it will be transferred to RD 404 with conditions that the plantings be retained for their habitat value according to conditions of federal and State permits and consultation under the federal Endangered Species Act.

# 4 ENVIRONMENTAL EFFECTS AND AFFECTED RESOURCES

This section describes the resources in the project area, as well as potential effects of the alternatives on those resources. Both beneficial and adverse effects are considered, including direct effects during construction and indirect effects resulting from the implementation. Each section contains a discussion of the methods used to analyze effects. In addition, the bases of significance (criteria) for each resource are identified to evaluate the significance of any adverse effects. When necessary, measures are proposed to avoid, minimize, or mitigate any significant adverse effects for each resource.

The bases of significance are based on NEPA and CEQA requirements. The Corps has integrated NEPA requirements into its regulations, policies, and guidance. Engineering Regulation 1105-2-100, "Planning Guidance Notebook," April 2000, establishes the following significance criteria:

- Significance based on institutional recognition means that the importance of the effects is acknowledged in the laws, adopted plans, and other policy statements of public agencies and private groups. Institutional recognition is often in the form of specific criteria.
- Significance based on public recognition means that some segment of the general public recognized the importance of the effect. Public recognition may take the form of controversy, support, conflict, or opposition expressed formally or informally.
- Significance based on technical recognition means that the importance of an effect is based on the technical or scientific criteria related to critical resource characteristics.

For this EA/IS, these three NEPA criteria apply to all resources and are not repeated for each resource.

The CEQA requirements are more specific to the resource and are listed in Appendix G (CEQA Checklist) of the CEQA Guidelines. The CEQA criteria relevant to the project area, as well as other agency criteria and threshold of significance that apply to each resource, are identified under the appropriate resource. The CEQA checklist is provided in Appendix (F).

## 4.1 Resources Eliminated from Detailed Analysis

The sections below were eliminated from further detailed analysis because they would not be affected by the Proposed Action.

### 4.1.1 Agricultural and Forestry Resources

The land use analysis is based on a review of agricultural or forestry 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 California Department of Forestry maintains a State inventory of forest lands including the Forest and Range Assessment Project and the Forest Legacy Assessment Project.

The information presented on land uses and agriculture is primarily based on review of existing documents and other relevant information including: There is no designated farmland of prime, unique or Statewide importance adjacent to or affected by the proposed Project site. There are no lands zoned for forest lands (as defined in Public Resource Code (PRC) section 12220(g)), timberland (as defined by PRC section 4526), or timberland zoned as Timberland Production (as defined by PRC section 4526) adjacent to or affected by the proposed Project. The Project area, including staging area is zoned as *City* under both the general plan and by zoning as indicated in the San Joaquin County Assessor's records and the San Joaquin County GIS Map Server (http://www.sjmap.org).

The proposed Project would not stop or hinder the agricultural practices that occur on neighboring properties across the river. The proposed project would not involve land development activities (i.e., residential subdivisions, or commercial or industrial land uses) that would directly or indirectly induce changes in the use of surrounding agricultural land, or forest land such as the need for schools, public services, etc. The proposed Project would not have the potential to convert prime farmland, unique farmland, or farmland of statewide importance to non-agricultural uses, nor to conflict with agricultural zoning or with a Williamson Act contract. The proposed Project would not significant affect farmland pr forest land and a detailed agricultural and forest resources analysis for the Project is not warranted.

### 4.1.2 Population and Housing

Population and housing are not expected to change as a result of the proposed Project. No substantial growth in population will be induced by the project, either directly or indirectly. The project sites are located in San Joaquin County with a population 670,900 (2007, U.S. Census Bureau). The incorporated area of the City of Stockton contains a population of 290,141 (California Department of Finance, 2009). Stockton grew in populated approximately 41 percent since 1990.

San Joaquin County experience tremendous growth in housing construction during the last decade with increases of 19 percent between 200 and 2007. Housing units in cities such as Tracy increased a phenomenal 142 percent in the last 20 years. However, with the current mortgage crisis hitting this has slowed considerably and the Stockton area market was designated one of the worst in the US by Fortune Magazine.

The proposed repairs would not involve the construction of new homes or businesses or the extension of roads or infrastructure. Construction would only occur on publically owned land that is projected to become a public park when funding becomes available. Repairs to the levees would only restore flood protection to design levels and not increase the level of flood protection that would allow additional growth. The proposed project would benefit the community as a whole by reducing the level of flood risk. Implementation of the proposed project would have no effect on current and/or planned population growth patterns within San Joaquin County and

would not affect the population goals as outlined in the County General Plan. Therefore, the proposed project would have a no impact on population growth in the area, either directly or indirectly.

Because the construction of levee repairs would not go through any existing development, it would not displace any existing housing or people or disrupt or divide an established, low-income, or minority community, necessitating the construction of replacement housing elsewhere. Therefore, the proposed project would have no impact on housing. The Proposed project would benefit the project vicinity and the community as a whole by reducing the level of flood risk. Therefore, the proposed project would have a no adverse impact on population and a detailed population and housing resources analysis for the Project is not warranted.

### 4.1.3 Land Use and Planning

The proposed Project would be in compliance with the land use plans applicable to the project area. The proposed project would not result in a conflict with existing or surrounding land uses, nor would it divide a community. The proposed Project would not generate adverse conditions for the adjacent properties and would not diminish or prevent agricultural uses on adjacent lands. Therefore, the proposed project would have no impact on the overall existing land use and planning issues.

Implementing the proposed project would not result in the physical division of an existing community or conflict with any applicable land use plan, habitat conservation plan or natural community conservation plan. The land use plan, policy, or regulation document applicable to the project area includes the San Joaquin County General Plan and Municipal Code. Because implementing the proposed project would not involve changing the underlying land uses in the Project area, the proposed Project would also not conflict with any land use policies of regulations of San Joaquin County.

The Project area is within the boundaries of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSHCP or Plan). The purpose of the SJMSHCP will be to promote biological conservation in conjunction with economic and urban development in the plan area. The Plan will describe the measures that local agencies will perform to conserve biological resources, obtain permits for urban growth and public infrastructure projects, and continue to maintain the rich agricultural heritage and productivity of the county. Implementation of the proposed Project would not in any way conflict with the provisions or otherwise affect implementation of the Plan as the designation of the repair site as open space

The proposed Project would not involve land development activities (i.e., residential subdivisions, or commercial or industrial land uses) that would directly or indirectly induce changes in the use of surrounding land, such as the need for schools, public services, etc. The proposed Project would not induce new residential, commercial, or industrial land development activities to occur in the future. Therefore, there will be no significant impact to land use and a detailed land use and planning analysis for the Project is not warranted.

### 4.1.4 Mineral Resources

The Project would take place within the levee of the San Joaquin River in an urban setting. There are no known mineral resources of value to the region or residents of the State within the proposed project area, nor would the proposed project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan and no mining occurs within this area. Therefore, there will be no significant impact to mineral resources and a detailed mineral resource analysis for the Project is not warranted.

### 4.1.5 Public Utilities and Services Systems

Utilities and service systems are not expected to change as a result of the proposed Project. The City of Stockton Police and the San Joaquin County Sheriff provides law enforcement services to the City of Stockton and unincorporated areas of San Joaquin County. The nearest Stockton Police Station to the proposed Project is located at 425 N El Dorado St, 2.7 mile from the Highway 4 Garwood Bridge. The closest Stockton Fire Department to the proposed Project, at 1818 S. Fresno Avenue, is less than a mile from the Highway 4 Garwood Bridge. The closest school, the San Joaquin Elementary School on Fresno Ave. is located less than one mile (0.7 miles) from the proposed Project.

The existing government facilities, service ratios, response times or other performance objectives for public services: police protection, fire protection, schools, parks or other public facilities, will remain unchanged as a result of the proposed Project. The proposed project does not include proposals for new housing. Therefore, the proposed project would not generate students or increase demands for school services or facilities. Emergency response services would be unhampered during Project construction and operation. Because the proposed Project would use existing public services and no additional services or changes to existing services would be required, the proposed Project would have no effect on public services. A detailed public services analysis for the Project is not warranted

The Project would not result in the exceedence of Regional Water Quality Control Board wastewater treatment requirements. It would not involve the construction of new homes, businesses, or other uses that could generate any new source of wastewater nor include construction of impermeable surfaces for road construction, nor generate additional storm water runoff, requiring the need for new storm water drainage facilities. Any temporary construction period storm- related site water runoff will be addressed by the contractor who will prepare a Storm Water Pollution Prevention Plan (SWPPP) as part of RWQCB General Construction Storm Water Permit (NPDES).

Therefore, the Project would not require or result in the construction of new water or wastewater treatment facilities, expansion of existing facilities, or the construction of new storm water drainage facilities. There are sufficient water supplies available to serve the proposed Project from existing or permitted entitlements and resources. The Project Area is served by a landfill with sufficient permitted capacity to accommodate the proposed Project's solid waste disposal needs and comply with federal, State, and local statutes and regulations related to solid waste.

The propose project is not expected to affect public utilities and a detailed public utility analysis for the Project is not warranted

## 4.2 Aesthetics/Visual Resources

The aesthetic value of an area is a measure of the character and quality of the visual resource, combined with viewer response to these conditions. A project's impact to aesthetic value is subjectively determined and based upon an individual's experience with the environment, the extent and nature of the change proposed, the proximity of the individual to the site, and the duration of the views. Existing conditions are compared to the anticipated change in the visual character of the project site for the purpose of evaluating the potential impacts to visual resources associated with the proposed project.

### 4.2.1 Environmental Setting

The Project Area is located in the urban industrial area of southwest Stockton in RD 404 within the levee on the right bank of the San Joaquin River. The Project Area provides views of the levee, riparian vegetation along both banks of the San Joaquin River and the river channel, the residential neighborhood to the east of the Project, and the State Highway 4 Garwood Bridge. The County storm drain outfall structure is located immediately south of the proposed Project Area, which consists of four 30-inch diameter and one 10-inch diameter pipe penetrations; a pumphouse facility located southeast of the proposed Project Area. The Van Buskirk Public Golf Course is immediately south of the pumphouse facility on the landside of the levee. Immediately across the river is a single farmstead surrounded by agricultural acreage and a warehouse facility along State Highway 4. The Project Area does not contain any State-designated visual resources within or near the project site. State Highway 4 is not designated as a State or County Scenic Highway. The San Joaquin River is not designated as a federal or State Wild and Scenic River within the Project Area. Per conversations with adjacent residents, the vacant parcel, portions of which would be used as a staging area for the Project, is designated as the site of a future public park but at this time is unimproved due to County fiscal constraints. The levee and staging area currently does not support any recreational use other than a through passage for anglers using the San Joaquin River.

Immediate viewers of the Project Area would be the homeowners facing the site in 6 homes on Sunny Creek Court and 7 homes on McCloud River Road. Homes along Volpi Court to the north face away from the site behind high fencing. Access to the site by the public is very limited as all roads to the site terminate at the vacant parcel and would not carry through traffic that would be affected by any view change. Other members of the general public viewing the Project Area would be anglers and those with views of the area from boats. The site is partially visible from Highway 4 and the Bridge and any view would be fleeting. Golf course users are unlikely to leave the course grounds to climb up the levee slope. The view from across the river is partially obstructed by the existing levees. Levee roads are restricted to utility and inspection vehicles only. Thus, only a small number of the general public limited to local resident and visiting anglers would be viewers of the property.

Night time views within the Project sites are influenced by the proximity to highway lighting, and street lighting associated with the adjacent residential area. The nearby City of Stockton public golf course, the Van Buskirk Park Golf Course to the south on the landside of the levee is not a source of night light as it does not typically operate at night.

### 4.2.2 Basis of Significance and Environmental Effects

For the purposes of this EA/IS, 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.
- Create a new source of light or glare which would adversely affect day or nighttime views in the area.

***No Action Alternative***

Under the no action alternative, there would be no effect on esthetics. The views and esthetic quality of the Project Area would remain the same for the immediate future. When emergency flood-fight or repair becomes necessary as the result of sand boils and/or seepage related levee failure, the aesthetics and visual quality of the area would degraded by flood damage, repair efforts such as large piles of rock, and a longer duration construction activity to rebuild the damaged levee and surrounding area. The effect on visual resources could be significant but short-term until repairs and cleanup is complete.

***Proposed Project***

The planned slurry wall would not result in any significant permanent adverse visual effects. Construction efforts would affect aesthetics/visual resources during implementation of the proposed Project. Any structural modifications to the levee will be constructed in a manner that is consistent with the current use and character of existing structures. Construction of the slurry wall would not substantially change the views within the project area as it is mostly internal to the levee. Neither the dimension nor the alignment of the river channel would be altered.

However, construction equipment, including large equipment such as excavators and bulldozers would be visible within the construction easement during construction. The presence of the construction equipment would degrade the visual quality of the site for the period of construction only. The staging area and levee slopes subject to disturbance by the Project would be returned to existing condition through re-grading and seeding such that the post-construction view will be essential the same as the pre-project view.

However, a tight cluster of 8 non-native eucalyptus trees would be removed as they are located too close to the landside levee toe and poise safety concerns as potential paths for levee through seepage. The City of Stockton has a heritage tree ordinance to protect certain species of trees from unnecessary removal and requires mitigation measures. The tree ordinance only applies to

three species of oak and would not be applicable to the removal of the eucalyptus trees. Due to the small footprint of the grove of trees compared to the overall size of the Project site and the potential future plans by the County to establish a park within the staging area of the Project Area close to the tree location, the effects of the tree removal on the visual quality of the site would be less than significant.

Construction activities would be conducted only during daylight hours; therefore construction would not require artificial lighting. Repair of levees would not generate or introduce any new sources of nighttime lighting or glare.

Therefore, the potential proposed Project effects on aesthetics/visual resources are considered to be less than significant, temporary and inconsequential.

### 4.2.3 Mitigation

No mitigation is required, as none of the alternatives would result in significant near- or long-term effects on aesthetics/visual resources.

## 4.3 Recreation

### 4.3.1 Environmental Setting

The proposed Project is located along the right bank levee of the San Joaquin River and on 2 acres of the adjacent 6 acre vacant lot. The Project is downstream from the City of Stockton's Van Buskirk Park Golf Course. There is no vehicular access for recreationalists onto the levee and no official pedestrian access is granted to the river. However, the existing levees are crossed over for access for fishing and the crown is used for jogging, wildlife viewing and dog walking along the San Joaquin River. Recreational boating occurs in the San Joaquin River with the crafts mostly small fishing crafts as the bridges are no longer operational as swing or up-rising; large crafts cannot pass under the fixed bridges. There is no legal boat access to or from the project site.

The Project site in not located on any formal park or designated recreational trail area associated with the levee or San Joaquin River. There are no recreational facilities in the Project Vicinity (e.g., bathrooms, picnic areas, or boat ramps). The use of the area for recreation appears to be minor and limited to local residential use.

However, the vacant lot is planned as a site for a future park as identified on the City of Stockton General Plan Update Draft Environmental Impact Report, December 2006. The City of Stockton Community Services Department is the agency with the primary responsibility for parks in Stockton.

The primary recreational feature that would be affected by the project is access to fishing locations on the waterside of the levee and pedestrian use of the levee crown road.

### 4.3.2 Regulatory Setting

**SJCOG Multi Species Habitat Conservation and Open Space Plan.** This plan establishes preserve lands necessary to compensate for impacts to threatened, endangered, rare and unlisted SJMSCP Covered Species and other wildlife, and compensation for some non-wildlife related impacts to recreation, agriculture, scenic values and other beneficial Open Space uses.

**Stockton General Plan 2035 (2007)** – The Stockton General Plan 2035 establishes a set of goals, policies, and implementation measures that will guide future planning in the city. Policies involving the provision of parks and recreation services are included under the category of Interconnected Infrastructure, in Chapter10: Recreation and Waterways Element. It also addresses the City of Stockton/San Joaquin County Parks Master Plan.

**Park and Open Space Requirements: Administrative Guidelines** – The City of Stockton has developed guidelines to define how park and open space acreage is to be counted and categorized for all parcels within the city. This document explains how new development can apply traditional and non-traditional park lands to the general plan requirements

### 4.3.3 Basis of Significance and Environmental Effects

Effects to recreational resources are considered significant for construction would result in any of the following:

- Eliminate or severely restrict access to recreational facilities or resources;
- Result in substantial long-term disruption of use of an existing recreational facility;
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

***No Action Alternative***
Under this alternative, the levee remediation project would not be constructed therefore there would be no effect on recreation. The use of the levee waterside would continue as before.

***Proposed Project***
Construction of the seepage remediation would have short-term effects on the recreational use along the San Joaquin River. There would be no effect on the boating use of the river. However access for fishing would be restricted during the period of construction and during post-construction period needed to establish erosion control growth. Fencing will be temporarily installed to keep out the public from all areas of the Project site. The restriction from entry would be for the duration of construction only and would be considered a short-term impact.

As the staging area, levee crown and waterside areas are not considered as established recreational facilities and are undeveloped, no effect to an existing facility would occur.

Access to the levee and banks of the San Joaquin River will be closed to pedestrians for safety reasons. Access to the San Joaquin River would still be possible to the north of the Garwood Bridge at the other side of High 4. Access to the river and levee crown would also be possible through the Van Buskirk Public Park bordering the southern end of the Buskirk Golf Course. Public parking is available next to the park as is street parking. The project would not interfere with golfing activities at the public Van Buskirk Golf Course.

The Project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated nor would the Project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

### 4.3.4 Mitigation

Measures will be taken to ensure public safety, warning signs and signs restricting access would be posted before and during construction as necessary. Fences would be erected to prevent access to the Project site.

Any effects to recreation would be temporary and considered less than significant. Therefore, no mitigation would be required.

## 4.4 Cultural Resources

### 4.4.1 Environmental Setting

The term "Cultural resources" is used to describe several different types of properties: prehistoric and historic archeological sites; architectural properties, such as buildings, bridges, and infrastructure; and resources of importance to Native Americans (traditional cultural properties). Artifacts include any objects manufactured or altered by humans.

Prehistoric archeological sites date to the time before recorded history and in this area of the U.S. are primarily sites associated with Native American use before the arrival of Europeans. Archeological sites dating to the time when these initial Native American-European contacts were occurring are referred to as protohistoric. Historic archeological sites can be associated with Native Americans, Europeans, or any other ethnic group. In the study area, these sites include the remains of historic structures and buildings. Structures and buildings are considered historic when they are more than 50 years old or when they are exceptionally significant. Exceptional significance can be gained if the properties are integral parts of districts meet the criteria for eligibility for listing in the National Register or if they meet special criteria considerations.

A traditional cultural property is defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King). Although normally

associated with Native Americans, traditional cultural properties can include those that have significance derived from the role the property plays in any cultural groups or community's historically rooted beliefs, customs, and practices.

The Project area is located in a territory region traditionally occupied by the Yachikamni. (Kroeber, 1925, Wallace 1978). Due to their rapid disappearance as a result of disease, missionization, and the influx of gold miners and settlers during the gold rush years, ethnographic and archaeological information is tenuous at best.

The San Joaquin Valley was first visited in historic times by Spanish Army Lieutenant Gabriel Moraga in 1805. Moraga discovered and named many of the features of the interior valley of California including the San Joaquin River (San Joaquin Valley History 2008a). Luis Arguello visited the area in 1817 and again in 1821. Trappers from the Hudson's Bay Company, Russian traders, and Spanish missionaries were the first non-Native peoples to venture into Yachikamni and Yokuts 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 Native American life ways.

In 1836, the Spanish secularized the missions, and 1846, when the Americans took control of the State; the Mexican Government issued some 30 California land grants, specifically for agricultural purposes, primarily the raising of cattle. Much of the land in the vicinity of Stockton was part of the second largest Mexican land grant ever awarded. Known as Campo del los Franceses, it totaled 48.747 acres. The original owner, Guillermo Gulnac later sold the property to Captain Charles Weber. Captain, Charles M. Weber , a German immigrant went on to found the city of Stockton in 1849 which he named after American Commodore Robert F. Stockton.. The location of the city at the head of Stockton Slough, a wide and deep arm of the San Joaquin River, approximately 90 miles inland from the San Francisco Bay, allowed the city to serve as a major shipping point for many of the agricultural and manufactured products of Northern California. Rich peat soil and a temperate climate make the area one of the richest agricultural and dairy regions in California (Stockton History, 2008). The State Highway 4 Bridge, known as the Garwood Bridge under which the repair site RM 42.1 is located was constructed in 1933. It was determined by the State Office of Historic Preservation not to be eligible for inclusion on the National Register of Historic Places. The southern end of the Project is in the footprint of the bridge abutment of the former 8$^{th}$ Street Bridge which was replaced by the Garwood Bridge. Though remnants of the construction remain, it was also determined not to be eligible.

The levees proposed for seepage repair under the Project were locally constructed levees adopted by the Corps of Engineers into the Lower San Joaquin River and Tributaries Projects as authorized by the Flood Control Act of 22 December 1944. The levees were substantially improved to meet federal levee standards primarily from the late 1950s through the mid-1960's and through additional individual contracts since then as needed.

A field survey of the Area of Potential Effects (APE) was undertaken by DWR staff archeologists on April 13, 2009.A records search conducted through the Central California

Information Center (CCIC) focused on the immediate project site (Appendix B) and within approximately ¼ mile from the project boundaries. Although no cultural resources have been documented directly within the Project site (APE), six cultural resources were recorded immediately adjacent to the APE that included both prehistoric and historic-era resources. The prehistoric resource is a village site under the current Van Buskirk Golf Course location, the Highway 4 Garwood Bridge, the Cordes Ranch Undercrossing and a Bridge (29C-0209), the remnant 8th Street Bridge, and two sites that are part of the levee system. The bridges and undercrossing have been determined to be ineligible for inclusion in the National Register of Historic Places or the California Register of Historic Places.

The Native American Heritage Commission was contacted on February 4, 2009. The Ione Band of Miwok Indians and other knowledgeable individuals were contacted for information they might have on the project area.

### 4.4.2 Regulatory Setting

The following federal, state, and regional regulations are applicable to the Project Area and actions that would be undertaken as part of any of the project alternatives.

***Federal Preservation Law***
Section 106 of the *National Historic Preservation Act of 1966 (NHPA)* requires Federal agencies to take into account the effects of their undertakings on historic properties, and to afford the Advisory Council on Historic Preservation (created by the Act) a reasonable opportunity to comment. The *National Register of Historic Places—NRHP,* authorized under the NHPA and administered by the National Park Service, an agency of the U.S. Department of the Interior—lists historic and archeological resources deemed worthy of preservation. The *Native American Graves Protection and Repatriation Act* of 1990 (NAGPRA) provides a process for museums and Federal agencies to return certain Native American cultural items (such as human remains, funerary objects, sacred objects, and objects of cultural patrimony) to lineal descendants, culturally affiliated Indian tribes, and Native Hawaiian organizations. All Federal agencies are subject to NAGPRA.

***California Preservation Law***
The *State Historical Resources Commission (SHRC)* has developed the state's authoritative list of significant California historical and archeological resources, the *California Register of Historical Resources (CRHR)*, which is available to assist state and local agencies, private groups, and citizens in identifying, evaluating, registering and protecting California's historical resources. Section 5024 of the *California Public Resources Code* dictates that every State agency holds responsibility for formulating policies to preserve and maintain any state-owned historic resources under its jurisdiction.

***California Health and Safety Code (CHSC)***
Section 7050.5(b) of the CHSC specifies protocols that must be followed subsequent to the discovery of human remains.

CEQA also requires that for public or private projects financed or approved by public agencies, the effects of the projects on historical resources and unique archeological resources must be

assessed. Historical resources are defined as buildings, sites, structures, objects, or districts that have been determined to be eligible for listing in the California Register of Historical Resources. Properties listed in the National Register are automatically eligible for listing in the California Register

### 4.4.3 Basis of Significance and Environmental Effects

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of CEQA Guidelines;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of CEQA Guidelines;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries; or
- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064 of CEQA Guidelines.

***No Action Alternative***
With this alternative, no work would be conducted at the site, therefore eliminating the possibility of discovering undocumented cultural resources. However, without remediating the site's seepage deficiencies, it is reasonable to assume that, based on the available geotechnical information, a future flood event could cause a levee failure, and the risk of flooding and resulting flood damages would continue. A levee failure could inundate areas that presently may have undiscovered cultural resources, destroy cultural artifacts. In addition, the sites identified outside the APE but adjacent to the Project could also be subject to damage. Therefore, implementation of the No Action Alternative could result in significant effects on cultural resources.

***Proposed Project***
DWR archaeological staff performed a survey of the sites and a ¼ radius in early 2009. No cultural resources other than the existing levees that are scheduled for repair were identified during the course of such survey. No paleontological resources or unique geologic features are known to exist at any of the project sites.

The Archaeological Survey Report (Offerman and Schmid, 2009) notes that:

> *The levees in the project area have been in place for an undetermined number of years. Throughout their existence they have been continually maintained and modified. The current project will continue that tradition and the function of the structure will not change.*

Therefore the Project will cause a less-than-significant effect on the levee as a cultural resource. Despite the fact that previous archival and field research revealed only the existing levees as a

cultural resource at the project sites, it is important to note that 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 impact would be potentially significant but implementation of mitigation measures would reduce this potential effect to a less-than-significant level.

### 4.4.4 Mitigation

Inasmuch as there are no cultural resources that will be recommended as eligible for listing in the National Register of Historic Places, no mitigation measures are warranted. The project would have no effect on any other known prehistoric or historic resources.

***Immediately Halt Construction Activities if Any Cultural Materials Are Discovered.***

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 develop appropriate mitigation. Implementation of this mitigation measure would reduce this effect to a less-than-significant level.

***Immediately Halt Construction Activities if Any Human Remains Are Discovered.***

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 impact is considered potentially significant. Halting of construction activities and following procedures indicated below would reduce this effect to a less-than-significant level.

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 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, incorporating these procedures would reduce the potential effects to a less-than-significant level.

## 4.5 Wildlife, Fish, and Vegetation Resources

This section addresses potential effects on biological resources of the project site is based on a review of pertinent literature and databases, including the *San Joaquin Flood Protection Project, Northern Sites Biological Assessment, April 2008*, the *Biological Assessment for DWR San Joaquin Flood Protection Project 2009 Repair Sites*, April 2009 and *DWR San Joaquin Flood Protection Project 2008 Repair Sites*, March 2009. Focused field surveys were conducted at the Project site, both on the waterside and landside, including the 2-acre staging area, by DWR biologists in April and May 2010. The surveys included a reconnaissance-level investigation of the project site, a protocol-level elderberry shrub (*Sambucus mexicana*) survey, listed plant surveys, tree inventories and bird surveys. 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.

### 4.5.1 Environmental Setting

The proposed Project Area is situated in an urban-industrial area of the City of Stockton. The seepage remediation repairs would occur within the levee structure that is part of the federal Lower San Joaquin and Tributaries Flood Protection Project levees system. The Project site is located in the secondary legal Sacramento-San Joaquin Delta and the waterside is subject to tidal fluctuation with the daily and tidal cycle amplitudes are greater than seasonal elevation. The topography in the vicinity of the project site is flat except for the bed of the San Joaquin River which lies approximately 20 to 25 feet below the level of surrounding lands. No work will occur below the top four feet of the levee crown, from elevation (22 ft. to elevation 18 Ft.) on the waterside of the levee and no in-water or channel work would occur.

Vegetation is sparse, absent or eliminated on much of the waterside slope on the mid and upper levee slope, most of the landside levee slope and adjacent vacant lot (staging area) through annual maintenance activities. It is primarily of a "***ruderal" type,*** (i.e. weedy) habitats are typically dominated by short-lived annual and biennial introduced, non-native herbaceous grasses and broad-leaved forbs (i.e. wildflowers) that tend to persist within an area due to periodic disturbance (e.g. plowing, mowing, spraying). In addition, the staging area has a few isolated non-native trees at perimeter locations and is primarily a highly disturbed weedy open area. Common ruderal species observed on the levee slopes are non-native species such as milk thistle (*Silybum*

*marianum*), sweet clover (*Melilotus alba*), knotgrass (*Paspalum* sp.), *Bromus* speci4es, and *Avena* species.

Along the first 700 feet of the most downstream levee reach, the waterside riparian habitat is characterized by sparse large senescent trees and sparse understory vegetation along the lower levee slope and a thin strip of herbaceous and emergent species at the water edge within the tidal with sedges growing in shallow water along the water's edge. Species observed include mugwort (*Artemisia douglasiana*), heliotrope (*Heliotropium curassavicum*), and Mexican and Common Bog Rush (*Juncus mexicanus and effuses*). Native tree species in the overstory include Fremont's cottonwood (*Populus fremontii*), willow (*Salix* spp.). Non-native trees include Black Locust (*Robinia pseudoacacia*) and Eucalyptus (*Eucalyptus sp.*). Dense willow thickets (*Salix.spp*) and large patches of tules and reeds (*Scirpus spp*.) are found off-site both across the river and downstream.

The San Joaquin River provides habitat for both resident and migratory fish. Native fish may that may occur in the open water habitat of the proposed project site include: Central Valley steelhead (*Oncorhynchus mykiss*), delta smelt (*Hypomesus transpacificus*), Sacramento pikeminnow (*Ptychocheilus grandis*), California roach (*Lavinia symmetricus*), hitch (*Lavinia exilicauda*), Sacramento blackfish (*Orthodon microlepidotus*), and Sacramento sucker (*Catostomus occidentalis*). Non-native fish species may include striped bass (*Morone saxatilis*), black bass (*Micropterus spp*.), mosquito fish (*Gambusia affinis*), American shad (*Alosa sapidissima*), largemouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), white catfish (*Ameiurus catus*), channel catfish (*Ictalurus punctatus*), and carp (*Cyprinus carpio*). Many of the non-native fish species are more tolerant of warm water, low dissolved oxygen, and disturbed environments than native species. In general, they are adapted to warm, slow-moving, and nutrient-rich waters (Moyle 2002). DWR staff observed a large number of carp on site in fishing creels.

In 2008, DWR completed an erosion repair along approximately 600 feet of the waterside slope. The repair was constructed with two waterside benches (Figures 9 and 10). The plant pallet installed included both riparian and emergent vegetation. Species planted included various willow species (*Salix spp.*), Oregon Ash (*Fraxinus latifolia*), box elder (*Acer negundo*), California button willow (*Cephalanthus occidentalis*), coyote brush (*Baccharis pilularis*), various nutsedges (Cyperus spp.), Santa Barbara sedge (*Carex barbarae*), low bulrush (*Scirpus cernuus*), deer grass (*Muhlenbergia rigens*), California poppy (*Eschscholzia californica*), spreading rush (*Juncus patens*), creeping wild rye (*leymus triticoides*).

The levee slopes in the project area provide little habitat for common mammals, reptiles, and amphibians. Wildlife species would primarily utilize the levees as temporary dispersal, foraging, or resting habitat. The sparse habitat does not provide cover, but small mammals such as raccoon, striped skunk, and Virginia opossum could occur. There is evidence of ground squirrel or gopher hole/mounds seen on landside slope and levee crown.

**Figure 9. View of Waterside Levee Slope Looking North from about Mid-point of Repair**

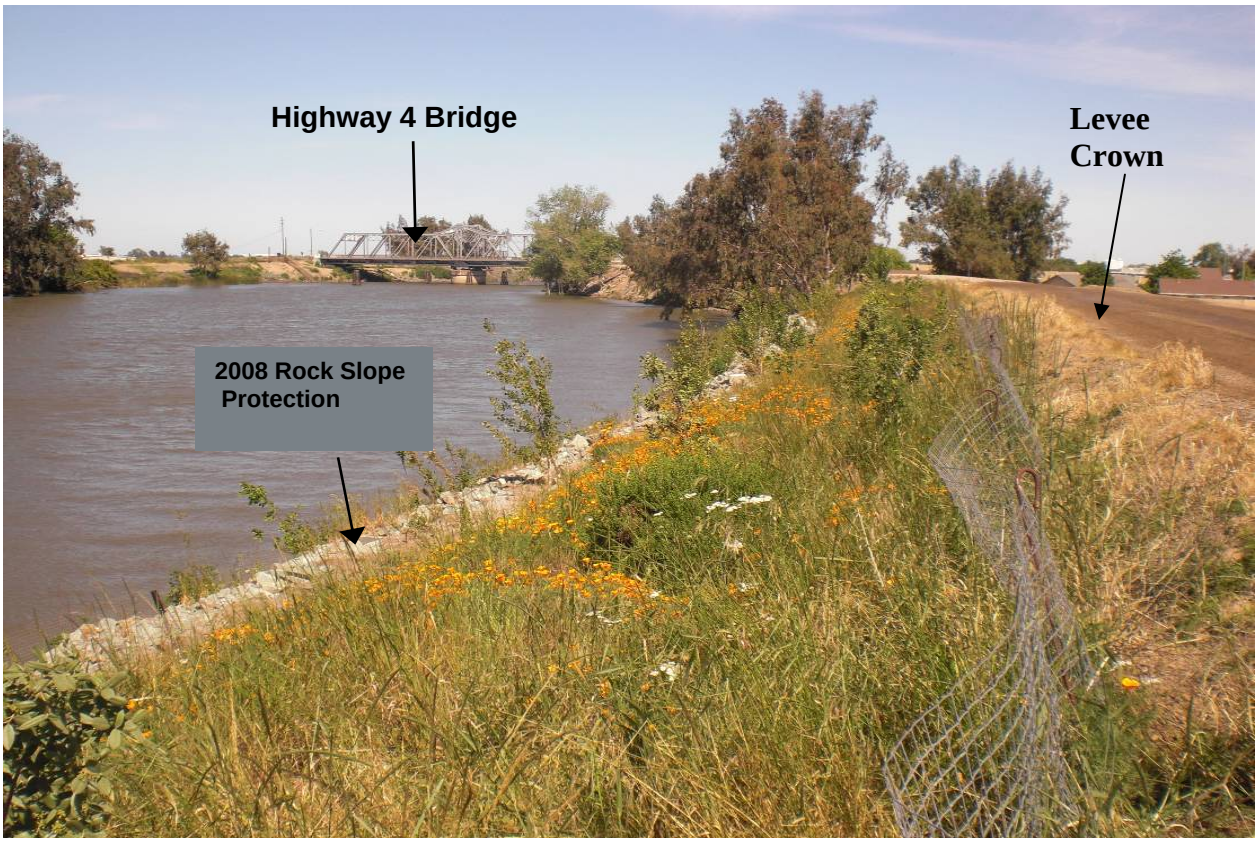


**Figure 10. View of Erosion Repair at RM 42.3R Completed in 2008 and Located Along Approximately 480 feet of the 1,200 Foot Levee Repair Length.**

The vegetation on the landside of the repair in the 6 acre vacant lot is very sparse and disturbed due to regular mowing and/or application of herbicides but it does include some ruderal herbaceous species that commonly occur in disturbed areas (Figure 11). The Project will directly affect 2 of the 6 acres which will be fenced off. Plant species observed include wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceaus*), wild mustard (*Brassica sp*.), Johnson grass (*Sorghum halepense*), vetch (*Vicia sativa*) and yellow star-thistle (*Centaurea solstitialis*). A grove of 8 Eucalyptus trees (*Eucalyptus sp*.) is located at the landside toe of the levee at approximately mid-point of the proposed Project (Figure 12). Other exotic species occur at the perimeter of the Project area but outside the effects area.

The urban nature of the Project area and presence of recreational users and domestic pets discourage wildlife use. However, the golf course just upstream of the Project provides habitat for a population of both wild and feral domestic geese. Birds that could nest within or adjacent to the levee repair sites and staging areas include Swainson's hawk, white-tailed kite, tricolored blackbird, and burrowing owl. In addition to these special-status species, a number of common raptors species could nest in existing trees in the project vicinity (Figure 13). The nests of all raptor species are protected under Section 3503.5 of the California Fish and Game Code.

**Figure 11. View of Landside Typical Ruderal Vegetation**

**Figure 12. View of Landside toe of Levee with Eucalyptus Grove**

**Figure 13. Existing Tree Locations within Construction and Staging Area (Excludes Trees Planted in 2008 Landscaping at Waterside Erosion Repair)**

***Waters of the U.S., Including Wetlands, and Waters of the State***
The San Joaquin River channel below the Ordinary High Water Mark (OHWM) is a jurisdictional water of the U.S. No potentially jurisdictional wetlands or other waters of the U.S. were identified in the project site. All waterside work will occur above the OHWM and therefore does not meet the criteria for waters of the U.S. subject to Corps jurisdiction under Section 404 of the CWA, nor are there any potential waters of the State subject to Regional Water Quality Control Board (RWQCB) jurisdiction under Section 401 of the CWA.

***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. No area near the project site could be considered sensitive habitats.

### 4.5.2 Regulatory Setting

***Migratory Bird Treaty Act***
The Migratory Bird Treaty Act (MBTA) is enforced by the USFWS (16 USC Section 703-711). The original 1918 statute implemented the 1916 Convention between the United States and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the United States and Mexico, Japan, and the Soviet Union (now Russia).

Specifically, the act includes the establishment of a federal prohibition to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird...or any part, nest, or egg of any such bird" unless such acts are permitted by regulations (16 U.S.C. 703). The federal definition of take includes activities that involve harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct. Birds covered by this act include waterfowl, shorebirds, raptors, songbirds, and many other species.

***Clean Water Act***
The objective of the Clean Water Act (CWA 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands, is regulated by USACE under Section 404 of the CWA (33 USC 1251-1376). USACE regulations implementing Section 404 define waters of the United States to include intrastate waters, including lakes, rivers, streams, wetlands, and natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as ―areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions‖ (33 CFR 328.3; 40 CFR 230.3). To comply with the Section 404 policy of no net-loss of wetlands, discharge into wetlands must be avoided and

minimized to the extent practicable. For unavoidable impacts, compensatory mitigation is required to replace the loss of wetland functions.

***CDFG Streambed Alteration Agreement***
Under sections 1600-1616 of the California Fish and Game Code, the CDFG regulates activities that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. In practice, CDFG marks its jurisdictional limit at the top of the stream or lakebank, or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Notification is required prior to any such activities and CDFG will issue an agreement with any necessary mitigation to ensure protection of the state's fish and wildlife resources.

***California Fish and Game Code***
Birds of prey are protected in California under Section 3503.5 of the California Fish and Game Code, which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by the code or any regulation adopted pursuant thereto. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered taking by CDFG.

***Natural Community Conservation Planning Act***
As set forth in the California Fish and Game Code (Section 2800 et seq.), the CDFG may enter into an agreement with any person, local, state, or federal agency to provide comprehensive management of multiple wildlife species. These large-scale natural resource conservation plans, known as Natural Community Conservation Plans, must identify and provide for area wide-protection and perpetuation of natural wildlife diversity. The developed plans are intended to allow for growth that is compatible with preservation.

***San Joaquin County Multi-Species Habitat Conservation & Open Space Plan***
The SJCMHCOP (November 2000) is a county-wide NCCP/HCP aimed at conservation of the natural open space and agricultural landscapes that provide habitat for many special status and at-risk species found within the habitats and natural communities in San Joaquin County. It describes measures to be undertaken to conserve important biological resources, obtain permits for urban growth and public infrastructure projects, and continue San Joaquin County's rich agricultural heritage.

***City of Stockton Tree Preservation Ordinance***
Landmark and heritage trees are protected under the City of Stockton Tree Preservation Ordinance, as contained in the City of Stockton's Municipal Code, Chapter16, Section 130 – Heritage Trees. A heritage tree means any of three species of Oak - Valley Oak (*Quercus lobata*), Coast Live Oak (*Quercus agrifolia*) or Interior Live Oak (*Quercus wislizenii*) tree with a trunk circumference of 75 inches (24 inches diameter) or more, or a native oak with a trunk circumference of 50 inches (16 inches diameter) or more, as measured four feet six inches from ground level (the circumference of multi-trunk trees is based upon the sum of all trunks). A landmark tree means any tree or stand of trees that is especially prominent, stately or which is of historical significance as designated by the City Council.

It is unlawful in the Stockton to perform any of the following acts with respect to a heritage or landmark tree without a tree permit issued by the City Tree Administrator to perform actions that may result in the unnatural death or destruction of a landmark or heritage tree; or interfere with or retard the natural growth of any landmark or heritage tree. For any violation of the ordinance, mitigation may be required at specific replacement ratios and fees.

### 4.5.3 Basis of Significance and Environmental Effects

Effects on vegetation and wildlife would be considered significant if construction or maintenance of the proposed Project would:

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- 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 any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

***No Action***
With this alternative, there would be no change to the native vegetation or wildlife in the project area and routine maintenance would occur. However, without remediating the site's seepage deficiencies, it is reasonable to assume that, based on the available geotechnical information, a future flood event could cause a levee failure, and the risk of flooding and resulting flood damages would continue. A levee failure could inundate areas that presently may provide habitat for sensitive species and potentially carry toxic or hazardous materials into waterways, therefore, implementation of the No Action Alternative could result in significant effects on biological resources.

***Proposed Project***
The construction work is expected to begin in the late summer to fall of 2010 and last approximately 30 days of which 14 would be the actual construction of the slurry wall and crown reconstruction. The levee crown road and the top three feet of the levee prism removed and the spoils would be either reincorporated into the reconstruction if suitable or disposed of off-site.

<u>Wildlife</u>
Wildlife species present at San Joaquin RM 42.1 to RM 42.3R may be directly or indirectly affected by the implementation of the proposed action. Direct impacts may include mortality or

injury to individuals present at the site due to vegetation removal, movement of heavy equipment, construction noise, or placement of material. Indirect impacts may include altered habitat conditions after the completion of the repairs. Populations of common wildlife species are abundant throughout the region and in the immediate vicinity of the project site. Additionally, many species are adaptable to a variety of habitats. With survey and avoidance measures, effects to non–special status wildlife species would be considered less than significant.

Bird nest disturbance resulting from Project construction during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Trees were survey in November 2009 and surveys for nesting birds carried out in April and May 2010. The project does not propose to remove any known nesting trees for special-status birds or common raptors. The period of construction is beyond the nesting period of most other birds likely to be near the Project. Loss of an active special-status bird nest or raptor nest could be a significant effect. However, surveys for nesting and or burrowing birds will be conducted again prior to construction. If the pre-construction surveys would confirm the current findings that no nesting or burrowing birds would be disturbed by the project there would be no effects on nesting or burrowing birds.

Fish

Assuming existing riparian vegetation and near-shore areas are not modified or disturbed, no adverse effects on habitat for fish species would be expected from the landside and levee crown construction. Accidental discharge of soil into the water during waterside construction could result in elevated levels of suspended sediment, causing increased turbidity and potential sedimentation of benthic (bottom) habitat used by juvenile and adult fish for feeding, cover, and other essential behaviors.

Resulting short-term effects could include reduced feeding success, compromised ability to escape from predators, or altered migration patterns at the project site and downstream of the project site. In addition, toxic substances used by construction equipment, including gasoline and diesel, lubricants, and other petroleum-based products, could enter the waterways adjacent to the project site as a result of spills or leakage from machinery or storage containers on land or barges. Mortality or physiological impairment of fish or disruption of essential behavior patterns is possible if exposure to sufficient concentrations occurs. Release of toxic substances into the waterways could result in significant impacts to special-status fish species. Of specific concern is the potential for discharge of cement-bentonite slurry mixture. The finer particle sodium bentonite could cloud the water, exposing fish to the tiny micro-particles of bentonite that would clog their gills and cause them to suffocate.

Potential impacts include disruption of essential behaviors due to turbidity, sedimentation, sub-lethal and lethal effects of toxic substances, and injury or mortality from accidental discharge of construction materials. Impacts to non–special status fish species are typically considered less than significant because populations of these species are generally large and resilient, and the potential population-level effects would therefore be minor. Effects on non–special status fish species would be considered significant if implementation of the proposed action would substantially diminish habitat for any life stage or result in displacement of spawning fish such that year-class strength is substantially reduced. Effects on special status species could be significant but would be less that significant with mitigation measures. Because the Project

would not include any in-water or place construction equipment on the waterside of the levee, with specific avoidance measures in place, the Project effects on fish would be less than significant.

Vegetation

Proposed project activities have the potential to result in direct and indirect impacts to riparian and ruderal vegetation communities. Direct impacts include the removal of existing riparian upland and ruderal vegetation during site grubbing. Indirect impacts include the potential introduction and/or spread invasive plant species, such as yellow star-thistle. Invasive plants disrupt natural processes by altering physical processes, displacing native plants, and degrading wildlife habitat. Invasive plant species have been identified on the site.

Within the upper third of the waterside levee slope, and the complete landside slope and 15 feet beyond the landside toe, all existing vegetation would be removed. Heavy equipment would be used to remove surface soils and the mostly ruderal vegetation. Within the levee slope and the 15-feet landside out from the levee toe, all trees would be removed. Fencing would be installed below the upper one third of the waterside levee to ensure that no ingress onto the waterside levee slope by construction equipment or personnel to prevent adverse effects to riparian vegetation.

Within the staging areas, temporary effects would occur to ruderal species, as traffic and equipment storage would disturb this area. Disturbed soils on slopes and staging areas could undergo natural re-colonization by weedy ruderal species. Ruderal vegetation is anticipated to be most severely affected by the proposed work as it comprises vegetation type with the overall largest percentage cover. To compensate for this loss of vegetation, the site would be revegetated via hydroseeding with native grass species mix. Revegetation would occur as soon as practicable after completion of construction to minimize the potential for establishment of invasive plants. Since these species are relatively quick growers, the ruderal vegetation cover is expected to be fully restored within the first several years following repair and restoration activities. The restoration of disturbed or removed vegetation would reduce the effect of vegetation loss to less than significant.

In addition to the loss of ruderal species, 8 trees within the 15-foot projection beyond the levee toe project footprint would be removed prior to project implementation. These 8 trees are eucalyptus species, a non-native species, are not considered landmark trees and are not subject to City of Stockton Heritage or Landmark Tree Ordinance. Their removal is necessary to allow construction access and is required under Corps regulations for levees to remove a potential seepage path through tree root structure. Their survival would be compromised by the cutting of roots by the seepage wall construction.

The land upon which the eucalyptus trees are located is owned by San Joaquin County and within the footprint of a proposed City park for the adjacent Golf Course Terrace Neighborhood. The City of Stockton has experienced funding shortfalls and the construction of the park has been postponed. The removal of the 8 trees would be a temporary impact until the park is funded and trees are planted. Eucalyptus trees do not provide good habitat for wildlife as they are considered an aleopath, a species that produces a chemical herbicide that prevents the growth

of surrounding plants. There would be no effect or conflict with locally adopted tree ordinances as eucalyptus trees are not covered by the ordinance.

**San Joaquin Multi-Species Habitat Conservation and Open Space Plan (SJMSCP)**
The San Joaquin Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) is a master plan with the key purpose of balancing the need to conserve open space for wildlife and converting open space to accommodate a growing population while minimizing costs to project proponents and society at large. SJMSCP is administered by SJCOG, Inc., a nonprofit corporation established by San Joaquin County and the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy. The SJMSCP describes measures that local agencies will perform to conserve biological resources, obtain permits for urban growth and public infrastructure projects, and continue to maintain the rich agricultural heritage and productivity of the county. Implementation of the project would not conflict with the provisions or otherwise affect implementation of the SJMSCP as the project's proposed actions is consistent with the goal of the conservation plan but is of a nature not covered by the plan. Therefore there would be no effects or conflicts by the Project on the goals and policies of the SJMSCP.

### 4.5.4 Mitigation

Wildlife
To avoid potentially significant impacts to bird species protected under the MBTA and DFG code, a qualified biologist shall conduct a pre-construction breeding-season survey (approximately March through August) during the same calendar year that construction is planned to begin. At least one survey event shall be conducted no more than one week prior to the onset of any construction activity. The survey shall determine if any birds are nesting on, or directly adjacent to, the project site. If no active nests are located, no further mitigation shall be required.

Where feasible, direct disturbance of any nest sites observed (including removal of nest trees and activities in the immediate vicinity of active nests) shall be avoided during the breeding season. Appropriate ―no disturbance buffers shall be established. The size and configuration of buffers shall be based on the proximity of active nests to construction, existing disturbance levels, topography, the sensitivity of the species, and other factors established through coordination with CDFG representatives on a case-by-case basis.

Fish
During construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies shall be restricted to the designated construction staging areas. A qualified biologist shall provide Worker Environmental Awareness Program (WEAP) training to contractors and construction crews regarding all special-status fish species known to occur near the project site.

A representative (on-site monitor) shall be appointed by the DWR to be the point of contact for any worker that observes a dead, injured, or entrapped special-status fish. Dead or injured fish shall be photographed and the photographs provided to DWR, NMFS, and USFWS. If a live specimen is captured in good condition, and a positive identification cannot be made in the field

because of size or lack of other distinguishing characteristics, the fish shall be immediately returned to the river downstream of the project area.

To prevent materials including excavated soil, imported bentonite and borrow material from entering the waters of the San Joaquin River, the contractor shall prepare the Storm Water Pollution Prevention Plan (SWPPP), which will be reviewed by the DWR and CVFPB. The SWPPP shall include an erosion control and restoration plan, a water quality monitoring plan, a hazardous materials management plan, and post-construction BMPs. In addition, the contractor shall provide an emergency contingency plan with operating procedures for response and remediation of any cement-bentonite slurry spill.

Vegetation
The contractor shall prepare the Storm Water Pollution Prevention Plan (SWPPP) that will include a site restoration plan to revegetate with approved native seed mixtures. All areas below the top third of the waterside levee slope will be fenced off to protect existing vegetation.

## 4.6 Special Status Species

A list of state and federal special-status listed plant, invertebrate, fish, and wildlife species and habitat to potentially occur and affected by the Project was compiled from the USFWS online database Appendix A. The online query was conducted on February 4, 2010. The California Natural Diversity Data Base (CNDDB) was accessed for a list of federally listed species in the Stockton West Quad. Information on the presence or absence of listed species was obtained from field surveys conducted by DWR biology staff in April and May 2010.

Special-status species are those that meet any of the following criteria:

- Listed or candidate for listing under the Federal Endangered Species Act of 1973 (50 CFR 17).
- Listed or candidate for listing under the California Endangered Species Act of 1977.
- Nesting bird species and active nests of birds listed under the Migratory Bird Treaty Act.
- Species listed in the Bald and Golden Eagle Protection Act.
- Fully protected or protected species under stated DFG code.
- Wildlife species of special concern listed by the DFG.
- Plant species listed as Rare under the California Native Plant Protection Act.
- Plant species listed by the California Native Plant Society.
- Species protected by local ordinances such as the San Joaquin County Development Title 1997, 9-1510 and the City of Stockton Ordinance, Chapter 16.130 Heritage Tree Protection
- Essential Fish Habitat listed under the Magnuson-Stevens Act.

### 4.6.1 Environmental Setting

The following species are not evaluated in detail for the following reasons. 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*) and succulent owl's clover (*Castilleja campestris ssp. Succulent*) is not found along the levees, outside the levee footprint, or near project staging areas. Special-status species that were not identified as occurring or unlikely to be in the project area are not discussed further in this document.

Eleven special-status wildlife species were obtained from USFWS (USFWS 2010) within the Stockton West Quad and listed in Table 1. In addition, two special-status wildlife species were identified in the CNDDB searches and noted in Table 2. Each species listed within the three tables was evaluated for its potential to occur in the project area. Of the 13 species considered, 2 have potential to occur on or adjacent to the project site. A third table describes special status plant species provided by CNPS listings for the Project area.

The Project action area is outside of the known range for amphibians and reptiles such as the California tiger salamander and California red-legged frog. The central population of California tiger salamander occurs in seasonal ponds in grasslands and low foothill regions, and natural vernal pools. There are no seasonal ponds or vernal pools found on or adjacent to the project site, therefore these species are unlikely to occur on the project sites. The California red-legged frog (*Rana aurora draytonii)* inhabits dense, shrubby or emergent riparian vegetation associated with perennial and ephemeral water bodies that are still or slow moving water. The San Joaquin River is neither still or slow moving and is affected by fluctuating tidal flows, therefore suitable habitat for red-legged frogs unlikely to be present at the three project sites.

**Table 1. Federally Listed Species and Effect Determination**

| **Common Name**<br>**Species Name** | **Status[1]** | **Habitat** | **Determination[2]** | **Critical Habitat** |
|---|---|---|---|---|
| ***INVERTEBRATES*** | | | | |
| **vernal pool fairy shrimp**<br>*Branchinecta lynchi* | T | Vernal pools; also sandstone rock outcrop pools | **Unlikely** - suitable habitat does not occur | No |
| **vernal pool tadpole shrimp**<br>*Lepidurus packardi* | E | Vernal pools; also sandstone rock outcrop pools | **Unlikely** - suitable habitat does not occur | No |
| **valley elderberry longhorn beetle**<br>*Desmocerus californicus dimorphus* | T | Riparian and oak savanna habitats with blue elderberry shrubs; elderberries are the host plant | **Low** – host plants not Identified within 200 ft of project area | No |
| ***FISH*** | | | | |
| **green sturgeon**<br>*Acipenser medirostris* | T | Large, mainstem rivers with cool water and cobble, clean sand, or bedrock for spawning | **Low** – within known range of juvenile rearing in the southern Delta however project does not include instream construction | No |
| **Delta smelt**<br>*Hypomesus transpacificus* | T | Estuarine or brackish water up to 18 ppt; spawn in shallow brackish water upstream of the mixing zone where salinity is around 2 ppt | **Low** – within known range but project does not include instream construction | No |
| **Central Valley steelhead**<br>*Oncorhynchus mykiss* | *T* | Rivers and streams with cold water, clean gravel of appropriate size for spawning, and suitable rearing habitat; rear in freshwater >1 years | **Low** – within known range but project does not include instream construction | No |

| | | | | |
|---|---|---|---|---|
| **Central Valley spring-run *chinook salmon*** *Oncorhynchus Tschawytscha* | T | Low- to mid-elevation rivers and streams with cold water, clean gravel of appropriate size for spawning, and suitable rearing habitat; typically rear in freshwater for one or more years before migrating to the ocean | **Unlikely** - outside of known range; potential downstream effects to supporting habitat not anticipated. Project does not include instream construction | No |
| **winter-run Chinook salmon** *Oncorhynchus tschawytscha* | E | Mainstem rivers reaches with cool water and available spawning; rear 5 to 10 month in the river and estuary; migrate to the ocean to feed and grow until sexually mature | **Unlikely** - outside of known range; potential downstream effects to supporting habitat not anticipated. Project does not include instream construction | No |
| ***AMPHIBIANS*** | | | | |
| **California tiger salamander, central Population** *Ambystoma californiense* | T | Natural vernal pools or seasonal ponds in grasslands and low foothill regions | **Unlikely** - suitable habitat does not occur | No |
| **California red-legged frog** *Rana aurora draytonii* | T | Permanent and semi permanent aquatic habitats such as creeks and cold-water ponds, with emergent and submergent vegetation; | **Unlikely** - suitable habitat does not occur | No |
| ***REPTILES*** | | | | |
| **giant garter snake** *Thamnophis gigas* | T | Sloughs, canals, low-gradient streams and marsh habitats; irrigation ditches and rice fields; grassy banks and emergent vegetation for basking; high ground protected from flooding during winter | **Low** - suitable habitat does not occur at site but may occur in Walker Slough upstream of site within a mile. | No |
| ***MAMMALS*** | | | | |
| **riparian brush rabbit** *Sylvilagus bachmani riparius* | E | Chaparral, grasslands, and scrubland Communities | **Unlikely** - suitable habitat does not occur | No |

***STATUS[1]*** *E = listed as Endangered under the federal Endangered Species Act; T = listed as Threatened under the federal Endangered Species Act*

## Table 2. CNDDB Search of Project Area

| Common Name Species Name | State Rank | Global Rank | Habitat | Potential to Occur on the Project Site |
|---|---|---|---|---|
| **Swainson's hawk** *Buteo swainsoni* | S2 | G5 | Breeds in grasslands with scattered trees, riparian area, savannahs and agricultural areas. Forages in grasslands, suitable grain or alfalfa fields, or livestock pastures adjacent to nesting habitat. Nests on large trees in open areas. | **High** Suitable habitat Present |
| **Burrowing owl** *Athene cunicularia* | S2 | G4 | Nests underground in existing burrows in open, dry annual or perennial grasslands, deserts, and scrublands with low growing vegetation. | **Low** Suitable habitat not present |

***Global Rank*** *G4 = Apparently secure; there is some threat, or somewhat narrow habitat, G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world*
***State Rank*** *S2 = 6-20 element occurrences s OR 1,000-3,000 individuals OR 2,000-10,000 acres*

The Project does not have suitable habitat for the riparian brush rabbit (Sylvilagus *bachmanie riparius)* which requires dense cover at higher slope elevations for cover and refugia. The site is sparsely vegetated along most of the reach and lacks the dense bramble structure such as blackberry and wild rose at the 2008 revegetated levee slope.

Winter-run Chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley spring-run Chinook salmon (*O. tshawytscha*) either have ranges outside the project areas or will be at lowest abundance during the construction period of mid-August through November. These species will not be specifically discussed in specifics but the effect determination section pertaining to fish species in general will also be relevant.

Two special-status plant species, the Suisun Marsh Aster *(Symphyotrichum lentum)* and the recurved larkspur *(Delphinium recurvatum)* were identified in the CNDDB and CNPS searches as occurring in the project vicinity. The recurved larkspur occurs in habitat areas not present at the repair sites such as alkaline soils of the valley and foothill grassland habitats. The second plant, the Suisun Marsh Aster may be present at the channel edge under suitable conditions. More detailed descriptions of these special status plant species are provided below in Table 3.

**Table 3. Special Status Plant Species**

| Common Name Species Name | Status* | Habitat Effect | Determination | Life Form | Blooming Period |
|---|---|---|---|---|---|
| Suisun Marsh Aster *Symphyotrichum lentum* | 1B.2 | Marshes and swamps, freshwater and brackish | Medium habitat for the species may be present along the edge of the water | Perennial herb | May – November |
| Recurved larkspur *Delphinium recurvatum* | 1B.2 | chenopod scrub, valley & foothill grassland (alkaline) | Unlikely grows in alkaline soils that are not present on the site | Perennial herb | March – May |

**CNPS STATUS*:
*1B = Rare or Endangered in California and elsewhere.*
*2 = Plant species considered rare, threatened, or endangered in California but more common elsewhere*

***Valley Elderberry Longhorn Beetle***

The Valley Elderberry Longhorn Beetle (VELB) is listed as a threatened species under the ESA (45 FR 52803) but not listed under CESA. The VELB is found in scattered populations throughout its historical distribution throughout the Central Valley from Redding (Shasta County) to Bakersfield (Kern County) (Arnold et al. 1994). The VELB is found only in association with its host plant, the blue elderberry (*Sambucus* spp.), an obligate host for beetle larvae that is found in or near riparian and oak woodland habitats. The Project is not within VELB critical habitat. Surveys for the blue elderberry shrubs conducted in May 2010 did not find any shrubs either associated with the Project area, adjacent areas or along any of the proposed haul routes.

***Green Sturgeon***

The southern Distinct Population Segment (DPS) of North American green sturgeon was federally listed as threatened on April 7, 2006 (71 FR 17757). The final rule is effective June 6, 2006. The southern DPS includes coastal and Central Valley populations south of the Eel River.

The Sacramento River supports the southernmost known spawning population of green sturgeon (Moyle 2002). The San Joaquin River may have supported a spawning population in the past based on recent (2003) white sturgeon spawning and past presence in the system (71 FR 17757). In recent years, juvenile green sturgeon have been collected within San Joaquin County at Mossdale Landing, between the Stockton and Durham Ferry sites, during DFG's chinook salmon smolt trapping study (1987-present), but specific numbers have either not been recorded or are considered unreliable by DFG. There is limited information on the distribution and presence of adult green sturgeon in the San Joaquin River basin. However, green sturgeon have been recently been observed in the Merced River, a large tributary to the San Joaquin River upstream of the Project sites. (M. Martinez, pers. comm.).

Juvenile and adolescent green sturgeon could be found year-round in the Delta, particularly in deep holes in river channels. Juveniles have been captured throughout the year at the CVP and SWP fish facilities to the west of the sites near Tracy. Presence on the shallower margins of the river is likely to occur at night, when fish are foraging in those areas. Juvenile fish could potentially occur at all repair sites.

***Delta Smelt***

Delta smelt (*Hypomesus transpacificus*) is listed at threatened (58 FR 12854, March 5, 1993). Critical habitat for Delta smelt is contained in Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties, California, with San Joaquin river extent east to Stockton and south to Vernalis. Delta smelt have the potential to occur in any area of the Delta where suitable habitat exists including the four Project sites in Stockton area but Delta smelt is unlikely to occur at the Durham Ferry site which is beyond Vernalis and any known records for smelt occurrence. The Stockton sites are closer to the tidal influences of the Delta, however, smelt spawning and incubation has not been observed in the Stockton area nor is it likely in any areas near the Stockton repair sites. Construction would occur within Delta smelt works windows for the area, outside of typical spawning season beginning December when Delta smelt would typically move upstream from more downstream in the Delta.

***Central Valley Steelhead***

The Central Valley steelhead was federally listed as threatened on March 19, 1998 (63 FR 13347). NMFS has designated critical habitat for Central Valley steelhead (65 FR 7764, February 16, 2000). Critical habitat for Central Valley steelhead was redesignated by NMFS on September 2, 2005 (70 FR 52488) following a legal challenge. Though historically, the steelhead trout was very abundant on the San Joaquin River, current steelhead population is drastically reduced from historic levels, and was considered extinct by some researchers (Reynolds et al. 1990, as cited in McEwan 2001). However, there is evidence that small populations of steelhead persist in some lower San Joaquin River tributaries (e.g., Stanislaus River) (McEwan 2001). Adult Central Valley steelhead migrate upstream from the ocean during July through March in the Sacramento River. Juvenile migration to the ocean generally occurs from December through August. The peak months of juvenile migration are January to May (McEwan 2001). San Joaquin River migrations would occur in parallel with Sacramento River events. The Central Valley Steelhead would be potentially present in the San Joaquin River during construction though not in high numbers.

***Giant Garter Snake***
The giant garter snake (*Thamnophis gigas*) is listed as a threatened by the federal government species (58 FR 54053), and by the State of California. Critical habitat has not been designated for the giant garter snake. Giant garter snake is an aquatic snake that forages in the water for food, and utilizes watercourses to escape predators and disturbance. The species is endemic to wetlands and aquatic habitat in the Sacramento and San Joaquin Valleys. Suitable habitat includes marshes, sloughs, ponds, small lakes, low gradient streams, manmade waterways, and agricultural wetlands such as irrigation ditches and rice fields.

The snake requires four prominent features to be present in the habitat to provide escape cover and foraging habitat during the active season, or protection during hibernation or floods: (1) sufficient water during early-spring through mid-fall; (2) the presence of emergent, herbaceous, hydrophytic vegetation, such as cattails and bulrushes; (3) grass covered banks with openings in the vegetative cover for basking; and (4) upland vegetation growing at a higher elevation than the watercourse. Giant garter snakes are generally absent from large rivers, ponds, and other watercourses that support introduced populations of large, predatory fish. The snakes do not occur in wetlands with sand, gravel, or rock substrates.

During the winter dormancy period (November to mid-March), giant garter snake inhabits small mammal burrows and other crevices in the substrate above elevation of potential floods. Giant garter snakes typically select burrows along south- and west-facing slopes with sunny exposures.

The giant garter snake is unlikely to be found at the Project area but could potentially occupy habitat in Walker Slough – a slower moving water body with denser vegetation cover, approximately ¾ of a mile upstream from the Project. The steep levee slopes of along the San Joaquin River will not provide adequate basking sites and the banks are devoid of vegetation at large portions of the project sites. The sparse thin line of emergent vegetation at the toe of the channel does not provide good conditions for cover and escape. In addition, the slopes of the levees are regularly cleared of vegetation limiting cover and quality of overall habitat. It is unlikely that giant garter snakes would migrate through the channels of the San Joaquin River as giant garter snakes do not typically using wide flowing rivers such as the San Joaquin for migration routes.

The potential for giant garter snake occurrence is low given that the vegetation at the Project site and staging area is sparse and isolated, surrounded on all sides by bare slopes and compacted roads – not suitable or likely to provide cover, basking or escape habitat. The Project is adjacent to urban neighborhoods and a highly maintained park-like golf course with constant human presence. The CNDDB (2009) lists only one citation near the Stockton area for giant garter snake that is over 30 years old and was located at the Stockton diverting canal near Highways 88 and 99, approximately five miles away at the other side of the City of Stockton.

***Swainson's Hawk***
Swainson's hawk (*Buteo swainsoni*) is State-listed as threatened. It is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and the Mojave Desert. Swainson's hawk breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley and forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Swainson's hawks breed in California and

over winter in Mexico and South America. Swainson's hawks usually arrive in the Central Valley between March 1 and April 1, and migrate south between September and October. Swainson's hawks nest usually occur in trees near the edges of riparian stands, in lone trees or groves of trees in agricultural fields, and in mature roadside trees. Valley oak, Fremont cottonwood, walnut, and large willow with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley. Suitable foraging areas for Swainson's hawk include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Swainson's hawks primarily feed on voles; however, they will feed on a variety of prey including small mammals, birds, and insects.

Trees bordering the agricultural fields and in the adjacent riparian habitat along the San Joaquin River provide suitable nest sites for this species. A Swainson's hawk nest with a brooding female was observed in April and again in May 2010 near the confluence of the San Joaquin River and French Camp Slough, approximately 0.6 miles across the river downstream of the Project.

***Burrowing Owl***

Burrowing owl is a California species of special concern. The CNDDB does not document any burrowing owls within 5 miles of any of the project sites and none were observed during any DWR May 2009 reconnaissance surveys; however, potential habitat is present though the urban nature of activities that would discourage ground nesting birds. 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 habitat.

***Suisun Marsh Aster***

The Suisun Marsh aster is classified by the California Native Plant Society List 1B.2 as being rare or endangered in California and elsewhere. It is found in marshes and swamps, in both freshwater and brackish water and in riparian areas. Sighting of the aster are noted for the USGS Stockton East quadrant where the Project is located in the CNPS inventory.

### 4.6.2 Regulatory Setting

The Federal Endangered Species Act (FESA) of 1973 (50 CFR 17) provides legal protection for plant and animal species in danger of extinction. This act is administered by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The California Endangered Species Act (CESA) of 1977 parallels FESA and is administered by the California Department of Fish and Game (CDFG). Other special status species lack legal protection, but have been characterized as "sensitive" based on policies and expertise of agencies or private organizations, or policies adopted by local government.

All raptors are protected under Section 3503.5 of the California Fish and Game Code, 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.

### 4.6.3 Basis of Significance and Environmental Effects

Adverse effects on special status species were considered significant if an alternative would result in any of the following:

- Direct or indirect reduction in the growth, survival, or reproductive success of species listed or proposed for listing as threatened or endangered under the Federal or State Endangered Species Acts.

- Direct mortality, long-term habitat loss, or lowered reproduction success of federally or State-listed threatened or endangered animal or plant species or candidates for Federal listing.

- Direct or indirect reduction in the growth, survival, or reproductive success of substantial populations of Federal species of concern, State-listed endangered or threatened species, or species of special concern or regionally important commercial or game species.

- Have an adverse effect on a species' designated critical habitat.

***No-Action Alternative***
With this alternative, there would be no change to the native vegetation or wildlife in the project area and routine maintenance would occur. However, without remediating the site's seepage deficiencies, it is reasonable to assume that, based on the available geotechnical information, a future flood event could cause a levee failure, and the risk of flooding and resulting flood damages would continue. A levee failure could inundate areas that presently may provide habitat for sensitive species and potentially carry toxic or hazardous materials into waterways, therefore, implementation of the No Action Alternative could result in significant effects on special status species.

***Proposed Project***

***Special-Status Plants***
The Project site could support the Suisun Marsh Aster *(Symphyotrichum lentum)* which inhabits fresh water marshy areas. None were found during surveys undertaken in May 2010, no waterside work is anticipated and waterside vegetation would be fenced off from the construction activity. Surveys will be undertaken again prior to construction and if present, plants will either be avoided or transplanted to a suitable location. Therefore any potential effect on the Suisun Marsh Aster would be less than significant.

***Valley Elderberry Longhorn Beetle***
No blue elderberry shrubs, the host to the VELB, were found during surveys conducted in May 2010 either associated with the Project area or along any of the proposed haul routes. The Project area is not in critical habitat for the beetle. Surveys will be conducted for the elderberry shrub again prior to commencement of construction. If any plants are found within 100 feet of the construction area, haul routes or staging area, the plant will be avoided by use of protective

fencing. Because the host plant is not present, there would be no effects to the Valley Elderberry longhorn beetle.

***Special-Status Fish***

The potential effects of the Project on fish, including special status fish is more fully addressed in the prior Wildlife, Fish and Vegetation Resources section. The effects of the Project on the Green sturgeon, Delta smelt and Central Valley steelhead would be limited as the Project would not include any in-water work or place construction equipment on the waterside of the levee. The project area is not adjacent to any critical habitat for these species. However, potentially significant effects could result from accidental discharge of soil into the water. Toxic substances including gasoline and diesel, lubricants, and other petroleum-based products, could enter the waterways as a result of spills or leakage from machinery or storage containers. Of specific concern is the potential for discharge of cement-bentonite slurry mixture. Sodium bentonite could cloud the water, exposing fish to the tiny micro-particles of bentonite that would clog their gills and cause them to suffocate. The effect of these discharges on special status fish species would be considered significant but the implementation of avoidance and mitigation measures noted below under mitigation would reduce effects to less that significant.

***Giant Garter Snake***

The giant garter snake is unlikely to be found at the Project area due to lack of suitable habitat but could potentially occupy habitat in Walker Slough – a slower moving water body with denser vegetation cover, approximately ¾ of a mile upstream from the Project. The active period of the giant garter snake is May 1 to October 1. During this period direct impacts are lessened because snakes are actively moving and avoiding danger. Because this habitat occurs nearby the Project effects would be considered significant but the implementation of avoidance and mitigation measures would reduce effects to less that significant.

***Swainson's Hawk and Burrowing Owl***

The Swainson's hawk nest was located during April 2010 surveys less than a mile from the Project site and across the San Joaquin River but outside the ¼ avoidance buffer required by DFG. The area will be surveyed again prior to start of construction to determine if any young are present in the nest or have fledged as the construction would start at the end of nesting season prior to migration. The use of the levee road across the river from the nest would be avoided until fledging has been completed. With this avoidance measure, any effect on the Swainson's hawk would be less than significant. Surveys for suitable habitat and active nest sites for the burrowing owl were conducted in April and May 2010. No evidence of any burrowing owl presence was noted. Surveys will be conducted again prior to construction and if any active burrows are discovered, DFG protocol for avoidance or relocation will be followed. By incorporating DFG protocol, the effect to burrowing owls would be less than significant.

### 4.6.4 Mitigation

***All Special Status Species***

Construction personnel shall participate in a USFWS-approved worker environmental awareness program (WEAP) covering the potential presence of federally listed species, their habitats, and the protections afforded them under the ESA or CESA. If any evidence of activity is found

suggesting the presence of listed species, the USFWS' Sacramento Fish and Wildlife Office or DFG will be contacted to initiate an interagency ESA or CESA consultation.

**Special Status Plants**

Surveys will be undertaken again prior to construction and if present, plants will either be avoided or transplanted to a suitable location.

**Special Status Fish**

The project is unlikely to directly impact sensitive fish species or their critical habitat because no work will be conducted below the OHWM. Indirect impacts, including increased sediment and/or contaminated runoff from the Project Area resulting in the deposition of soil and other materials into the San Joaquin River could present a temporary significant impact on sensitive species of fish and/or their habitat.

Implementation of the mitigation measures discussed in detail in the Water Quality Section of this report that would require erosion control measures, establish limits of work, and require site revegetation once work is complete.

**Giant Garter Snake**

The project is unlikely to directly impact giant garter snake because no work will be conducted within 200 feet of potential habitat, however because habitat is approximately one mile upstream. Mitigation would only be required to avoid take of any snake potentially using the area for migration or hibernation. The following mitigation measures will be implemented during the Project duration.

- Within 24-hours prior to commencement of construction activities, the site shall be inspected by a qualified biologist for any evidence of snake presence. The monitoring biologist needs to be available thereafter; if a snake is encountered during construction activities, the monitoring biologist shall have the authority to stop construction activities until appropriate corrective measures have been completed or it is determined that the snake will not be harmed.
- Giant garter snakes encountered during construction activities should be allowed to move away from construction activities on their own. Capture and relocation of trapped or injured individuals can only be attempted by personnel or individuals with current Service recovery permits pursuant to section 10(a)1(A) of the Act. The biologist shall be required to report any incidental take to the Sacramento U.S. Fish and Wildlife Service by phone and by written letter addressed to the Chief, Endangered Species Division, within one working day.
- The project area shall be re-inspected whenever a lapse in construction activity of two weeks or greater has occurred.
- Construction activities will be conducted between May 1 and October 1 to the extent possible.

The giant garter snake inhabits small mammal burrows and other soil crevices above prevailing flood elevations throughout its winter dormancy period (i.e., November to mid-March). Where

construction must occur outside of the May 1 and October 1 period, the following measures will be implemented on upland areas that are potential hibernation habitat for giant garter snakes:

- Clear, grub, and grade all areas no later than October 1 to fill in rodent burrows and cracks.

***Swainson's Hawk and Burrowing Owl***

The following measures would reduce potentially significant adverse impacts to Swainson's hawk and common raptors to a less-than-significant level:

- 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 effects to burrowing owls to a less-than significant level:

- 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, 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.

## 4.7 Hydrology and Water Quality

### 4.7.1 Environmental Setting

***Hydrology***

The San Joaquin River 330 miles (530 km) long, is the second-longest river in California, United States. The San Joaquin River originates in the highest peaks of the Sierra Nevada Mountains above 11,000 ft, and flows down the western slopes of the Sierra Nevada and drains most of the area from the southern border of Yosemite, south to Kings Canyon National Park, making it the second largest river drainage in the state. The San Joaquin River's tributaries include the Stanislaus River, Tuolumne River, Merced River, Calaveras River and Mokelumne River. From its origin in the Sierra Nevada, the river flows west to the Central Valley and then at Mendota Pool flows north to the Sacramento-San Joaquin Delta meeting the Sacramento River near the city of Antioch. Together they form the Sacramento-San Joaquin Delta, one of the largest estuaries in the United States.

Within the Delta, the San Joaquin River has two distributary rivers, the Old River and the Middle River, both of which once were the main channels of the river. Due to the bend in the San Joaquin River channel at the head of the Old River, a significant portion of the San Joaquin River flow continues down the Old River instead of heading northward along the San Joaquin

The San Joaquin and major tributaries drain about 32,000 square miles (83,000 km²) of California's San Joaquin Valley. Snowmelt runoff generates a majority of the flow volume from the watershed. The average unimpaired runoff of the main stem of the river at Millerton Reservoir is about 1.8 million acre feet per year (2.2 km³). Contemporary hydrology is dominated by irrigation storage, irrigation delivery, and flood control releases. Irrigation and flood control has virtually eliminated all traces of the natural flow regime, with the periodic exception of flood control releases. Water from the river is used to irrigate 1,500 square miles (3,900 km²) of highly productive farmland on the east side of the Central Valley where 200 kinds of produce are raised from oranges to cotton.

A San Joaquin River Agreement, implemented by the State Water Resources Control Board in 2000, resulted from a federal Record of Decision in 1999 and *EIS/EIR for Meeting Flow Objectives for the San Joaquin River Agreement, 1999-2010* provides for a redirection of up to 137,500 acre-feet of water annually from existing uses provide environmental benefits in the lower San Joaquin River and Delta with in-stream flows of 110,000 acre-feet for spring and 12,500 acre-feet for fall and 15,000 acre-feet available at any time during the year) as measured at Vernalis.

***Water Quality***

The Central Valley RWQCB sets water quality standards for beneficial uses of San Joaquin River water supply. Flow standards mentioned above benefit fish and wildlife beneficial uses. Water quality standards are also set for dissolved oxygen levels in the San Joaquin River near the City of Stockton and for salinity in the San Joaquin River in the Delta downstream of Stockton.

The San Joaquin River watershed drains a large area that encompasses a wide variety of land uses. During some years, portions of the San Joaquin River (and some of its tributaries) will run dry as water is diverted from the river for urban or agricultural use. Though the agricultural drain water or urban waste water will be returned to the original channel downstream of the point of diversion, the water returned to the river is not of the same quality as the water found in the upper watersheds.

The major water quality problems of the San Joaquin River region are a result of many factors, including depleted freshwater flows, municipal and industrial wastewater discharges, salt loads from agricultural drainage and runoff, and other pollutants associated with long-term agricultural irrigation and production, including nutrients, selenium, boron, and organophosphate pesticides.

The entire Central Valley, which includes the San Joaquin River, as well as the Sacramento River and Tulare Lake basins, has 40 water bodies that are impaired due to agriculture, including 800 miles of waterways and 40,000 acres in the Delta. In its most recent triennial review of its basin plan, the Central Valley Regional Water Quality Control Board identified high priority problems as salinity and boron discharges to the San Joaquin River, low dissolved oxygen problems in the lower San Joaquin River, control of organophosphorous pesticides, and the need for stronger policies to protect Delta drinking water quality (DWR, 2006).

### 4.7.2 Regulatory Setting

***Federal***

Clean Water Act

The CWA is contained in Volume 40 of the CFR. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Section 301 prohibits the discharge of any pollutant into the Nation's waters without a permit, and Section 402 establishes the permit program.

The CWA requires that states maintain a listing of impaired water bodies that do not meet water quality standards and are not supporting beneficial uses. These waters are placed on the Section 303(d) List of Impaired Waterbodies. Placement on this list triggers development of a pollution control plan called a Total Maximum Daily Load for each water body and associated pollutant/stressor on the list.

States are required under Section 303 of the CWA to adopt water quality standards for all surface ―waters of the United States,‖ which are defined as inter and intra state waters and wetlands, as well as their tributaries. Where multiple beneficial uses exist, water quality standards must protect the most restrictive beneficial use. The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) are responsible for ensuring implementation and compliance with the provisions of the federal CWA. The RWQCB regulates all water bodies within its scope, but has special responsibility for riparian areas and wetlands, which have a high resource value, are vulnerable to filling, and are not systematically protected by other programs. The proposed project is within the jurisdiction of the Central Valley

RWQCB, which is charged with the protection of the Sacramento and San Joaquin Rivers and their tributaries.

Section 402(p) of the CWA establishes a framework for regulating stormwater discharges into surface waters by issuing NPDES permits that establish pretreatment standards for discharged water. The RWQCBs implement these permits at the state level, but the United States Environmental Protection Agency (USEPA) may retain jurisdiction at its discretion. In accordance with NPDES regulations, the state requires that any construction activity affecting one acre or more attain coverage under a General Construction Activity Stormwater Permit to minimize the potential effects of construction runoff on receiving water quality.

Permit applicants are also required to prepare and implement a SWPPP that specifies erosion and sediment control BMPs to reduce or eliminate construction related impacts on receiving water quality. The SWPPP must identify sources of sediments, describe and ensure implementation of BMP's, initiate a monitoring program to inspect the site before and after storm events, and ensure that equipment, materials, and workers are available for response to failures or emergencies. All dischargers must certify annually that construction activities are in compliance with the General Permit. The DWR contractor will be responsible for obtaining the SWPPP.

Section 404 of the CWA regulates activities that result in discharge of dredged or fill material into waters of the United States. The CWA requires that an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) first obtain a certificate from the appropriate state agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the SWRCB to nine regional boards. A request for certification or waiver is submitted to the regional board at the same time that an application is filed with the USACE. The regional board has 60 days to review the application and act on it. Because no USACE permit is valid under the CWA unless ―certified by the state, these boards may effectively veto or add conditions to any USACE permit. However, since the Project would not encroach into any waters of the United States, no Section 404 permit nor Water Quality Certification from the SWRCB will be required for the project.

***State***

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is enforced by the SWRCB and the RWQCBs. The Porter-Cologne Act defines ―waters of the state as water bodies with boundaries within 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 to waters of the state.

California Fish and Game Code

Under Sections 1600-1616 of the California Fish and Game Code, the CDFG regulates activities that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. In practice, CDFG marks its jurisdictional limit at the top of the stream or lakebank,

or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain.

Any activity within a stream zone (which includes the riparian vegetation associated with perennial, intermittent, and ephemeral streams) or lake that might substantially divert, obstruct, or change the natural flow, or alter the bed or bank requires a notification package and fee on file with CDFG before project activities begin. The use of material from streams and lakes, in addition to the deposition or disposal of debris in locations where it could eventually end up in a lake, are also regulated under Section 1602 of the code. Lake and Streambed Alteration Agreements are required where project mitigation measures do not substantially reduce a project's effects. DWR will amend an existing Section 1602 Permit it obtained for erosion repairs at San Joaquin RM 42.3R in 2008 which is within the proposed Project levee reach.

California Code of Regulations
Title 23 of the CCR Section 3831(k) requires an applicant to obtain a federal license or permit to conduct an activity which may result in discharge into navigable waters, and obtain a certification from the state that any such discharge will comply with the applicable provisions of the CWA Sections 301, 302, 303, 306, and 307. No such permit is necessary for the Project as it does not involve discharge into navigable waters.

California Wetlands Conservation Policy
The California Wetlands Conservation Policy is a compilation of strategies to ensure a long-term net gain in quantity and quality of wetland acreage. The policy establishes a framework to reduce procedural complexity in the administration of state and federal wetland conservation programs. In addition, the policy encourages a partnership between landowners and state and federal agencies with incentive programs focusing on wetland conservation and restoration.

***Local Laws and Regulations***

City of Stockton General Plan
**Section PFS-2.5 Water Quality -** The City shall monitor water quality regularly to ensure that safe drinking water standards are met and maintained in accordance with State and EPA regulations and take necessary measures to prevent contamination. The City meets these goals by requiring that all new development and redevelopment projects to comply with the post-construction Best Management Practices (BMPs) called for in the Stormwater Quality Control Criteria Plan (SWQCCP).

### 4.7.3 Basis of Significance and Environmental Effects

Effects on water quality that could result from the proposed construction activities are evaluated on the basis of construction designs, practices and materials to be used, location and duration of activities, and the potential for water quality or beneficial use degradation. Operational effects on surface hydrology and water quality are determined by evaluating each repair site's potential to significantly alter surface runoff patterns, increase the quantity of runoff, or generate additional sources of pollution.

An effect is considered to be significant and to require mitigation if it results in any of the following:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharges such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, or
- Result in inundation by seiche, tsunami, or mudflow.

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.

***No Action Alternative***

Under this alternative, no action would be taken to remediate seepage potential of the levee at Project area and the risk of levee failure and subsequent flooding would remain. Should levee failure result from the No Action alternative, resultant emergency measures would likely be of a nature that limits the ability of DWR to properly implement BMPs, site-specific mitigation, and other measures that would minimize impacts on hydrology and water quality.

Potential effects to water quality from this alternative include increases in total suspended solids and turbidity, both chronically (as the levee continues 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 would 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 Project***

Levee seepage remediation would occur within the center of the levee alignment and on the landside. All construction would occur above the mean high water level, no materials would be purposely placed within waters of the United States, and no changes to the existing floodway capacity are expected. Survey conducted in April 2010 determined that no wetlands exist on the interior (landside) of the existing levee and there is no hydrologic connection with the San Joaquin River. For these reasons, a Section 404 permit and Water Quality certification is not required for the project nor is a jurisdictional wetland determination by the Corps under the CWA.

Potential effects to hydrology and water quality resulting from implementation of the proposed action include short-term temporary increases in turbidity and sedimentation levels during construction. Approximately 3 acres of bare soil would be exposed until construction is completed and the levee slope and staging area is reseeded. Dust control measures would be implemented on the levee crown, side slopes, maintenance roads and stockpiles to avoid dust and soil from entering the river as a result of construction activities.

Inadvertent releases of petroleum products (e.g., fuel, engine oil, hydraulic line oil), other hazardous materials associated with construction equipment, and bentonite-slurry could be a source of contamination at the work or staging areas. Exposed slopes during construction could be subject to rainfall and erosion and could cause temporary discharges of sediment and other contaminants in stormwater runoff to the San Joaquin River. Ground disturbance could temporarily increase the potential for localized erosion and sedimentation.

Precautions would be followed to avoid accidental spills, contamination, and discharge of sediment, slurry composition and rain-related runoff. The contractor would be required to properly store and dispose of any hazardous wastes generated at the site. During the production of slurry mixtures, a containment berm will be constructed at the edge of the levee top construction platform after removing the top 3 feet of the levee crown. Any unused or excess slurry material will be contained in a containment area in the staging area specifically set aside for this purpose and removed for off-site disposal at the completion of the project.

Existing riparian vegetation, fencing, BMPs under the SWPPP for erosion control and the construction of the waterside containment berm would be implemented to prevent any adverse substances from impairing water quality. Although temporary, the effect to water quality is considered to be potentially, incorporation of mitigation measures would reduce effects of the Project to a less-than-significant level

The proposed Project would have no effect on the amount of groundwater passing through the system nor construct any new impervious surfaces that would interfere with groundwater recharge. The proposed Project would have no effect on the existing municipal stormwater drainage systems and no new impervious surfaces would be constructed as part of the Project.

The proposed Project would have not construct any new permanent structures which would impede or redirect flood flows nor would it expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. The project area is geographically removed from areas where the potential for seiche, tsunami, or mudflow exists (e.g., near a lake, the ocean, or hillsides). Therefore, there would be no effect associated with construction of any new structures, or from seiche, tsunami, or mudflow as a direct or indirect result of the Project.

### 4.7.4 Mitigation

Since the project would disturb more than 1 acre of land, the contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), identifying best management practices to be used to avoid or minimize any adverse effects during construction to surface waters.

The following best management practices would be incorporated into the project:

- The contractor would prepare a hazardous materials management plan and spill control plan and a SWPPP prior to initiation of construction. The SWPPP would be developed in accordance with guidance from the RWQCB, Central Valley Region. These plans would be reviewed and approved by DWR before construction began. Any spills of hazardous materials to the river shall be cleaned up immediately and immediately reported to the Central Valley RWQCB, NMFS, and USFWS.
- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.
- Fuel and maintain vehicle in a specified area is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Inspect and maintain vehicles and equipment to prevent dripping of oil or other liquids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are scheduled to begin late summer 2010. If rains are forecasted during construction, erosion control measures would be implemented as described in the RWQCB Erosion and Sediment Control Field Manual.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in stormwater pollution prevention practices.
- Re-vegetate disturbed areas in a timely manner to control erosion.

Since no significant adverse affects to groundwater or existing stormwater systems are anticipated, no additional mitigation is required.

## 4.8 Geology and Soils

### 4.8.1 Environmental Setting

The Project Area is San Joaquin County within the lower San Joaquin River in the San Joaquin Valley and in the Great Valley geomorphic provinces (California Geomorphic Provinces, California Department of Conservation, 2002) and in the San Joaquin Delta Watershed (6544.0). The Great Valley is a trough in which sediments have been depositing almost continuously since the Jurassic. The San Joaquin river system is meandering single sinuous channel that only in recent times has been confined by constructed levees.

San Joaquin County is part of four physiographic regions. About 64 percent of the county is in areas where the lower San Joaquin Valley extends from south to north through most of the eastern part of the county. About 23 percent is in the Sacramento-San Joaquin Delta, in the western part of the county. The remaining regions fall into either the foothills of the Sierra Nevada to the east or the Coast Range to the west.

The lower San Joaquin Valley includes flood plains, alluvial fans, fan terraces, basins, dunes, low terraces, and high terraces. Slopes generally are nearly level, although some areas are undulating to hilly because of dissection and erosion. Basins are extensive in the San Joaquin Valley in the central part of the county, near Stockton. Hardpans are common in the soils in these areas, and the content of clay is high. The soils on the basin rims also have hardpans. Nearly all areas have slopes of less than 1 percent.

The Project site is located in the secondary Delta region of the Sacramento-San Joaquin Delta area, an area nearly level with natural levees, flood plains, and freshwater marshes. The numerous sloughs and channels that meander through the Sacramento-San Joaquin Delta area are influenced by tides as is the reach of San Joaquin River adjacent to the Project site.

Levees have been constructed along the San Joaquin River and channels to protect the adjacent land from flooding and with constructed drainage systems to improve the internal drainage of most of the alluvial soils on floodplains and the lower alluvial fans in the lower San Joaquin Valley and the Sacramento-San Joaquin Delta area. During winter and spring, the water table rises because of runoff and precipitation and, in areas adjacent to levees, because of seepage. In many areas the soils have a perched water table that has been lowered but remains within 6 feet of the surface. The natural drainageways in San Joaquin County generally flow from east to west, but the San Joaquin River, which is the largest river in the county, flows from south to north.

The levees were constructed on top of local soils primarily channel deposits varying in percents of clays, silt and sand. Most of the soils located in the San Joaquin Valley consist of sand, silt, loamy clay alluvium, peat and other organic sediments. These soils are the result of long-term natural soil deposition and decomposition of marshland vegetation (USDA-SCS 1988).

The United States Department of Agriculture Soil Conservation Service (USDA-SCS) *Soil Survey of San Joaquin County, California,* 1988 was consulted to determine soil type at the Project location. The Project area is almost entirely contained within the soil classification of 197-Merritt silty clay loam, partially drained, 0 to 2 percent slopes (Figure 14). This very deep, poorly drained; nearly level soil is on flood plains. It formed in alluvium derived from mixed rock sources. Mottles in the profile indicate a poorly drained soil; however, drainage has been

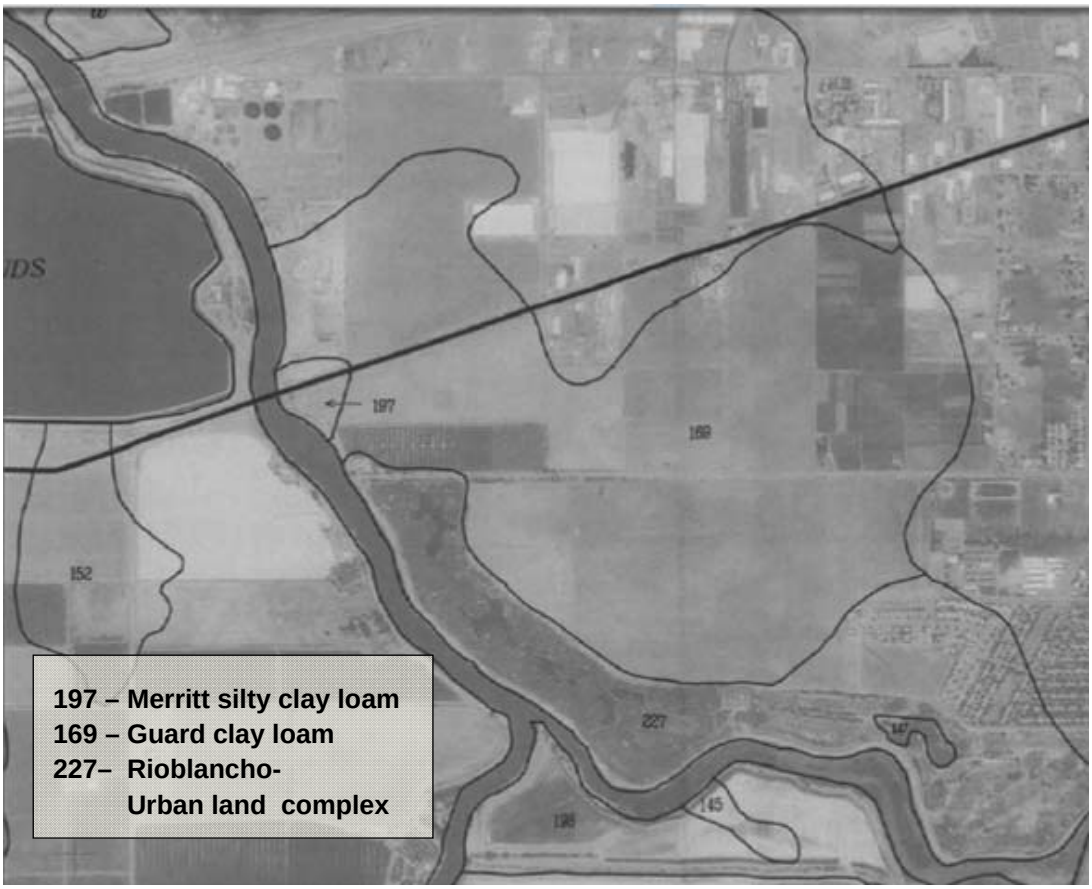


**Figure 14. Soil Map for Project Area**

improved by levees and reclamation projects. Permeability is moderately slow in the Merritt soil. Available water capacity is high. Runoff is slow, and the hazard of water erosion is slight. Areas adjacent to levees are subject to lateral seepage in wet years when the water level is high.

Subsurface borings were conducted at the site in 2008 as part of the DWR Urban Levees Evaluation Program down to a maximum depth of 88.2 feet (below the levee crown). This geotechnical exploration indicated that the levee foundation soil consists of Quaternary alluvium with the upper 4 to 5.5 feet of alluvium consisting of medium stiff to stiff, moist lean clay. The alluvium below this clay horizon consists of silty sand, poorly graded sand, and clayey sand to depths of approximately 37 to 39.5 feet below the levee crown. Below a depth of 39.5 feet, the alluvium consists of mostly interbedded lean clay, fat clay, silty sand, poorly-graded sand, clayey sand, sandy clay, and lesser amounts of silt. The Project site is surrounded to the east by l69-Guard clay loam, drained, 0 to 2 percent Slopes, a very deep, poorly drained, and nearly level soil is on basin rims formed in alluvium derived from mixed rock sources. The adjacent Van

Buskirk Golf Course to the south is located on 227-Rioblancho-Urban land complex, drained, 0 to 2 percent slopes. The Rioblancho soil is moderately deep to a hardpan and is somewhat poorly drained, formed in alluvium derived from mixed rock sources.

### 4.8.2 Regulatory Setting

***The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (prior to January 1, 1994 called the Alquist-Priolo Special Studies Zones Act - CCR, Title 14, Section 3600)***
The Alquist-Priolo Earthquake Fault Zoning Act of 1972 sets forth the policies and Criteria of the State Mining and Geology Board that governs the exercise of governments' responsibilities to prohibit the location of developments and structures for human occupancy across the trace of active faults. The policies and criteria are limited to potential hazards resulting from surface faulting or fault creep within Earthquake Fault Zones. Faults within the region include the Melones, Bear Mountain, Midway, Black Butte, Patterson Pass, Tesia Fault, San Andreas, Hayward, Calaveras, Midland, Green Valley-Concord, or Stockton Fault, Carson Valley Faults. The most likely sources of seismic hazards are from the San Andreas, Hayward, Calaveras, Midland, Green Valley-Concord, or Tracy-Stockton Faults.

***Section 402 of the Clean Water Act/National Pollutant Discharge Elimination System***
Section 402 of the Clean Water Act establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The USEPA has delegated responsibility for implementation of the NPDES program in California to the SWRCB, where it is implemented by the RWQCBs. Under the NPDES, any construction activity disturbing one acre or more must obtain coverage under the General Permit. General Permit applicants are required to prepare a SWPPP which describes the BMPs that would be implemented to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork. The NPDES program and SWPPP are described in further detail in **Hydrology and Water Quality.**

***San Joaquin County Grading Ordinance 9-1405.2 - Grading or Excavation***
Projects in San Joaquin County that involve excavations more than two feet deep; or fills more than one foot deep; or disturbances of 10,000 square feet must comply with the requirements of the San Joaquin County Grading Ordinance and must obtain a grading permit. Because the proposed Project would disturb more than two acres and would result in excavations more than two feet deep, the contractor for the proposed Project would have to comply with the requirements of the San Joaquin County Grading Ordinance and Permit. Compliance with these requirements may require the submittal of a detailed grading plan, soils engineering report engineering geology report, and liquefaction study. In all instances, the project applicant must prepare and implement an erosion control plan that details BMPs that would be implemented to control stormwater runoff, erosion, and sedimentation until final approval of grading operations is issued by the San Joaquin County Department of Public Works.

### 4.8.3 Basis of Significance and Environmental Effects

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the

most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; or Landslides.

- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

***No Action Alternative***

No Action Alternative would consist of keeping the Project area in its current condition. No construction activities that could directly or indirectly affect geologic resources would occur and routine maintenance activities would occur, as necessary. However, without remediating the site's seepage deficiencies, it is reasonable to assume that, based on the available geotechnical information; a future flood event could cause a levee failure, and the risk of flooding and resulting flood damages. A levee failure could inundate areas and result in substantial soil erosion or the loss of topsoil. Therefore, implementation of the No Action Alternative could result in significant effects on soils.

***Proposed Project***

The proposed project involves the modification of the levee structure and the levee could potentially fail during seismic shaking. San Joaquin County is not within an Alquist-Priolo Earthquake Fault Zone. No faults are documented in the vicinity of the project site. (Faults and Earthquakes in California, California Department of Conservation, 2003). There is little or no potential for liquefaction of soils to occur in the project sites due the absence of any known fault lines or seismicity in the immediate area.

All levee repairs would be required to comply with standard engineering practices for levee design. The Central Valley Flood Protection Board's standards are the primary state standards applicable to the proposed levee improvements; these are stated in Title 23, Division 1, Article 8, Sections 111–137 of the California Code of Regulations. The Board's standards direct that levee design and construction be in accordance with USACE's *Engineering Design and Construction of Levees*, the primary Federal standards applicable to levee improvements. All borrow material imported to the site would comply with standards for levee material.

Because the design, construction, and maintenance of levee improvements must comply with the regulatory standards of USACE and the Central Valley Flood Protection Board, 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, subsidence to prevent lateral spreading and seepage or collapse. The proposed project would not increase hazards to levels significantly above current conditions and

will provide increased level of safety. The Project would not affect any increase in seismic or soils related hazards.

Construction of the levee repairs would occur primarily before the rainy season, further reducing the risk of water erosion. Disturbing topsoil during levee construction could increase the potential for wind and water erosion in the project area; therefore, this effect is potentially significant. The construction contractor would be required to implement a stormwater pollution prevention plan (SWPPP) and best management practices (BMPs). The SWPPP will include an erosion control and restoration plan, a water quality monitoring plan, a hazardous materials management plan, and post construction BMPs. Implementation of these measures would reduce the potential effects of the Project on soil erosion or the loss of topsoil to a less-than-significant level.

The Project soils exhibit a low shrink-swell potential and is not an expansive soil. The construction of the slurry wall would further stabilize soil conditions on the landside by reducing through and under seepage, thereby decreasing substantial risk to the life and property in the adjacent residential neighborhoods. Because the soils in the project area have low shrink-swell potential, the proposed Project would have no effect on creating substantial risks to property or life related to expansive soils.

No septic tanks or waste water disposal systems would be constructed as part of the proposed project. The area homes and businesses are connected to municipal sewage systems. Therefore, the Project would have no effects on disposal of waste water.

### 4.8.4 Mitigation

Mitigation included in **Hydrology and Water Quality**, states that the construction contractor would prepare and implement a SWPPP to address erosion, stormwater runoff, sedimentation, and other construction-related pollutants during project construction until all areas disturbed during construction have been permanently stabilized. The preparation and implementation of the SWPPP is necessary to comply with the requirements of the county's erosion control ordinance and the state's NPDES general construction activity stormwater permit. Implementation of mitigation which includes the SWPPP and associated BMPs would reduce the potential for erosion and sedimentation as a result of the proposed Project construction activities to less than significant. Further, the proposed Project would improve the stability of the levee by further reducing seepage and the potential for seepage-related failures.

## 4.9 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.

### 4.9.1 Environmental Setting

The SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD, 2002) has pre-determined the size below which many commonly encountered projects will not exceed significance thresholds and still provide an adequate margin to account for site specific differences. The SJVAPCD pre-calculated the emissions on a large number and types of projects using the URBEMIS (URBan EMISsions) models to identify the level at which they have no possibility of exceeding the emissions thresholds for particular pollutants (Table 4). Projects falling under these size thresholds qualify for what the SJVAPCD refers to as the Small Project Analysis Level (SPAL) (Table 5). Analyses for projects below this level will not need to quantify their emissions. If, however, analyses for projects are above the level, then they would need a cursory level of emissions quantification to determine if a project will or will not exceed significance thresholds.

The screening process is undertaken with early consultation with the SJVAPCD staff to make a determination of whether the Project exceeds Small Project Analysis Level (SPAL). Phone consultation with SJVAPCD staff determined that the SPAL criteria for the Project would include both an area and vehicle trip analysis. Table 5 provides this information in terms of vehicle trips required to exceed the SPAL threshold for five general land use categories and lists sizes of various specific development types meeting these criteria. No quantification of ozone precursor emissions is needed for projects less than or equal to the sizes listed.

However, the SJVAPCD suggest that other factors, such as toxic air contaminants, hazardous materials, asbestos, and odors may still need to be analyzed. Guidelines for making these determinations included: an examination of area surrounding project site for sources of toxic air contaminants; a determination of hazardous materials, asbestos and odors. Toxic contaminants analysis would only be needed for industrial or commercial stationary sources. An asbestos evaluation would only be conducted on projects that include building demolition or renovation projects. (SJVAPCD, 2002)

**Table 4. San Joaquin Valley Attainment Status**

| **Pollutant** | **Designation/Classification** | |
|---|---|---|
| | **Federal Standards**[a] | **State Standards**[b] |
| Ozone - One hour | No Federal Standard[f] | Nonattainment/Severe |
| Ozone - Eight hour | Nonattainment/Serious[e] | Nonattainment |
| PM 10 | Attainment[c] | Nonattainment |
| PM 2.5 | Nonattainment[d] | Nonattainment |
| Carbon Monoxide | Attainment/Unclassified | Attainment/Unclassified |
| Nitrogen Dioxide | Attainment/Unclassified | Attainment |
| Sulfur Dioxide | Attainment/Unclassified | Attainment |
| Lead (Particulate) | No Designation/Classification | Attainment |
| Hydrogen Sulfide | No Federal Standard | Unclassified |

| | | |
|---|---|---|
| Sulfates | No Federal Standard | Attainment |
| Visibility Reducing Particles | No Federal Standard | Unclassified |
| Vinyl Chloride | No Federal Standard | Attainment |

[a] See 40 CFR Part 81, [b] See CCR Title 17 Sections 60200-60210.[c] On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan. [d] The Valley is designated nonattainment for the 1997 federal PM2.5 standards. EPA released final designations for the 2006 PM2.5 standards in December 2008 (effective in 2009), designating the Valley as nonattainment for the 2006 PM2.5 standards. [e] On April 30, 2007 the Governing Board of the San Joaquin Valley Air Pollution Control District voted to request EPA to reclassify the San Joaquin Valley Air Basin as extreme nonattainment for the federal 8-hour Ozone.

**Table 5. Small Project Analysis Level (SPAL) by Project Type and Vehicle Trips**

| Land Use Category | Project Size | Land Use Category | Project Size[48] |
|---|---|---|---|
| **Industrial** * | | Residential Housing | 1,453 trips/day |
| General Light Industry | 510,000 $ft^2$ | Office | 1,628 trips/day |
| Heavy Industry | 920,000 $ft^2$ | Industrial | 1,506 trips/day |
| Industrial Park | 370,000 $ft^2$ | Commercial | 1,673 trips/day |
| Manufacturing | 400,000 $ft^2$ | Institutional | 1,707 trips/day |

### 4.9.2 Regulatory Setting

Air quality in the air basin is regulated by federal, state, and regional agencies. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing implementation of the 1990 federal Clean Air Act (42 U.S.C. 7401 et seq.).

The California Air Resources Board (CARB) is the state agency that regulates mobile sources and oversees implementation of state air quality laws, including the 1988 California Air Act (Health and Safety §§ 42300 et seq.). The primary agency that regulates air quality on a regional level in the project area is the SJVAPCD. Pursuant to the Federal Clean Air Act, the EPA has established national ambient air quality standards for criteria pollutants, including ozone, CO, PM10, and particulate matter of respirable size (PM2.5). California's ambient air quality standards are generally more stringent than the Federal standards.

### 4.9.3 Basis of Significance and Environmental Effects

Adverse effects on air quality standards would be considered significant if the alternative would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

***No Action Alternative***
With this alternative, no work would be conducted at the site, therefore eliminating any new emissions of criteria air pollutants to the Project area. However, without remediating the site's seepage deficiencies, it is reasonable to assume that, based on the available geotechnical information, a future flood event could cause a levee failure, and the risk of flooding and resulting flood damages would continue. Flooding fighting and subsequent repairs would bring in construction equipment and construction activities rebuilding damage that could result in significant effects, if not mitigated air quality in the larger flood inundation area.

***Proposed Project***
The project site is within San Joaquin County and is subject to the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). If a project is proposed in a city or county with a general plan that is consistent with the most recently adopted air quality plan, and if the project is consistent with that general plan, then the project is considered to be consistent with applicable air quality plans and policies. The proposed project would be not effect or be in conflict with or obstruct implementation of the applicable air quality plan constructed long the federal levee system and would remain consistent with current land use designations of the San Joaquin County General Plan.

The Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The area of the project, including staging area is only 3 acres (130,680 square feet) well below the most sensitive acreage criteria for inclusion in the SPAL category. Construction equipment, on-road heavy-duty trucks, and construction worker vehicles would also generate criteria air pollution emissions. Emissions from construction related trips would fall well below the SPAL criteria for significance based on number of trips per day.

A project's construction phase produces many types of emissions and would come from a variety of activities including:
- grading, excavation, road building, and other earth moving activities;
- travel by construction equipment, especially on unpaved surfaces;
- exhaust from construction equipment; and
- asphalt paving.

But, but PM-10 (i.e., respirable particulate matter with an aerodynamic diameter of 10 micrometers or less) from dust-generating activities is the pollutant of greatest concern from construction related activities. PM-10 emissions from construction activity can vary considerably depending on factors such as the level of activity, the specific operations taking place, and weather and soil conditions. The SJVAPCD emphasizes implementation of effective and comprehensive control measures rather than detailed quantification of construction emissions. The SJVAPCD recommends that Lead Agencies consider the size of the construction area and the nature of the activities that will occur, and require the implementation of all feasible control measures. (SJVAPCD, 2002)

However, as described in Hydrology and Water Quality sections, the contractor would prepare and implement a SWPPP and construction BMPs. Implementation of the SWPP and BMPs would help to reduce impacts from dust-generating activities. Therefore, based on SPAL criteria and implementation of mitigation measures including SWPPP and BMPs, the Projects effects on air quality standards would be considered less than significant.

Criteria pollutant concentrations from these emission sources would incrementally add to regional conditions during the construction period. However, construction activities for the project would be temporary. Thresholds for significance criteria for pollutants of concern are estimated based on yearly accumulation estimates (tons/year). The emissions related to project activities during the short duration of the construction period averaged over the year will not likely exceed the thresholds, therefore, impacts would be considered less than significant.

The San Joaquin Valley is currently in non-attainment for Ozone and PM 2.5 for State and federal standards and in attainment for PM 10 for federal standards but not for the State. 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 (PM10). 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 NOX emissions are primarily associated with gas and diesel equipment exhaust and the application of architectural coatings for which the SJVAPCD is in attainment.

With respect to the project, levee repairs would result in the temporary generation of ROG, NOX, and PM10 emissions from site preparation (e.g., excavation, grading, and clearing), material transport, and other miscellaneous activities. As discussed above, the contractor's employment of SWPPP and BMPs on site would reduce the generation of non-attainment constituents. The short term nature of the repairs would not result in a cumulatively considerable net increase for PM10 or Ozone criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard. Therefore, the Project would not have a significant effect on the cumulative and considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors); and with mitigation the Project effect would be less than significant.

Construction of the project would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. 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 any sensitive 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). According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determines the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the action. Thus, because of the dispersive properties of diesel PM (Zhu and Hinds 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, the Projects temporary effects on any sensitive receptors would be considered less than significant.

Construction of the Project would not create objectionable odors affecting a substantial number of people. Diesel exhaust emissions, one source of odor from on-site construction equipment 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, the Project's short-term diesel odors would be considered less than significant effect.

### 4.9.4 Mitigation

Implementation of the best management practices listed below would reduce air emissions and ensure the project emissions would remain at less-than-significant levels.

- Maintain properly functioning emission control devices on all vehicles and equipment.
- Use diesel-fueled equipment manufactured in 2003 or later, or retrofit equipment manufactured prior to 2003 with diesel oxidation catalysts.
- During construction, implement all appropriate dust control measures, such as tarps or covers on dirt piles, in a timely and effective manner.
- Periodically water all construction areas having vehicle traffic, including unpaved areas, to reduce generation of dust. Application of water would not be excessive or result in runoff into storm drains.
- Suspend all grading, earth moving, or excavation activities when winds exceed 20 miles per hour.
- Water or cover all material transported offsite to prevent generation of dust.
- Sweep paved streets adjacent to construction sites, as necessary, at the end of each day to remove excessive accumulations of soil or dust.
- Cover all trucks hauling dirt, sand, soil, or other loose material, or maintain at least 2 feet of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. This provision would be enforced by local law enforcement agencies.
- Re-vegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

## 4.10 Climate Change

### 4.10.1 Environmental Setting

Global warming is the name given to the increase in the average temperature of the Earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal (IPCC, 2007). Global average surface temperature has increased approximately 1.33 °F over the last one hundred years, with the most severe warming occurring in the most recent decades. Eleven of the twelve years from 1995 to 2006, rank among the twelve warmest years in the instrumental record of global average surface temperature (going back to 1850). Continued warming is projected to increase global average temperature between 2 and 11 °F over the next one hundred years

The causes of this warming have been identified as both natural processes and as the result of human actions. Increases in greenhouse gas (GHG) concentrations in the Earth's atmosphere are thought to be the main cause of human induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the Earth and is reflected back into space. The six principal GHGs of concern are carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), sulfur hexafluoride ($SF_6$), hydrofluorocarbons, and perfluorocarbons. Conventionally, greenhouse gases have been reported as carbon dioxide equivalents ($CO_2e$). $CO_2e$ takes into account the relative potency of non-$CO_2$ greenhouse gases and converts their quantities to an equivalent amount of $CO_2$ so that all emissions can be reported as a single quantity.

With respect to California's water resources, the most significant impacts of global warming have been changes to the water cycle and sea level rise. Over the past century, the precipitation mix between snow and rain has shifted in favor of more rainfall and less snow (Mote et al., 2005; Knowles, 2006) and snow pack in the Sierra Nevada is melting earlier in the spring (Kapnick and Hall, 2009). These changes have significant implications for water supply, flooding, aquatic ecosystems, energy generation, and recreation throughout the state.

During the same period, sea levels along California's coast rose seven inches (DWR, 2008). Sea level rise associated with global warming will continue to threaten coastal lands and infrastructure, increase flooding at the mouths of rivers, place additional stress on levees in the Sacramento-San Joaquin Delta, and will intensify the difficulty of managing the Sacramento-San Joaquin Delta as the heart of the state's water supply system.

The proposed Project is situated in the Secondary zone of the Sacramento-San Joaquin Delta and subject to daily tidal cycle fluctuations. The levee is constructed to elevation 21 feet above sea level with a margin of safety (freeboard) of 6 feet above the 200-year flood elevation (15 feet above sea level). Sea levels have risen on average1.8 mm/yr between 1995 and 2006 or 0.7 inches. The more immediate threat to Stockton urban levees would result from changes in flood regimes related to earlier snowmelts with potentially greater rises in river surface levels and higher flows.

***Local Climate***
In general, the climates of California formed due to topography and the position of the semi-permanent subtropical cell, a center of high atmospheric pressure in the Pacific Ocean off the California coast. During the summer, the cell moves over northern California and Nevada and effectively blocks the movements of the Pacific storm systems into California, creating drought-like conditions. During the winter, the cell retreats to the southwest, allowing storms and frontal systems to move into northern and central California. As a result, California winters are cool and wet, while the summers are typically hot and dry.

The San Joaquin Valley is characterized by warm, dry summers and cool winters. The average mean temperature is $65^{o}$ F. Daily high temperatures average $95^{o}$ F in summer, and daily low temperatures average $45^{o}$ F in winter. The predominant wind direction is from the north during the summer and from the south during the winter.

The City of Stockton, located at the northern end of the Central Valley has a Mediterranean climate with hot, dry summers and cool, wet winters. The temperatures range is much greater than in the nearby Bay Area. Stockton has an annual average of 73.2 days with high temperatures of 90 °F (32 °C) or higher and an average of 29.3 days with low temperatures of 32 °F (0 °C) or lower. The area receives an average of 55 days with measurable precipitation annually with about 80% of the 16.6 inches (420 mm) of precipitation falling during the rainy season from October through April. Located in the of California,

The Atmospheric inversions often occur in the winter, during which time the temperatures increase with elevation. Heavy fog, known in Central California as "tule fog" forms during this season, particularly in December and January. The air beneath the fog remains cool, while the air above the fog is warm, contributing to the inversion layering.

For almost everywhere in California, the trend for Maximum (daytime) and minimum (nighttime) temperatures are increasing but at different rates. The annual *minimum* temperature averaged over all of California has increased 0.33°F per decade during the period 1920 to 2003, while the average annual *maximum* temperature has increased 0.1°F per decade (Moser et al., 2009).

### 4.10.2 Regulatory Setting

***Federal Law, Policies, and Plans***

<u>EPA Greenhouse Gas Reporting Rule</u>
On September 22, 2009, EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule would apply to most entities that emit 25,000 metric tons of carbon dioxide equivalents ($CO_2e$) or more per year. Starting in 2010, facility owners are required to submit an annual greenhouse gas ("GHG") emissions report with detailed calculations of facility GHG emissions. The Reporting Rule would also mandate recordkeeping and administrative requirements in order for EPA to verify annual GHG emissions reports.

<u>EPA Endangerment and Cause and Contribute Findings</u>

On December 7, 2009, the Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

> **Endangerment Finding:** that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$)—in the atmosphere threaten the public health and welfare of current and future generations, and
>
> **Cause or Contribute Finding:** that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

***State Law, Policies and Plans***

Between 2000 and 2008, the State instituted over 10 legislative actions that included establishing the California Climate Registry; creating fuel standards to reduce GHGs; setting Statewide energy renewal goals; setting GHG reduction targets with reporting requirements, instituting electrical generation GHG emission performance standards; and bringing about the production of low carbon fuel. Adopted policies included the development of guidelines for CEQA analysis, requirement of regional transportation plans to include sustainable community strategies to reduce GHG in housing and transportation; and that the California Resource Agency produce a Sea Level Rise Assessment and Climate Adaptation Strategy for the State. The most significant legislation included:

<u>California Environmental Quality Act and Senate Bill (SB) 97</u>
The California Environmental Quality Act (CEQA) requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. CEQA requires that the cumulative impacts of GHG, even additions that are relatively small on a global basis, need to be considered.

<u>Executive Order S-3-05</u>
Executive Order (EO) S-3-05 made California the first state to formally establish GHG emissions reduction goals. EO S-3-05 includes the following GHG emissions reduction targets for California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

The final emission target of 80 percent below 1990 levels would put the state's emissions in line with estimates of the required worldwide reductions needed to bring about long-term climate stabilization and avoidance of the most severe impacts of climate change (IPCC, 2007). As laid out in the EO, the Climate Action Team, established under this order would submit biannual reports to the governor and State legislature describing progress made toward reaching the targets.

Climate Change Scoping Plan

On December 11, 2008, pursuant to AB 32, California Air Resources Board adopted the Climate Change Scoping Plan (CCSP) that set forth six key elements to achieve emissions reduction targets for GHGs via regulations, market mechanisms, and other actions. The plan also included 39 recommended measures to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels. The measures in the Scoping Plan will be developed over the next two years and be in place by 2012.

Regional Plans and Policies

The Climate Change Scoping Plan (CCSP)identified local governments as "essential partners" in the effort to reduce GHG emissions with "broad influence and, in some cases, exclusive jurisdiction" over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Many of the proposed measures to reduce GHG emissions rely on local government actions. The (CCSP) encourages local governments to reduce GHG emissions by approximately 15 percent from current levels by 2020 (CARB, 2008b).

San Joaquin Valley Air Pollution Control District

The District's Governing Board adopted a *Climate Change Action Plan (CCAP)* in August 2008 to assist local land-use agencies, Valley businesses, and the District in complying with State and Federal mandates. The District held technical workgroups under two workgroups - the Greenhouse Gas CEQA Guidance workgroup and the Carbon Exchange Program workgroup. Public Hearings were held throughout 2008 and 2009. The products produced by the workgroups were present to the Board on December 17, 2009 and included:

- Final Draft Staff Report – Addressing GHG Emissions Impacts under CEQA
- Projects under CEQA When Serving as Lead Agency
- Proposed Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA

The Workgroups also produced the following reports:

- Draft Status Report of CCEQA GHG Guidance – Project Scope Subcommittee – Characterization of Greenhouse Gas Emissions (February 10, 2009)
- Report to the APCO Regarding Development of the San Joaquin Valley Carbon Exchange (March 16, 2009)

The SJVAPCD has adopted the guidance: Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and the policy: District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency. This guidance and policy relies on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific GHG emissions on global climate change during the environmental review process, as required by CEQA. Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure.

Projects implementing BPS would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29 percent reduction in GHG emissions, from business-as-usual, is required to determine that a project would have a less than cumulatively significant impact. The guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project related impacts on global climate change. Currently, Best Performance Standards (BPS) has been developed for Stationary Sources that include Boilers, Steam Generators, Gasoline Dispensing Facilities (GDF), Oil and Gas Extraction, Storage, Transportation and Refining Operations, and for Co-generation. GHG Emission Reduction Measures for land use development projects have been addressed under the District Policy through Appendix J: GHG Emission Reduction Measures – Development Projects and Draft Proposed baseline GHG emissions per dwelling unit – Residential (5/12/10)

City of Stockton Climate Action Plan Advisory Committee
The City of Stockton is developing a Climate Action Plan to help mitigate the amount of GHG emission within the city and has established a Climate Action Plan Advisory Committee consisting of representatives from environmental, non-profit, labor, business and developer interest. This committee will ensure that all aspects of the community are taken into consideration before adopting a Climate Action Plan for the City of Stockton.

The City of Stockton has begun working with ICLEI (Local Governments for Sustainability) to create a baseline emissions inventory to determine CO2 amounts currently emitted throughout the city as a whole and as a government entity. By understanding and quantifying how much CO2 is produce, the City can specifically target areas where reductions are easily obtainable and set targets for future emission reductions. Interim Green House Gas (GHG) reduction target: 3 million metric tons to 2.1 million metric tons by 2020, or 28.7% was approved by the City Council on September 1, 2009

The City is evaluation opportunities **a**t the Community level to reduce GHG emission through changes in energy use (electrical/natural gas), transportation and waste management. Within the Government sector, the City is evaluating changes to buildings (energy Use); fuel consumption of government fleets, employee commute trips; and government business travel as well as waste management, storm water and wastewater management and streetlights.

### 4.10.3 Basis of Significance and Environmental Effects

It is unlikely that any single project by itself could have a significant impact on the environment. However, the cumulative effect of human activities has been clearly linked to quantifiable changes in the composition of the atmosphere, which in turn have been shown to be the main cause of global climate change (IPCC, 2007). Therefore, the analysis of the environmental effects of GHG emissions from this project will be addressed as a cumulative impact analysis.

DWR has not established a quantitative significance threshold for GHG emissions; instead each project is evaluated on a case by case basis using the most up to date calculation and analysis methods. CEQA Appendix G. Environmental checklist includes the following criteria for GHG emissions for evaluating whether proposed Project that could result in a significant effect if it would generate GHG emissions:

- either directly or indirectly, that may have a significant cumulative impact on the environment, or
- that would conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases, including the state goal of reducing greenhouse gas emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006.

Based on the size, scope, and purpose of this project the following significance criteria will be used to determine the significance of GHG emissions from this project:

***Analysis Methods***

The method used to calculate GHG emissions is the Greenhouse Gas Emissions Inventory and Calculation spreadsheet provided by DWR CEQA Climate Change Committee. Each of the six principal GHGs has a different global warming potential. $CO_2$, though plentiful, is a relatively weak GHG. In contrast, $SF_6$ has approximately 24,000 times more potential to cause global warming. Thus GHG emissions are conventionally reported as $CO_2$ equivalents. $CO_2$ equivalents are the equivalent amount of $CO_2$ that would have the same effect on global warming as the total amount of all six GHGs.

The SJVAPCD under its Small Projects Analysis Program (SPAL) has a screening process for smaller projects where they have pre-calculated emissions on a large number and types of projects. The District uses the CARB's URBEMIS model (URBan EMISsions) to identify the level at which a project would not exceed emissions thresholds to meet federal and State air quality Standards for air quality pollutants other than the six key GHGs that would contribute to global warming including ozone, CO, NOX and SOX. In the SPAL program, project characteristics such as area size, road trips or development type are used as a surrogate in lieu of actual analysis of individual air quality constituents. Land use area and trips per day were used to assess the proposed Project's emissions and qualification for the SPAL program based on consultation with SJVAPCD staff.

***No Action Alternative***

With this alternative, no work would be conducted at the site, therefore eliminating any new sources of emissions of criteria air pollutants. However, without remediating the site's seepage deficiencies, it is reasonable to assume that, based on the available geotechnical information, a future flood event could cause a levee failure and the risk of flooding and resulting flood damage would continue. Flood fighting and subsequent repair efforts would bring in construction equipment to prevent or remediate damage that could result in significant effects from GHG emissions from diesel engines on site, hauling of materials, personal trips generated that could extend for long recovery periods. The resulting emissions could exceed any of the significance thresholds set forth above. However, this is a qualitative assessment as these quantities are unknown and a quantitative effects analysis based on $CO^2$ equivalents would be too speculative.

***Proposed Project***

<u>Construction Effect</u>

The Proposed project is of a short duration, approximately 30-days with the most intense construction – the removal and rebuilding of the top three feet of levee crown, and excavating

and construction of the slurry wall occurring over a 14-day period. Mobilizing and de-mobilizing of the Project would require an additional week, before and after the main construction for clearing and grubbing, erosion control seeding, rebuilding the levee road top and site cleanup. The scale of the Project is relatively small. The construction footprint is approximately 1 acre and combined with the staging area totals approximately 3 acres.

The primary source of GHG emission will result through the use of diesel-powered construction equipment operation; hauling to and removal from the site of construction materials; and worker-related commute trips. This project is estimated to generate approximately 120 metric tons of $CO_2$-equivalent emissions: 112.9 metric tons would be from construction equipment emissions, 4.5 metric tons from hauling-related emissions, and about 2.6 metric tons of construction workforce transportation emissions. There would be no net long-term emissions (permanent sources) of GHG from this project.

These quantities were generated through use of the *Greenhouse Gas Emissions Inventory and Calculation* spreadsheet. Haul quantities were based on the dimensions of the excavated trench for both imported cement-bentonite quantities and the amount of soil to be exported from the site. In addition, it includes the estimated truckloads of imported soil material needed to rebuild the top three feet of the levee. It may be an overestimation for this phase of the construction as much of the material removed or excavated may be reusable on-site. The haul truck capacity for all imported or exported material is 22 cubic yards.

Construction related emissions is generated by 8 different types of construction equipment as the excavation of a deep trench, removal of spoils, storing, mixing and slurrying the bentonite-cement mixture is a highly skilled, technical effort requiring close coordination by specialized construction staff.

No state or federal agency has yet established significance criteria (thresholds of significance) for GHG or other impacts to global climate change. However, some statewide standards have been established that provide information about the order of magnitude of emissions that might be considered significant. Pursuant to AB 32, the California Air Resources Board (CARB) mandates that only “large” facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons of $CO_2$ equivalents ($CO_2e$) per year report their GHG emissions. In addition, CARB has released a preliminary draft staff proposal that recommends 7,000 metric tons of $CO_2e$ per year be used as the baseline threshold for impacts. It is not the intention of the lead agency to adopt a 25,000 or 7,000 $MTCO_2e$ threshold of significance, but only to provide context to the scale of the emissions from the proposed project. The emissions from the proposed Project are three and two orders of magnitude lower than CARB's current reporting level and proposed significance threshold, respectively.

The Project’s generation of regulated pollutants other than the six major GHG represented by the $CO_2$ equivalents were not quantified but were well below the SPAL thresholds set for area and commute trips by several order of magnitude. Thresholds for qualification under the SPAL program are 510,000 $ft^2$ by area (both construction and staging area) and 1,506 trips/day for vehicle use. The proposed Project size is 130,068 $ft^2$ and would generate 70 trips/days during the 14-day active construction period, both well below the SPAL thresholds for significance.

The SJVAPCD's *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* relies on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific GHG emissions on global climate change during the environmental review process. Though the District has not established specific BPSs for non-stationary sources other than new housing, the construction-related BMPs listed under Air Quality and Water Quality effects analysis sections will contribute to reduction in GHG emissions.

Operations Effects
Once the project is complete, there would be no additional GHG generation activities including no new automobile trips beyond current levels. The levee is maintained by Reclamation District 404 which will continue to carryout routine maintenance.

Emissions Offsets or Reductions
As discussed above under the No Action alternative, the implementation of the project would reduce the risk of catastrophic infrastructure failure that could result in large emissions from remediation activities. The proposed BMPs measures would reduce emission of GHGs by requiring proper maintenance of emission control devices on all vehicles, requiring the use of diesel-fueled equipment with diesel oxidation catalysts, employing dust control measures, and re-vegetating all areas cleared by construction.

Based on the review discussed above, this project does not conflict with any statewide or local goals with regard to reduction of GHG. The discharge of GHG to the atmosphere during and after construction is believed to be less than significant, and no significant negative effect to climate change is expected,

### 4.10.4 Mitigation

Since there is no significant effect by the proposed Project from discharge of GHG to the atmosphere, no mitigation would be required.

## 4.11 Transportation/Traffic

This section describes the traffic and circulation characteristics of the existing roadways in the project vicinity and analyzes the potential impacts of the proposed Project and its alternatives on normal traffic circulation and transportation systems. Because the proposed Project will have no effect on air traffic patterns, nor increase hazards by redesigning roadways, change parking capacity, nor conflict with adopted policies, plans or programs supporting alternative transportation, these factors addressed in the CEQA initial study will not be addressed further.

### 4.11.1 Environmental Setting

Stockton's land use patterns reflect the city's unique location and surrounding context. Stockton's downtown owes its origins to the synergy created by the port and rail lines first built in the 19$^{th}$ century. Today, in addition to the port and rail lines, the overall structure of the city is

defined by Interstate 5 (I-5) and State Route 99 (SR 99) running north-south, and numerous arterials running eastwest, including State Route 4. Industrial uses predominate in the southern part of the City and areas surround the airport. Commercial uses are arrayed along the major east-west arterials and increasingly along I-5. Residential uses have historically expanded north, and to a lesser extent the southwest.

Streets in the Project area consist primarily of minor residential streets maintained by City of Stockton. The Project staging area is bordered by Sunny Creek Court, a dead-end Street, and McCloud River Road. Both these streets service only the local residents as they do not convey through traffic. McCloud River Road conveys internal neighborhood traffic to Houston Avenue. Houston Avenue connects with West 8$^{th}$ Street, considered an arterial feeder street.

West 8$^{th}$ Street will be used to access the site from the east but terminates at Houston Avenue, the street that parallels the Van Buskirk Golf Course. A small service road continues beyond the end of West 8$^{th}$ that is accessed through a locked gate and accesses the levee crown road via a steep ramp.

The nearest major street to the Project is State Highway 4 (West Charter Way), is immediately north of the Project but is not accessible from the site except through a locked gate on the levee crown maintained by the Reclamation District and off limits to public access. Highway 4 crosses the San Joaquin River over the Garwood Bridge, adjacent to the Project levee.

The City of Stockton, Department of Public works publishes traffic volume maps on their website, reported as the approximate number of vehicles in both directions during a 24-hour period. Traffic volumes (in thousands) for South Fresno Avenue are 6.1 between Highway 4 and West 8$^{th}$ Street. Traffic volume on West 8$^{th}$ Street starting at I-5 drops from 18.8 to 10.8 to as it reaches South Fresno Avenue. West 8$^{th}$ Street traffic volume is reduced further between South Fresno Avenue and Houston Avenue to 4.3. Highway 4 traffic counts parallel these reductions, starting with 26.1 at I-5, with volume reductions to 18.2 at South Fresno Avenue. Highway 4 traffic volume drops to 14.5 as it crossed the Garwood Bridge next to the proposed Project site. (City of Stockton, 2008)

### 4.11.2 Regulatory Setting

Caltrans is responsible for planning, designing, constructing, operation, and maintaining all state-owned roadways in San Joaquin County (there are no federal regulations related to transportation and circulation that are applicable to the project area). Caltrans enforces various policies and regulations related to the modification of, or encroachment on state owned roadways.

The Stockton General Plan 2035, Traffic Element (TC-2.1) (City of Stockton, 2007) assesses level of service (LOS) for roads within the Stockton area of influence. LOS is a qualitative measure of traffic operating conditions whereby letter grades of “A” through “F” are assigned to roadway segments, with an “A” denoting best conditions and “F” the worst. San Joaquin County has identified “D” as the minimum acceptable standard to be maintained for both daily and peak hour conditions. The general plan does not address temporary changes in LOS related to construction activities.

### 4.11.3 Basis of Significance and Environmental Effects

The Project would have a significant effect on traffic if it would:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- Exceed, individually or cumulatively, a level of service (LOS) standard established by the county congestion management agency for designated roads or highways, or
- Result in inadequate emergency access.

***No Action Alternative***
With this alternative, no work would be conducted at the site, therefore eliminating any additional traffic to the Project area. However, without remediating the site's seepage deficiencies, it is reasonable to assume that, based on the available geotechnical information, a future flood event could cause a levee failure, and the risk of flooding and resulting flood damages would continue. Flooding could disrupt Highway 4 traffic, a major east-west corridor as well as prevent residents from accessing homes as many of the streets terminate at the golf course or levee. Implementation of the No Action Alternative could result in significant effects on traffic both in access, damage to roads and disruption in traffic patterns.

***Proposed Project***
For the analysis of short-term construction-related effects on traffic, the Institute of Transportation Engineers' (ITE) threshold recommendation was used: that a potential impact be further examined when it involves an increase of 50 or more trucks, 100 passenger vehicles, or an equivalent combination of vehicles per hour in the peak direction during the peak hour at any roadway intersection (ITE 1989).

Construction material – bentonite, cement, and borrow materials would be brought to the site from an off-site location to the staging area. During construction, there would be approximately 30 haul trips per day of approximately 50 mile round trip distances to the project site for transport of construction material to and removal of construction generated materials from the site during the 14-day period of maximum construction activities. There would also be approximately 10 additional vehicle round 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 30-day period. Operation and maintenance of the project would not require any additional vehicle trips. Maintenance and monitoring of the repair sites would be consistent with the existing maintenance and monitoring schedule for levees on the project site. The proposed project would not result in any new or different land uses or population increases. Any increase in traffic using the ITE thresholds or even in proportion to existing traffic levels would be insignificant. Because the increased traffic due to construction would be temporary and there would be no increased traffic due to maintenance of the levee, with the incorporation of mitigation measures, the effect by the Project on traffic would be less than significant.

LOS standards established for roads by the County are intended to regulate long-term traffic increases or changes in traffic patterns that result from the development of facilities such as businesses or residences. Because construction of the proposed Project would not create long-term traffic or change long-term traffic patterns, LOS standards are not considered in this evaluation of traffic effects. The increased traffic due to construction would be temporary and any associated degradation in LOS would be temporary. There would be no effects on LOS standards.

Emergency access to the project site would be maintained at all times, including during construction. Therefore, the project sites would not reduce response times for emergency services, such as fire protection, police, and ambulance. This would be a less-than-significant effect.

### 4.11.4 Mitigation

- The contractor would develop a Traffic Control Plan, which would be reviewed and approved by Caltrans prior to construction.
- Do not permit construction vehicles to block any roadways or private driveways.
- Provide access for emergency vehicles at all times.
- Select haul routes to avoid schools, parks, and high pedestrian use areas, when possible.
- Obey all speed limits, traffic laws, and transportation regulations during construction.
- Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment.
- Prior to construction, notify local residents, business, schools, and the City of Stockton if road closures would occur during construction.
- Contractor would repair roads damaged by construction.

The proposed mitigation measures would reduce the effects on traffic and circulation to less than significant.

## 4.12 Noise

This section addresses noise that would be generated during the construction and operation of the proposed Project and the effects of that noise on sensitive receptors on or near the project site. 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. CEQA includes in its significance criteria for noise, under includes an analysis of Project effects on public or private airports within two miles. CEQA also includes criteria based on permanent increases in ambient noise levels. No airports are located within two miles of the project and the Project activity is of only a short-term nature and duration and will not result in permanent increases in noise. For these reasons, these two subjects will not be discussed further in this document.

### 4.12.1 Environmental Setting

Acoustic monitoring was not conducted in the Project Area. The existing noise environment within the project vicinity is primarily influenced by surface-transportation noise emanating from vehicular traffic on nearby roadways (e.g., Highway 4), the Union Pacific Railroad, routine agricultural activities across the river (e.g., use of heavy-duty farm equipment) and maintenance activities at the Van Buskirk golf course. A pumphouse facility is located immediately upstream of the site and is associated with 4 storm drain outfall structures just beyond the upstream end of the Project and would generate noise during operations. 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. One of the dominant noise sources in the vicinity of the Stockton area sites is vehicular traffic on nearby roadways. Traffic on Highway 4 contributes the highest background noise levels, with daily traffic volume of 14,500 vehicles per day in the Project vicinity.

Residential housing is as close as 112 feet from the Project levee reach at the north end of the site on Volpi Court and 154 feet from the nearest house at the south end of the project at Sunny Creek Court. Other homes most closely located to the Project levee on McCloud River Road and along Sunny Creek Court are between 200 and 350 feet away. The slurry wall would start just outside of the Caltrans right-of-way which is 10 feet from the Bridge structure and Highway 4. Beyond the upstream end of the slurry wall construction is the utility easement for the stormwater outfall and pump house. The municipal golf course is upstream of this open area and provides a buffer between the Project and housing to the east.

Construction activities associated with the project may result in some minor amount of ground vibrations. Vibrations from construction activities are typically below the threshold perception when activity is more than 50 feet from the receptor. The closest resident would be more than 100 feet away. Due to the transitional nature of construction activities, exposure at any one location will be intermittent. The most common activity throughout the reach will result from truck traffic. Vibration from these activities will be short term and end when construction is complete. The construction activities would not involve high effect activities like pile driving.

### 4.12.2 Regulatory Setting

Federal and state regulations include those that are intended to prevent transportation noise sources from affecting noise-sensitive receptors such as residences, hospitals and schools. The Federal Transit Administration (FTA) has developed guidelines for the assessment of construction- related noise impacts (FTA 1995). For residential uses, the FTA detailed assessment criteria for determining a significant impact is an eight-hour Leq (dBA) of 80 or greater during the day and 70 or greater during night.

***San Joaquin County Ordinance Code***
Section 9-1025.9 of the Ordinance Code sets provisions concerning noise levels. Section 9-1025.9 (c) Exemptions (3) exempts "Noise sources associated with construction, provided such activities do not take place before 6:00 a.m. or after 9:00 p.m. on any day."

***City of Stockton Municipal Code for Noise Standards***

The Stockton Municipal Code for Noise Standards (Division 16-340) (City of Stockton, 2004) limits construction and loading and unloading operations to between 7:00AM and 10 PM (Table 6). The code sets standards for acceptable noise levels that are measured at the property line of the nearest sensitive receptor. A separate standard is set for transportation-related noise and for Land Use-related noise.

However, the same Code also includes in Section 16-340.020 – Activities Exempt from Noise Regulations.

This section exempts:

F. ***Public health and safety activities****. All transportation, flood control, and utility company maintenance and construction operations at any time on public rights-of-way, and those situations that may occur on private property deemed necessary to serve the best interest of the public and protect the public's health and well being….*

**Table 6. Stockton Municipal Transportation-Related Noise Standards**

| **Noise-sensitive Land Use Type** | **Outdoor activity** | **Indoor Spaces** |
|---|---|---|
| Residential | 65 | 45 |
| Multi-use (with residential) | 65 | 45 |
| **Land Use-Related Noise Standards – Outdoor Activity Areas Only** | | |
| **Noise-sensitive Land Use Type** | **Outdoor activity** | **Indoor Spaces** |
| **Noise Level Descriptor** | **Day (7 AM – 10 PM)** | **Night (10 PM – 7 AM)** |
| Hourly equivalent sound level (Leq), dB | 65 | 45 |
| Maximum sound level (Lmax), db | 65 | 45 |

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-Decibel (dBA) is a measure on a logarithmic scale which indicates the squared ratio of sound pressure to a reference sound pressure.

### 4.12.3 Basis of Significance and Environmental Effects

Construction noise and vibration effects were estimated quantitatively using date on construction equipment noise emissions and vibration reference levels provided by the EPA and FTA. Effects would be significant if the Project would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, State, or federal standards;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

***No Action Alternative***

Under this alternative, no action would be taken to remediate seepage potential of the levee at Project area and the risk of levee failure and subsequent flooding would remain. Should levee failure result from the No Action alternative, resultant emergency measures would likely be of a nature that increases ambient noise levels and vibrations during both in day and nighttime hours. The effects of both noise generated during flood fight activities and during flood damage remediation would be significant.

***Proposed Project***

Short-term construction source noise associated with construction activities would include site preparation (e.g., excavation, grading, and clearing), material transport, removal of levee crown, construction of slurry wall, levee crown reconstruction, 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 7.

**Table 7. Typical Construction-Equipment Noise Levels**

| Type of Equipment | Noise Level in dBA at 50 feet | |
|---|---|---|
| | Without Feasible Noise Control | With Feasible Noise Control[1] |
| 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

The closest resident to the Project levee reach where most of the construction noises would occur are two homes located in Volpi Court located at 112 feet, 131 feet and 187 feet from the levee. The same homes are also located from 142 to 250 feet of Highway 4, a major arterial road that carries 14,500 vehicles per day and are also located behind high wooden fences. An additional home is located at the most upstream end of the site and is within 154 feet of the levee. It also is fenced and is within 50 feet of the pumphouse to the south of the Project. All other homes are over 200 feet from the levee and would be subject to noise levels within acceptable standard levels.

The simultaneous operation of on-site construction equipment could result in combined intermittent noise levels up to 88 dB at 50 feet from the project site. Typical noise-attenuation rate is 6 dBA per doubling of distance. Construction-generated noise levels at the three closest homes could be attenuated by distance to between 79 and 81 dB for the most northern homes and 60 for the downstream home. Windows and building facades typically reduce interior noise

levels by 15 dBA and air conditioning even further. (Lipscomb and Taylor 1978). Construction would take place within August, September or October when air conditioning would reduce noise levels further. Inside the residences noise levels from project construction would drop to between 64 and 66 dBA without air conditioning and further with air conditioning.

Based on their distance from the Project site, sensitive receptors (two homes) are anticipated to experience noise levels substantially greater than existing noise levels. Construction activities associated with the project would be temporary in nature and related noise impacts would be short term. However, since construction activities could increase ambient noise levels, the effect could be significant without mitigation through it would not be in violation with any local Noise Ordinance as flood related projects are exempt from Noise Ordinances. Construction would be limit to daytime hours that would make it exempt from County noise ordinances. The construction of the slurry wall over a construction length of 1,200 feet is estimated to take 7 days or construct approximately 170 feet per day. A similar construction length per day for removal and reconstruction of the levee crown would limit the exposure to the two homes to noise above ambient standards for only several days duration as the equipment would move away and noise would be attenuated as the distance increased.

Construction of the project would also result in a short-term increase in traffic on the local area roadway network. It is expected that up to 40 daily trips (consisting of 30 haul and 10 employee trips) would occur during the 14 day period of maximum construction activity. Construction-related traffic would result in minimally added traffic noise that would not increase the overall traffic noise levels by a significant amount. The site is adjacent to Highway 4 that carries 14,500 vehicles per day while West 8$^{th}$ Street carries 4,300 vehicles per day at Houston Avenue. The traffic noise from the proposed Project, 40 vehicles per day are minimal in comparison.

### 4.12.4 Mitigation

City of Stockton local noise ordinances do not apply to the Project as it is exempt as a flood control construction operations under City of Stockton, Municipal Code for Noise Standards Section 16-340.020. In addition, San Joaquin County Ordinance Code (9-1025.9 (c) (3)) exempts construction activities from noise ordinances as long as construction is carried out within certain daylight hours outside the more noise-sensitive hours (e.g., evening, nighttime, and early morning). However, construction activities will be conducted to minimize exposure of persons to substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

- Construction equipment shall be properly maintained and equipped with all feasible noise control, such as mufflers, in accordance with manufacturers' specifications. Use of noise-reduction devices on construction equipment would reduce noise by an average of 5 to 10 dBA at 50 feet.

- Construction activities shall be limited to the hours of 6:00 a.m. to 8:00 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. (San Joaquin County Ordinance Code 9-1025.9 (c) (3)).

- A disturbance coordinator shall be designated and the person's telephone number shall be conspicuously posted around all project sites. 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.

## 4.13 Hazards and Hazardous Materials

This section describes issues related to human health and the environment due to exposure to or generation of hazardous, toxic, and radiological materials resulting from implementation of the proposed Project or its alternative. For the purposes of this EA, hazardous, toxic, and radiological waste and materials are defined using the American Society for Testing and Materials (ASTM) Standard E 1527-05 definition of recognized environmental conditions (RECs):

> "…the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property…"

### 4.13.1 Environmental Setting

DWR's Division of Environmental Services (DES) conducted a Phase I Environmental Site Assessment to identify and evaluate potential hazardous and toxic waste issues in and near the project area. The purpose of the Phase I was to review available documentation regarding past and current land use activities to assess the possible presence of hazardous substances and wastes. The site assessment was completed in May 2010 and concluded that there is no apparent hazardous and toxic waste contamination within the study area. If any evidence of hazardous and toxic waste had been found, then more detailed studies including field sampling and analysis would have been conducted to determine the nature and extent of any hazardous and toxic waste.

All soil, bentonite and cement material imported to the site will be from a permitted commercial source or, if a site other than a commercial site is used, the supplier would be required to test the material to certify that it is free from contaminants and along with evidence of compliance with all other applicable laws and regulations.

### 4.13.2 Regulatory Setting

The following federal regulations are applicable to the Project Area and actions that would be undertaken as part of any of the project alternatives.

**Federal Regulation**

**Resource Conservation and Recovery Act**
The EPA administers the Resource Conservation and Recovery Act through a regulatory program that covers the manufacture of hazardous materials to their disposal, thus regulating the

generation, transportation, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

**Comprehensive Environmental Response, Compensation, and Liability Act**
The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund) was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the act was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup, even if the material was dumped illegally when the property was under different ownership.

### 4.13.3 Basis of Significance and Environmental Effect

**Basis of Significance**

For purposes of this EA, impacts related to hazardous, toxic, and radiological materials would be considered significant if the proposed Project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

**Environmental Effects**

**No Action Alternative**
Assuming no levee failures, any hazardous materials would remain in locations and at concentrations similar to existing conditions under the No Action alternative. Should the No Action alternative result in a levee failure, release of hazardous materials to the environment would be likely and largely uncontrolled. Flood waters reaching the adjacent populated areas would likely entrain hydrocarbons and oil from flooded vehicles, and other compounds (e.g., fertilizers, insecticides, and household chemicals) used in household products. The effect of the No Action alternative is potentially significant.

**Proposed Project**

Construction of the proposed Project would involve the routine transport and handling of hazardous substances such as diesel fuels, lubricants, asphalt, etc. Handling and transport of these materials could result in the exposure of workers to hazardous materials. State agencies regulating hazardous materials are the California Environmental Protection Agency (Cal/EPA) and the Office of Emergency Services (OES). The California Highway Patrol (CHP) and California Department of Transportation (DOT) enforce regulations for hazardous materials transport.

During construction within the proposed Project footprint, hazardous materials such as fuels and lubricants would be used to operate construction equipment such as scrapers, excavators, compactors, haul trucks, and loaders. Fuels and lubricants have the potential to be released into the environment at the project site causing environmental and/or human exposure to these hazards. However, these materials will be used, stored and disposed of according to standard protocols for handling of hazardous materials. All personnel involved in use of hazardous materials will be trained in emergency response and spill containment. The repair areas and staging areas will be fenced off to avoid any interaction with the public. The construction contractor would be required to implement a stormwater pollution prevention plan (SWPPP) and best management practices (BMPs) that would minimize the potential for construction-related spills of hazardous wastes and would provide for appropriate and immediate cleanup of spills, if any were to occur. Within the Cal/EPA, the California Department of Toxic Substances Control (DTSC) has primary regulatory authority for hazardous materials regulation enforcement. State hazardous waste regulations are contained primarily in CCR Title 22. The California Occupational Health and Safety Administration (Cal OSHA) has developed rules and regulations regarding worker safety around hazardous and toxic substances.

Controls are in place in the form of federal, state, and local hazardous materials regulations to minimize the risk of hazardous materials release; compliance with such regulations would avoid the creation of a significant hazard to the environment or to the public through routine transport, use, disposal, and/or accidental release of such products. Therefore, the Project's effect of creation of significant hazards to the public through routine transport, use, and disposal of hazardous materials this effect would be less than significant.

The Project site is more than ¼ mile away (0.7 miles) from the San Joaquin Elementary School located on Fresno Ave. No activities or hazardous materials that would emit hazardous emission or require the handling of acutely hazardous material or waste would occur within ¼ mile of the

school. However, the transport of hazardous materials such as fuels and lubricants would be used to operate construction equipment would not pass near any school buildings but would pass by the southern boundary of the school at the athletic field area along West 8th Street. The contractor will provide training to all workers in emergency response and spill containment during project construction and enforcement of DOT regulations for transport of hazardous material.

The Project area does not contain a Cortese Site. The ESA investigated the Project area for presence of a Cortese Site (compiled as being hazardous materials sites under Government Code Section 65962) using multi-agency maps and lists and no such site was found within or nearby the repair site. Thus, the project would have no effect to the public or to the environment as the result of a Cortese Site.

The Project is not within two miles of either public or private airports. The proposed Project would not impair implementation of or physically interfere with the adopted San Joaquin County Emergency Operations Plan or any emergency evacuation plans. The Project area is not adjacent to a wildland with the potential for wildland fires. The grassy vegetation on all levees and 15 feet beyond the levee toe are maintained by local Reclamation District to provide visual inspection of the levee slope and to reduce grass fire potential. The construction contractor will be required to have a fire control and protection plan in place during construction. The Project would have no effect on airport safety, adopted emergency response plans or evacuation plans or wildland fire potential.

The implementation of all the following mitigation measures would reduce any potential effect of the proposed project to less-than-significant levels.

### 4.13.4 Mitigation

The possibility exists that undocumented sources of contamination could be discovered during grading and construction activities. In addition, fuels, lubricants and other construction materials could be accidentally spilled or otherwise released.

- If any undocumented hazardous waste is discovered during construction activities, construction shall stop and the proper local authorities shall be notified.

- The contractor shall produce an Environmental Protection Plan, which shall include a contaminant prevention section that identifies potentially hazardous petroleum products and hazardous materials to be used on the site and a section on contaminant clean-up that includes methods and procedures for expeditious clean-up of potential spills.

Although no RECs were identified during the Phase 1 investigation, the possibility exists that fuels, lubricants and other construction materials could be released on the site during construction activities.

The construction contractor shall be required to prepare a Hazardous Material Control and Response Plan prior to construction which will include the following

- All construction personnel shall be trained in the proper use and handling of fuels, lubricants, and other potentially hazardous materials and that each material is accompanied by a material safety data sheet.

- Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. Fuel, lubricants, and oil shall be managed and stored in accordance with all federal, state, regional, and local laws and regulations. There shall be no storage of fuel on the project site. Fuel must be brought to the project site each day that work is performed.

- The Contractor shall develop a Hazardous Materials Contingency Plan prior to delivery of any hazardous materials to the site. DWR appointed environmental monitor shall be notified immediately of any spill of petroleum products, organic or earthen materials, or any other potentially hazardous materials. The potential contamination shall be evaluated by a qualified professional and work in the vicinity shall not resume until appropriate remediation measures (if determined to be necessary) have been implemented. Appropriate remediation measures may include, but are not limited to, testing and evaluating the suspected areas, removal or treatment of contaminated soils, or capping the contaminated areas with imported material.

- Solid wastes (excluding clearing debris) shall be placed in containers that are emptied on a regular schedule. Handling, storage, and disposal shall be conducted so as to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste. All solid waste shall be transported from the construction site and disposed of in compliance with federal, state, and local requirements for solid waste disposal.

- Construction materials shall be free of HTRW. To alleviate the possibility that HTRW are released to the environment through these materials, the construction contractor shall have strict specifications for these materials and the supplier providing these materials shall provide certificates indicating these materials are free of HTRW.

- Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws. No smoking shall be allowed in refueling areas.
- Equipment shall be inspected daily for oil and fuel leaks. Equipment found to be leaking oils or fuel shall be repaired immediately or removed from the job.

- The construction contractor shall comply with federal and/or state OSHA regulations, and other related fire and safety regulations.

- A SWPPP shall be prepared to prevent possible discharge of hazardous materials into the Sacramento River system, as discussed in Water Quality Section.

## 4.14 Environmental Justice

This section discusses Environmental Justice factors related to the proposed Project. All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2009, the most recent figure, this was $22,050 for a family of four (Federal Register, 2009).

Environmental justice is intended to ensure that federal actions and policies do not result in disproportionately high adverse effects on minority or low-income populations. In compliance with NEPA, this section includes analysis of environmental justice effects of the proposed project. State and local plans and policies typically promote economic development and diversity, public health and safety, housing, and other concerns of the communities and residents within their jurisdictions.

Environmental justice is a relatively new concept that has been addressed on both the state and national level; however, this issue is primarily mandated and regulated at the federal level. More recently, local governments have begun to add to their guidance documents language that specifically forbids land uses that encourage segregation based on such factors as race and culture.

### 4.14.1 Environmental Setting

Stockton, the county seat of San Joaquin County, is the 13th largest city in California in population and one of the largest in area in the Central Valley. Stockton has a population of 290,409, making it the 61st largest city in the U.S. The City of Stockton has been a culturally and ethnically diverse since its beginning as a gold-rush camp in the 1850's. The California Department of Finance 2006 survey estimates that 49% of its population is of a minority ethnicity.

The proposed Project area is located at the western edge of the incorporated area of south west Stockton. It is bordered by the San Joaquin River to the west and State Highway 4 to the north. Agricultural lands lay across the river and to the north the area is primarily in industrial and warehousing uses including the Stockton Waste Water Treatment Plant. The Golf Course Terrace housing development is immediately to the east. To the south is the Van Buskirk Golf Course.

DWR's consultant, URS Corporation produced an economic analysis report to assess potential economic impact of flood damage at identified areas of flood risk. (URS, 2009) This analysis included both direct damages such as damage to structure and contents of buildings, agricultural

enterprises and regional infrastructure. Other costs included emergency response, cleanup, and disruption to transport, employment and commerce.

In this report, alternative repair measures were developed using collected field data, and engineering analyses such as hydraulic analysis and levee failure probabilities. Cost estimates for each alternative was determined and benefits of the project determined assessing the reduction total damages. The comparison of the cost to the benefits of a repair project is used by DWR as a guide in prioritizing of sites for repair. The propose Project was identified for repair through these processes.

The economic damage from flooding, estimated to range from between $41 million (10-year event) to $300 million (100 year event) would flood the entire basin area contained by I-5 and the San Joaquin River (and French Camp and Walker Slough to the west of I-5) (Figure 15). The extent of flooding to the north would be contained by the BNSF railroad alignment. Most of this flood basin is contained within the 95206 Zip Code.

The City of Stockton Community Development Department provided updates of census data from California Department of Finance, Demographic Research Unit, and 2006 American Community Survey for the Van Buskirk Area. The subareas that match the area of inundation for the 10year to 100-year flood event were included in the Environmental Justice analysis.

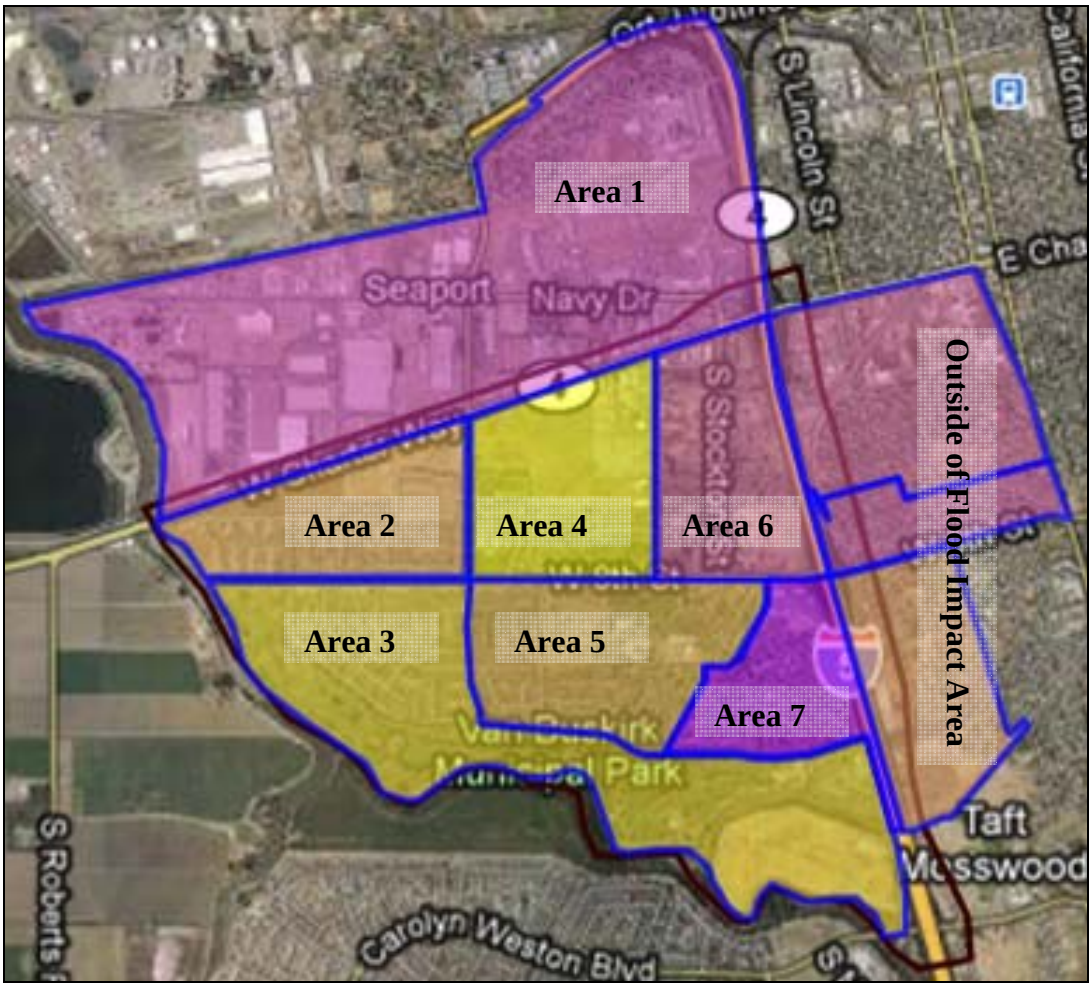


**Figure 15. Census Tract Areas within Area of Flood Impact**

The area most immediately adjacent to the construction site represented by Census areas 2 and 3; along with area 4 has the highest median household income (Table 8). It is the same area with the most recently constructed homes and the highest percentage of non-minority persons at around 20 percent. It represents infill construction that occurred within older neighborhoods.

All areas identified as subject to flooding are predominantly composed of minority populations. However, the City of Stockton as a whole is also predominantly composed of minority groups with only 27 percent identified as white. The wider area subject to inundation contains one area - area 7 where the median household income of below the Poverty Level and over half of the households (58 percent) have incomes below the Poverty level. Two other areas, area 1 and area 6, also have high percentages at 42 and 29 percent, respectively.

Thus the effect of flooding would not disproportionately affect low-income households as four of the seven areas subject to flooding if the levee were to breach are not predominantly low income. Flooding of the area would affect both higher income and lower income households alike.

**Table 8. Demographic and Economic Data for Potentially Flood Area**

| Census Area | Economic Data | | Housing | Minority Group Percentage | | | |
|---|---|---|---|---|---|---|---|
| | Median Household Income | Percent Households Below the Poverty* | Median Year House/Condo Constructed | Hispanic or Latino of any Race | White | Black or African American | Asian |
| | Areas Directly Next to the Project Area | | | | | | |
| 2 | $ 60,913 | 9 | 1996 | 31 | 17 | 18 | 21 |
| 3 | $ 71,354 | 13 | 1993 | 32 | 19 | 19 | 26 |
| | Areas Not Contingent with the Project Area but Subject to Flooding | | | | | | |
| 1 | $ 36,075 | 42 | 1956 | 71 | 9 | 17 | 1 |
| 4 | $ 79,832 | 9 | 1992 | 27 | 17 | 10 | 41 |
| 5 | $ 64,020 | 14 | | | 8 | 16 | 38 |
| 6 | $ 43,336 | 29 | 1985 | 47 | 4 | 10 | 35 |
| 7 | $ 19,335 | 58 | 1956 | 33 | 4 | 24 | 35 |

*2009 Poverty Guideline is annual income for family of four and is published by U.S. Department of Health and Human Services. In 2009 it was $22,050.

### 4.14.2 Regulatory Setting

***Federal, State and Local Laws Regulations and Policy***

The Civil Rights Act

In accordance with the Civil Rights Act of 1964, federal agencies must ensure that programs receiving federal financial assistance do not directly, through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin.

Executive Order 12898, Environmental Justice

On February 11, 1994, President Clinton issued an Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations designed to focus attention on environmental and human health conditions in areas of high minority populations and low-income communities, and promote non-discrimination in programs and projects substantially affecting human health and the environment (White House 1994). The order requires the USEPA and all other federal agencies (as well as state agencies receiving federal funds) to identify these issues as they relate to their programs, policies, and activities and their potential effect on minority and/or low-income populations. The agencies are further required to develop strategies to address this issue and provide citizens access to public information regarding human health and the environment.

Executive Order 13166, Improving Access to Service to Persons with Limited English Proficiency

Signed by the president on August 11, 2000, Executive Order 13166 requires federal agencies to examine the services they provide, identify any need for services to those with limited English

proficiency, and develop and implement a system to provide those services so persons with limited proficiency can have meaningful access to them.

The Sunshine Act

The Sunshine Act insures the right of citizens to have notice of and the right to attend all meetings of agencies at which an agency business is discussed or acted upon. (PNA 2006).

United States Code

The Freedom of Information Act, Title 5 of the United States Code, Section 552, which applies only to government agencies, requires compliance with written public solicitation of information, except in the case of nine possible exemptions and three exclusions, and establishes recourse for individuals denied access to documents. Title 42 of the United States Code prohibits the denial from benefits of any federally assisted program on the basis of race, color, or natural origin (□˜2000d).

California Code of Regulations

Environmental Justice is defined in California law (CCR □˜65040.12.e) as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of all environmental laws, regulations and policies.

The Dymally-Alatorre Bilingual Services Act

This act provides for effective communication between the government of the state of California and those who reside in the state, but are precluded from utilizing public services because of language barriers. The act requires that notices of public services provided by state and local government agencies are translated into the language of any significant population of non-English speaking individuals within that agency jurisdiction.

City of Stockton General Plan 2035

The City of Stockton addresses fair treatment of people of all races, cultures, and incomes most directly in its Housing Element which includes a policy direction to promote housing opportunities for all residents and support the elimination of discrimination in housing. Specific elements of its housing element include:

- ***HE-5.1 Anti-Discrimination*** - The City shall support the strict observance and enforcement of anti-discrimination laws and practices.
- ***HE-5.2 Low-Income Unit Concentration***- the City shall consider the concentration effects of new or potential policies, programs, and developments, and avoid decisions that will increase concentration of low-income households.

San Joaquin Valley Air Pollution Control District

The District Governing Board adopted the Environmental Justice Strategy on August 16, 2007 and amended on February 18, 2010. This comprehensive policy will serve as a roadmap by which the District will be guided in integrating Environmental Justice principles and augmenting the steps already taken by the District in reaching out to the community. The amended policy is available in English and Spanish. On February 18, 2010, the District Governing Board adopted the Environmental Justice Advisory Group Bylaws. The District, as part of this strategy, established **a** 13-member Environmental Justice Advisory Group (EJAG). The EJAG will work

to collaboratively educate the public and community stakeholders about current District activities and air quality in general, and will review overarching District programs and strategies to provide feedback.

### 4.14.3 Basis of Significance and Environmental Effects

Environmental Justice requires that the involved agency fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects.

- Would the Project result in any adverse environmental effects to a group of people, including racial, ethnic, or socioeconomic groups.

- Are the impacts to the minority populations and low-income populations disproportionately high and adverse as compared to the general population or the comparison group?

***No Action***
Under the no action alternative, conditions at the project site would remain unchanged for the immediate future and no action would be taken to remediate seepage potential of the levee and the risk of levee failure and subsequent flooding would remain. Should levee failure result from the No Action alternative, the effect of flooding would not disproportionately affect lower income communities as both low and higher income areas would be affected. The effect of flooding would effect a disproportionate minority population as the entire flood area has is over 90 percent minority populations versus the City of Stockton. Since the questions on Census 2000 on race and Hispanic origin changes, the percentage non-minority or non-Hispanic white varies greatly by source. The percentage given for non-Hispanic whites varies from around 30 percent to just under 50 percent. The effect on flooding in the area would still have a disproportionate affect on a minority community within this range.

***Proposed Project***
The demographics in the census areas contiguous with the Project area would be subject to short-term construction effects. However, the effects would not be disproportionately higher or adverse on low-income populations as the two contiguous census areas (2 and 3) median household income which is approximately $66,000 is much higher than the median household income for the City of Stockton at $49,000. The effects would be disproportionately higher on minority groups as the two census areas (2 and 3) as the percentage of non-Hispanic white population is approximately 18 percent compared to 27 to 49 percent for the city of Stockton. However, the project would not result in any effect on socioeconomics of the area, no relocations, or displacements would be associated with the Project. Any minority population would be benefit by the construction of the Project as a result reduced risks of flooding and the improved flood protection to the adjacent neighborhood and the entire potential flood area.

#### 4.14.4 Mitigation

Based on the above discussion and analysis, the proposed Project will not cause disproportionately high and adverse effects on any minority or low-income populations as per EO 12898 regarding environmental justice.

# 5 CUMULATIVE AND GROWTH-INDUCING EFFECTS

This section addresses the potential cumulative effects of the proposed Project as required by NEPA, as well as an analysis of the Project's potential for inducing growth. The Council on Environmental Quality (CEQ) (1997) defines cumulative effects as: the impact on the environment which results from the incremental impact of the 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 (40 CFR §1508.7).

Growth-inducing effects are those that would allow for additional population growth and/or development in areas that would otherwise go undeveloped without implementation of the evaluated action.

This cumulative impacts discussion describes the cumulative effects directly attributable to flood control projects and land use patterns in the basin. If a significant cumulative impact exists, then a determination is made as to whether the proposed Project or its alternative makes a substantial contribution to the significant cumulative impact. If no significant cumulative impact exists, then the addition of impacts associated with the proposed Project or its alternatives is evaluated to determine whether the addition of these project-specific impacts on the cumulative condition create a significant cumulative impact.

## 5.1 Regional Projects/Actions

### 5.1.1 DWR FloodSafe California Projects

FloodSafe's goal is to promote a sustainable integrated flood management and emergency response system throughout California that improves public safety, protects and enhances environmental and cultural resources, and supports economic growth by reducing the probability of destructive floods, promoting beneficial floodplain processes, and lowering the damages caused by flooding.

The Department of Water Resources will provide leadership and work with local, regional, state, tribal, and federal officials to improve flood management and emergency response systems throughout California. Specific goals include reducing the chance of flooding; reducing the consequence of flooding with preemptive actions; sustaining economic growth by providing support for prudent economic development; protecting and enhancing ecosystems; and promoting sustainability by reducing costs to operate and maintain the flood system in the future.

DWR will produce a 2012 Central Valley Flood Protection Plan (CVFPP), a programmatic plan for flood control in the Central Valley. The proposed plan will be a system-wide approach, addressing long-term, cumulative impacts and integrated solutions for various projects.

The FloodSafe Program builds upon the State's ongoing flood management work, especially progress made over the past few years, since Governor Schwarzenegger called for improved maintenance, system rehabilitation, effective emergency response, and sustainable funding. Some of the existing on-going programs include:

### 5.1.1.1 DWR Sacramento San Joaquin Erosion Repair Program (SSJERP)

On February 24, 2006, following sustained heavy rainfall and runoff, Governor Arnold Schwarzenegger declared a State of Emergency for California's levee system, commissioning up to $500 million of state funds to repair and evaluate State/federal project levees. Governor Schwarzenegger directed the California Department of Water Resources (DWR) to secure the necessary means to fast-track repairs of critical erosion sites. To date, nearly 250 levee repair sites have been identified, with more than 100 of the most critical sites having already been completed. Repairs to others are either in progress or scheduled to be completed in the near future, and still more repair sites are in the process of being identified, planned, and prioritized.

Within the San Joaquin Valley, DWR repaired 6 erosion sites, 3 in 2008 and an additional 3 in 2009. Repairs at two additional sites are pending obtaining of real estate or environmental permits. *San Joaquin River System Levee Repair Prioritization Report* (December 2007) has identified approximately 60 additional erosion sites along the levees of the Lower San Joaquin River and Tributaries Project and has prioritized them for repair under this program.

### 5.1.1.2 Urban and Non-Urban Geotechnical Investigation Program

Reflecting Governor Arnold Schwarzenegger's long-term commitment to improving flood safety to prevent possible catastrophic flooding and loss of life, DWR is undertaking unprecedented efforts to evaluate and upgrade aging and deteriorating levees along the Sacramento and San Joaquin River Valleys and Delta. Of highest priority, DWR is fully evaluating more than 300 miles of urban project levees in these areas, with plans to later survey the entire 1,600 miles of project levees in the Central Valley.

Starting in 2007, as an essential first step in providing improved flood protection for urban communities in the Central Valley, DWR began conducting geotechnical exploration, testing, and analysis of state and federal levees that protect the highly populated urban areas of greater Sacramento, Stockton/Lathrop, and Marysville/Yuba City. Under this Urban Levee Evaluation (ULE) Project, technical specialists are reviewing existing levee historical data; mapping near-surface geology; conducting field explorations; performing engineering, stability and seepage analyses; and preparing preliminary design and construction estimates for repairing and upgrading the levees, where needed. More recent efforts to evaluate non-urban levees under DWR's Non-urban Levee Evaluation (NULE) Project are scheduled to begin in summer 2010.

#### 5.1.1.3 DWR Levee Stability Program

DWR established a new program in 2009 to address threats to levees from Geotechnical and hydrology/hydraulic factors other than erosion alone. Geotechnical factors include: levee geometry; through and under –seepage; stability; settlement; seismic vulnerability; penetrations; and geomorphology. Hydrology and hydraulic factors considered include: Design discharge and design water surface elevation; freeboard; conveyance capacity; and alignment. This program also considers economic justification and seeks a local cost share component. DWR provides designs and will cost-share repairs. Federal levees within the entire Central Valley are addressed Repairs under this program. The proposed Project alternative being addressed by this EA/IS is being conducted under this program.

### 5.1.2 Other Regional Projects/Actions

#### 5.1.2.1 Bay Delta Conservation Plan

DWR has produced a Habitat Conservation Plan and Natural Communities Conservation Plan to obtain Incidental Take Permits under Federal Endangered Species Act and Fish and Game Code Section 2835 and/or Section 2081 for certain existing and proposed water diversion activities in the Delta. DWR is conduction in-water geotechnical borings in the Sacramento-San Joaquin Delta, including the Sacramento, San Joaquin, and Mokelumne Rivers, and Steamboat, Columbia Cut, Dutch, and Potato sloughs. Geotechnical borings will provide geological information necessary for proposed intake structures and tunnels for proposed alignments of the water conveyance facilities associated with completion of the EIR/EIS for the Bay Delta Conservation Plan.

#### 5.1.2.2 CalFed Levee Stability Program

The CALFED Levee Stability Program, a multipurpose program that authorizes the Secretary of the Army (through PL 108-361) to implement projects addressing flood risk management, ecosystem restoration, water supply, water quality and the beneficial reuse of dredged materials for levee stability. Sacramento District is working to prioritize “early implementation” projects in the Delta – those that are consistent with the longer term, future visions for the Delta currently being developed by a multitude of stakeholders across the state of California.

#### 5.1.2.3 Lower San Joaquin River Feasibility Study

The USACE recently initiated the Lower San Joaquin River Feasibility Study to evaluate flood damage reduction elements in the Stockton/utter Basin. The flood damage reduction elements being considered in the Feasibility Study are still being decided or are in the very preliminary stages of planning. It is assumed that the preferred elements and alternatives selected through the

Feasibility Study process will eventually be evaluated in a programmatic EIS/EIR by the USACE, but this is not expected to occur for at least two to three years.

#### 5.1.2.4 RD 17 100-Year Levee Seepage Area Project (LSAP)

RD 17 proposes landside levee improvements along approximately 8.4 miles of the RD 17 levee system in the communities of Stockton, Lathrop and Manteca, San Joaquin County, California, including portions of the San Joaquin River east levee, portions of the levee along the northerly bank of Walthall Slough, and the Dryland levee extending easterly from Walthall Slough to ~ South Airport Way, to meet applicable Federal and State design recommendations for levees protecting urban areas. Project objectives are to construct seepage berms, setback levees, and slurry cutoff walls where needed to increase the levee's resistance to under seepage and through-seepage; to provide seepage exit gradients of less than 0.5 at the water surface elevation associated with a flood event with a 0.01 annual exceedence probability; and to implement USACE levee vegetation management recommendations. The LSAP recently completed the repair of 8 levee reaches (or segments) along the landside of the east bank levee of the San Joaquin River, starting near the southern boundary of the city of Stockton, through the city of Lathrop, and to the western boundary of the city of Manteca. RD 17 constructed seepage berms along the landslide levee toe. At an additional site, acquisition of an easement on land along the levee toe would be required to perform various maintenance and site cleanup activities. Construction of seepage berms is needed to increase the RD 17 levee system's resistance to under seepage.

#### 5.1.2.5 2011 San Joaquin Council of Governments Regional Transportation Plan

The proposed project is the adoption and implementation of the San Joaquin Council of Government's 2011 Regional Transportation Plan (RTP). The RTP has been prepared to fulfill the requirements of AB 402 (Government Code Title 7, Chapter 2.5, Sections 65080-65082) using specific guidance from the California Transportation Commission (CTC) RTP Guidelines. More specifically, the RTP is a twenty year, comprehensive transportation plan for all modes including: highways, local streets and roads, transit, bicycle, aviation, rail, and goods movement. SJCOG is required to adopt and submit an update RTP to the CTC and Caltrans every four years. In addition, the RTP is used to demonstrate Air Quality Conformity requirements applicable to San Joaquin County, and it documents SJCOG's priorities for transportation funding in the region.

#### 5.1.2.6 State Route 4 Cross-town Freeway Extension

The California Department of Transportation (Caltrans) proposes to extend the on-and-off ramps of State Route 4 West (Cross-town Freeway) from their current location at Fresno Avenue to Navy Drive. The total length of the project would be a little more than a mile. The extension would include on-and off-ramps at Navy Drive to convey traffic from Navy Drive to State Route 4 and the elimination of the on-and off-ramps at Fresno Avenue. The proposed project includes an elevated structure over the Boggs Tract neighborhood and the Burlington Northern Santa Fe

(BNSF) Railway corridor from east of Fresno Avenue to west of the railroad. This project is adjacent to and immediately north of the proposed Project

#### 5.1.2.7 San Joaquin River Restoration Project

The SJRRP is a direct result of a Settlement reached in September 2006 on an 18-year lawsuit to provide sufficient fish habitat in the San Joaquin River below Friant Dam near Fresno, California by the U.S. Departments of the Interior and Commerce, the Natural Resources Defense Council (NRDC), and the Friant Water Users Authority (FWUA). The Settlement received Federal court approval in October 2006. The Settlement is based on two goals: (1) to restore and maintain fish populations in "good condition" in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish, and (2) to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.

#### 5.1.2.8 Stockton East Water Supply Enhancement Project (WESP)

The WESP is a master planned conjunctive management project that would acquire rights to existing unappropriated surface waters in the Calaveras River, Rock and Littlejohns Creeks, and the Stanislaus River. The purpose of the project would be to apply these waters to direct (in-lieu) recharge of the Eastern San Joaquin Groundwater Basin. The subject waters consist of flood releases and/or peak wet season flows. These waters would be taken under control at existing and new diversion facilities and conveyed by canals and pipelines to up to 7,000 acres of proposed recharge sites located in the vicinity of existing and proposed conveyance systems. The project would allow a maximum diversion and use of up to 598,900 acre-feet annually. The project would involve the construction of an intake expansion and one new intake on the Calaveras River, the construction of a new six-mile canal, the lining of eight miles of an existing SEWD canal, construction of an approximately 20-mile extension of the existing Upper Farmington Canal, and approximately 25 miles of pipeline ranging from 30 to 120 inches in diameter.

#### 5.1.2.9 Manteca Wastewater Quality Control Facility and Collection System Master Plans Update Project

The proposed project would incrementally increase the treatment capacity of the WQCF from 9.87 million gallons per day (mgd) to 27 mgd average dry weather flow (ADWF), increase wastewater effluent discharges to the San Joaquin River, result in discharge of wastewater effluent on urban and agricultural lands, result in minor improvements to existing sewer lines, and result in the construction of three new trunk sewers measuring a total of approximately 21 miles

## 5.2 Cumulative Effects Analysis

The proposed Project will have no effects on some resource areas. As a result, the following resource areas have been eliminated from cumulative effect consideration: agriculture and forestry; population and housing; land use and planning, mineral resources; utilities and service systems; and geology and soils.

The following is an analysis of the cumulative impacts for those resource areas where cumulative effects could occur.

### 5.2.1 Aesthetics/Visual Resources

RD 17 100-Year Levee Seepage Area Project (LSAP) and DWR Sacramento San Joaquin Erosion Repair Program (SSJERP) are the only two regional projects that would be expected to contribute cumulatively to effects on aesthetic or visual resources, since they are the only two projects that would occur in the immediate vicinity and at more or less the same time as the proposed Project. Cumulative impacts on visual resources from the RD 17 project, as well as the Project alternatives would be both temporary (during construction only) and would affect only a very small number of people (those living nearby in the adjacent neighborhood or using the river for recreation). The proposed project and the RD 17 LSAP work are located across the river and are not visible from the proposed Project Area, or vice versa. The SSJERP constructed erosion repairs within the same mile of levee reach (RM 42.1 to RM 42.8) as the proposed Project. Due to the extensive planting palette, the visual resources should improve aesthetics/visual resources. In the long-term, the Project area would be graded and reseeded to retain the character and quality of the existing levees. The RD 17 LSAP repairs are primarily on the landside and overtime stability berms would also be reseeded and not differ in appearance from pre-project view. Potential cumulative effects on aesthetics/visual resources are, therefore, considered to be less than significant and inconsequential for the No Action, and proposed Project alternatives.

### 5.2.2 Air Quality

Construction projects such as DWR SSJERP, other Levee Stability Program Repairs – CalFed and DWR, RD 17 LSAP Repairs and State Route 4 Cross-town Freeway Extension Evaluation Project, and other projects could contribute to cumulative adverse impacts to air quality in the SJVAPCD, particularly for contaminants that the region is already in noncompliance. Like the proposed Project, these other projects generate temporary emissions during construction, but generate little to no long-term operational emissions. Therefore, emissions from the flood control and highway projects listed above would interact only with the proposed Project and alternative on a cumulative basis if conducted at the same time as the proposed Project, which will not occur.

The No Action alternative would contribute to cumulative impacts to air quality if the existing levee requires emergency repairs. Because the extent and frequency of flood damage, and therefore of emergency repairs cannot be predicted, it is not possible to directly model air quality impacts related to the no action alternative. However, as repeated emergency levee repairs are highly likely to be required if no improvement to the existing levee is made, the no action alternative would have cumulative impacts to air quality that more or less equal those of the proposed Project alternative in the short-term and exceed those of the proposed Project in the long-term. While the proposed Project's effect on cumulative basin-wide air quality conditions

would occur during construction, BMPs are included to reduce these short-term construction related emissions to less-than-significant.

### 5.2.3 Biological Resources

Construction projects such as DWR SSJERP, other Levee Stability Program Repairs (DWR and CalFed), and RD 17 LSAP Repairs could contribute to short-term cumulative adverse impacts to biological resources. Noise, vibrations, and ground disturbance could disturb federally threatened or endangered species during project construction. Long-term change in habitat conditions would contribute to long-term cumulative adverse impacts.

However, the 2008 and 2009 DWR SSJERP repairs include on-site and off-site mitigation measures or avoidance measures to any reduce impacts to, waters of the U.S., special-status plants, VELB, giant garter snake and special status bird and fish species to less than significant levels. In addition, the DWR SSJERP is expected to combine cumulatively with future conservation and restoration efforts that include the FloodSafe environmental initiatives, Bay Delta Conservation Plan, and the upstream San Joaquin River Restoration Program to benefit riparian habitat and biological resources. These projects will result waterside riparian vegetation along the San Joaquin River and tributaries, increasing streamside refugia and rearing areas for federally protected fish species.

There would be no significant cumulative impacts to biological resources under the No Action alternative, as long as the existing levee requires no emergency repairs. As repeated emergency levee repairs are highly likely to be required if no improvement to the existing levee is made, the No Action alternative would contribute to cumulative impacts to biological resources that could exceed those of the proposed Project in the long-term, since emergency repairs are likely to proceed without the level of environmental review required for the proposed Project.

The proposed Project would have minimal impacts on biological resources, including jurisdictional waters, riparian forest habitat, rare plants, special-status birds or fish, or an adopted HCP or NCCP. Any potential adverse effects with the recommended avoidance or mitigation measures, the proposed Project would also have less-than-significant impacts on nesting habitat for special-status birds, sensitive species of fish or their habitat. Therefore, even with the potential effects of other projects/actions in the region, the proposed Project would not contribute cumulatively to significant negative impacts to biological resources.

### 5.2.4 Cultural Resources

Neither the proposed Project nor the DWR levee Repairs contains known cultural resources Therefore cumulative impacts to cultural resources are considered minimal as a result of other regional projects. The No Action alternative would have no effect on existing cultural resources in the Project Area. Under this alternative, the slurry wall would not be constructed. By implementing the proposed mitigation measures the proposed Project would not cumulatively contribute to effects on cultural resources resulting from other projects/actions in the region.

### 5.2.5 Hazardous, Toxic, and Radiological Waste

While the DWR SSJERP, RD 17 LSAP, and State Route 4 Cross-town Freeway Extension are the projects close to the proposed project area with the greatest potential to combine cumulatively with the proposed Project in regards to hazardous, toxic, and radiological waste, this project, like the proposed Project, will be implemented with BMPs and mitigation measures designed to minimize the release of hazardous materials at the project site.

Assuming no levee failures, any hazardous materials would remain in locations and at concentrations similar to existing conditions under the No Action alternative. Should the No Action alternative result in a levee failure, release of hazardous materials to the environment would be likely and largely uncontrolled. Any herbicides or pesticides applied to agriculture land would become entrained in the floodwaters. Floodwaters reaching more densely populated areas would likely entrain hydrocarbons and oil from flooded vehicles, and other compounds (e.g., fertilizers, insecticides, and household chemicals) used in household products. These risks would only be cumulatively significant if the proposed Project is not implemented and existing flood risks go untreated.

Construction activities associated with the DWR SSJERP, RD 17 LSAP, and State Route 4 Cross-town Freeway Extension would require equipment that uses fuels and lubricants, which could possibly be released into the environment. Fluids such as fuel, oil, or grease could leak from construction vehicles or be inadvertently released in the event of an accident, potentially releasing petroleum compounds laden with metals and other pollutants. Controls are in place in the form of federal, state, and local hazardous materials regulations to minimize the risk of hazardous materials release; compliance with such regulations would avoid the creation of a significant hazard to the environment or to the public through routine transport, use, disposal, and/or accidental release of such products. Therefore, the potential cumulative impact of the DWR SSJERP, RD 17 LSAP, and State Route 4 Cross-town Freeway Extension projects to hazardous, toxic, and radiological waste is considered less-than-significant.

Because it would not increase or substantially change the use of hazardous materials at the project site, the proposed Project would not substantially change the character of hazardous materials in the region. Further, the proposed Project will help minimize catastrophic levee failure that could result in significant amounts of urban and household chemical contaminants, as well as fuels from vehicles to be entrained in the San Joaquin River. All off-site fill material will be tested prior to use. If it is found to be contaminated, it will not be used. Because compliance with all federal, state, and local laws and regulations pertaining to hazardous materials is assumed, the proposed Project would not cumulatively contribute to any effects related to hazardous, toxic, or radiological waste resulting from other projects/actions in the region.

### 5.2.6 Hydrology and Water Quality

The DWR SSJERP, the Manteca Wastewater Quality Control Facility and Collection System Master Plans Update Project (MWQCFCSMP), Stockton East Water Supply Enhancement Project (WESP) and the San Joaquin River Restoration Project (SRRP) have the greatest potential to result in cumulative impacts to hydrology and water quality in combination with the

proposed Project. The SRRP includes additional flow releases to the San Joaquin River to aid in the migration of special status fish. These cumulative impacts are not likely to include increases in flood magnitude downstream of the projects but could include potentially minor rises in San Joaquin River flood stage and velocity from increased releases associated with the WQCFCSMP, SRRP and WESP.

Under the No Action alternative, there would be an increasing risk of levee failure and subsequent flooding in the surrounding areas, and significantly expose structures to a significant risk of damage or loss. Should the current levee fail during a flood event, the resulting flooded area could include residential neighborhoods and industrial areas between I-5 to the east and the BNSF railroad to the north. Eventually, emergency repair measures would need to be implemented to protect the levee system from failing. Potential effects on water quality from the No Action alternative include acute increases in TDS and turbidity in the event of a levee failure. Water quality impacts from a levee failure in which water floods suburban and industrial areas could 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.

Potential impacts on water quality due to storm water runoff from soils disturbed during levee improvements under the DWR SSJERP and other levee repair programs would require mitigation measures similar to those identified for the proposed Project to reduce potential impacts to less-than-significant levels. The proposed project would have no effect on flood stages and flood stage velocities on the river. The proposed Project would also provide a well-constructed levee that would be more reliable and less subject to seepage than the existing levee. These changes would improve local flood protection, providing a beneficial effect. The proposed Project would combine with the effects of other recent and planned flood control projects to result in a cumulatively beneficial effect on flood protection in the Stockton area.

Because the increased risk of downstream flooding associated with the proposed Project would also be minor, this effect is considered to be inconsequential in a cumulative context as well as in a direct sense. Therefore, the proposed Project would not be considered to contribute to a substantial cumulative adverse effect related to potential downstream flooding due to changes in downstream hydrology. The proposed Project would not expose people or structures to flooding during construction or change sheer stress or geomorphic processes in the project vicinity. With the recommended mitigation measures, the proposed Project would also not increase the risk of sediment or other construction-related pollutants from entering surface water, expose soil previously used for agriculture to flood flows, or impact surface water quality. The proposed Project, with implemented mitigation measures, would, therefore, not cumulatively contribute to any effects on water quality and geomorphology resulting from other projects/actions in the region.

### 5.2.7 Noise

The discussion of cumulative noise effects is focused on the areas where construction noise from the proposed Project and its alternatives could combine with h noise from other projects and exceed established thresholds for sensitive receptors. For noise from the proposed Project and its alternatives to interact with other projects on a cumulative basis, noise generated by these alternatives must occur at the same time and at a location a similar distance from receptors as

noise generated by other projects. Under the No Action alternative, no changes in noise from existing conditions would occur as long as the levee does not require emergency repairs. Eventually, emergency repair measures would likely need to be implemented to protect the levee system from failing. If emergency repairs would be necessary during the implementation of other nearby projects (Route 4 Cross-town Freeway Extension specifically), cumulative adverse noise impacts could occur.

The proposed Project construction would create a short-term and localized impact on noise in the Project Vicinity. No other projects considered in this cumulative analysis have the potential to be under construction concurrently with the proposed Project. Overall, any single sensitive receptor would be exposed to construction noise for relatively short periods, even when considering other regional projects together. Because the long-term impact of the proposed Project on local noise conditions would be negligible, the proposed Project would not cumulatively contribution to any noise effects resulting from other projects/actions in the region.

### 5.2.8 Recreation

With the exception of the SJRRP, none of the other regional projects considered in this cumulative impacts analysis include a recreation component or would have significant adverse impacts on recreational resources. Therefore, cumulative impacts or benefits to recreation are considered to be negligible. Under the No Action alternative, no project would be implemented and there would be no effect on recreation when the levee is not being repaired under emergency situations. When the levee is under emergency repair (which will likely be required), temporary impacts to recreational opportunities would be expected since vehicles and pedestrians would be prevented from parking or crossing the levee to the San Joaquin River. Since this potential impact would be temporary in nature, this impact would be considered less than significant even when the levee is under repair. The proposed Project construction would create a short-term and localized impact on recreational opportunities in the Project Vicinity during project construction. Because the long-term impact of the proposed Project on recreation would be negligible, the proposed Project would not cumulatively contribution to any adverse effects on recreation resulting from other projects/actions in the region.

### 5.2.9 Traffic and Transportation

The discussion of cumulative traffic effects is focused on the areas where construction generated traffic from the proposed Project and its alternatives could combine with traffic from other projects and exceed established thresholds. For traffic generated by the proposed Project and its alternatives to interact with other projects on a cumulative basis, traffic generated by the proposed Project and its alternatives must occur at the same time and at the same location as traffic generated by other projects.

Under the No Action alternative, no impacts on traffic and transportation would occur when the levee is not under emergency repair. When the levee is being repaired (which is likely to be required), impacts on traffic and transportation would be short-term in nature. Trips to and from the project site by construction equipment, passenger vehicles, and supply delivery trucks would increase while emergency repairs are being implemented. These impacts would most likely be

more frequent in the long-term as emergency repairs become necessary in response to continued flood events.

Construction of the proposed Project would have only a temporary effect on traffic. Almost all other regional projects would not interact with traffic generated by the proposed Project, either because they are too distant and would not generate vehicle trips on the same roadways, because the projects are complete and do not generate traffic after completion (i.e., other flood control projects), or the projects are in the planning stages and the proposed Project would be completed before the project is initiated and generates vehicle trips. In the long-term, there would be no additional traffic generated from the operation and maintenance of the proposed Project. With implementation of the mitigation measures outlined in the Traffic Section, the proposed Project would not cumulatively contribute to any effects on traffic or transportation resulting from other projects/actions in the region.

### 5.2.10 Climate Change

The effects of the No Action alternative, the proposed Project and other potential contributors to climate change, which is a cumulative analysis, are addressed more directly under the effects assessment chapter.

## 5.3 Growth Inducement

According to the San Joaquin County General Plan (San Joaquin County, 1992), the Project Area is zoned as "City" and Open Space on the waterside. Land use adjacent to the Project Area is currently residential or open space to the south of Highway 4 and industrial to the north of the highway. The most recent growth occurred approximately in 1993-1995 with the construction of the Golf Course Terrace neighborhood. Further to the east, a much older neighborhood was constructed along 8$^{th}$ Street in the early 1950's. The neighborhood is essentially built-out though older substandard homes potentially could be replaced with newer homes. This is unlikely as the proposed Project would not change underlying land values and undeveloped land is still available for more economical development. Implementation of the proposed Project would not remove any existing direct obstacles to growth, but would accommodate and provide better flood protection for existing and future land uses that are consistent with the General Plan. The General Plan is scheduled to be updated in 2012.

FEMA's remapping program has required local agencies to collect technical data to continue levee certification. RD 404 along with other local agencies in the Stockton area has provided the needed documentation to demonstrate compliance with current federal standards and has signed a Provisionally Accredited Levee (PAL) agreement. FEMA designates a levee as a PAL when there is sufficient evidence to conditionally show that a levee will provide a 100-year level of flood protection. The proposed Project would remediate seepage deficiencies at the levee location in RD 404 but would not provide a level of protection above the level recognized in the PAL agreement.

The Central Valley Flood Protection Act limits development in areas that are not protected from a 200-year AEP flood event. The Corps has begun, through its inauguration of the Lower San

Joaquin River Feasibility Study in 2010 to determine needed improvements for future flood protection systems in an effort to reach or exceed the future 200-year level of flood protection. This process, along with the Central Valley Plan of Flood Protection will not be complete for several years (2012). While the proposed Project will increase the level of flood control provided by the RD 404 levee, the requirement for a 200-year level of protection will constrain urban growth in the Project Area for the foreseeable future. For these reasons, the proposed Project is unlikely to induce growth in the south Stockton area.

## 5.4 Conclusions

In conclusion and summary, the proposed Project will not have any cumulatively significant negative effects on environmental resources that are not offset by concurrent benefits. Further, the proposed Project will not remove any immediate obstacles to growth in the proposed Project vicinity. The proposed Project would not contribute to inducing additional growth in the surrounding area.

# 6 COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS

## 6.1 FEDERAL LAWS AND REGULATIONS

### 6.1.1 National Historic Preservation Act

National Historic Preservation Act (or NHPA) of 1966, as amended, 16 USC Section 470 et seq., historic and archaeological data preservation, as amended, 16 USC Section 469 et seq., Protection of Historic Properties, 36 CFR 800, Abandoned Shipwreck act, 43 USC Section 2102 et seq. Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of a proposed undertaking on properties that have been determined to be eligible for listing in, or are listed in, the National Register of Historic Places. Cultural resources surveys have been conducted throughout the Project area and no known cultural resources would be affected by project activities. Coordination with the State Historic Preservation Office (SHPO), delegated compliance responsibility for the federal law is complete. The proposed action is in full compliance with the NHPA.

### 6.1.2 Archaeological Resources Protection Act

Archaeological Resources Protection Act (ARPA) of 1979, 16 USC Section 470aa et seq. This act prohibits the removal, sale, receipt, and interstate transportation of archaeological resources obtained illegally (without permits) from public lands. If archeological deposits are found during project activities, work would be stopped pursuant to 36 CFR 800.13(b), Discoveries without Prior Planning, to determine the significance of the find and, if necessary, complete appropriate discovery procedures. The proposed action is in full compliance with the ARPA.

### 6.1.3 Native American Graves Protection and Repatriation Act

Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, 23 USC Sections 3002. This act requires Federal agencies to: (1) establish procedures for identifying Native American groups associated with cultural items on Federal lands, (2) inventory human remains and associated funerary objects in Federal possession, and (3) return such items upon request to the affiliated groups. The law also requires that any discoveries of cultural items covered by the act be reported to the head of the Federal entity, who would notify the appropriate Native Americans group. The proposed project is not expected to have an effect on Native American graves. If Native American graves are found during project activities, work would be stopped, and further coordination with local tribes would be conducted. The proposed action is in full compliance with the NAGPRA.

### 6.1.4 Clean Air Act

Clean Air Act (or CAA), 42 USC Section 1857 et seq. (1970), as amended and recodified, 42 USC Section 7401 et seq. (Supp II 1978). The SJVAPCD determined that the proposed Project could be evaluated using the Small Project Analysis Level (SPAL), based on data provided on impact area and vehicle mileage that the proposed Project would not exceed significance thresholds and still provide an adequate margin to account for site specific differences. Based on this SPAL analysis, the proposed action will not exceed the USEPA's general conformity de minimis thresholds or hinder the attainment of air quality objectives in the local air basin. The proposed action is in full compliance with the CAA.

### 6.1.5 Clean Water Act

Clean Water Act (or CWA), 33 USC Section 1251 et seq. (1976 & Supp II 1978) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. The proposed Project will not result in a discharge to waters of the U.S. The proposed project is not expected to adversely affect surface or ground water quality or deplete ground water supplies. BMPs would be implemented to avoid movement of soils or accidental spills. The contractor would also be required to prepare a SWPPP identifying BMPs to be used to avoid or minimize any adverse effects of construction on surface waters. The proposed action is in full compliance with the CWA.

### 6.1.6 Section 10 of the Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act (33 U.S.C. §403) is administered by the Corps. This section prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from the Corps. The proposed action will not be subject to Section 10 as all activities will take place above and outside of waters or the U.S.

### 6.1.7 Federal Endangered Species Act

Federal Endangered Species Act (or ESA) of 1973, as amended, 16 USC Section 1531 et seq. A list of threatened and endangered species that may be in the project area was obtained from the USFWS. An evaluation of potential project effects was conducted. The State's pursuit of the USACE Section 408 approval will provide the federal nexus for consultation with the USFWS

and NMFS. Based on the findings of this EA/IS and other information provided to them, the USACE will make a determination as to whether the proposed action is not likely to jeopardize or appreciably reduce the likelihood of either the survival or the recovery of federally listed species. The finding will be conveyed to initiate consultation with the USFWS and NMFS, who will review the finding concurrent the public circulation period for the EA/IS. The proposed action is in partial compliance with the ESA.

### 6.1.8 Fish and Wildlife Coordination Act

Fish and Wildlife Coordination Act (or FWCA) of 1958, as amended, 16 USC Section 661 et seq. The Fish and Wildlife Coordination Act in general requires Federal agencies to coordinate with USFWS and state fish and game agencies whenever streams or bodies of water are controlled or modified. This coordination is intended both to promote the conservation of wildlife resources by providing equal consideration for fish and wildlife in water project planning and to provide for the development and improvement of wildlife resources in connection with water projects. The act provides the basic authority for the involvement of the USFWS in evaluating impacts relating to proposed water resources development projects. Reports or decision-making documents subsequently must include any recommendations of these agencies for protecting fish and wildlife. Provisions of the Act are implemented through the NEPA process and Section 404 permit process (if required). Where possible, DWR will incorporate these recommendations into the project plan to comply with the FWCA.

### 6.1.9 Migratory Bird Treaty Act

Migratory Bird Treaty Act of 1936, as amended, 15 USC 701-18h. Construction would be timed to avoid destruction of active bird nests or young of birds that breed in the area. If this is not feasible, a qualified biologist would survey the area prior to initiation of construction. If active nests are located, a protective buffer would be delineated and the entire area avoided, preventing disturbance of nests until they are no longer active. The proposed action is in full compliance with this act.

### 6.1.10 Magnuson-Stevens Fishery Conservation and Management Act

Magnuson-Stevens Fishery Conservation and Management Act 16 U.S.C. § 1801 et seq. This legislation requires that all Federal agencies consult with National Marine Fisheries Service regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat. Essential fish habitat is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The Corps as federal nexus will make a determination on whether the proposed Project would have “no effect” on Federal special status fish species and essential fish habitat based on the EA/IS. The proposed action is in full compliance this act.

### 6.1.11 Executive Order 13112, Invasive Species

This order directs Federal agencies not to authorize, fund, or carry out actions that they believe are likely to cause or promote the introduction or spread of invasive species. To avoid introduction or spread of invasive species, DWR would ensure that appropriate control measures are implemented during project construction that would comply with applicable State and

County invasive species control regulations. The proposed action is in full compliance with Executive Order 13112.

### 6.1.12 National Environmental Policy Act

National Environmental Policy Act (or NEPA) of 1969, as amended, 42 USC Section 4321 et seq. This Draft EA/IS is in partial compliance with this act. The Draft EA/IS will be released for public comment. Comments received during the public review period will be incorporated into the EA/IS, as appropriate, and a comments and responses appendix will be prepared and included in the final document. The Final EA/IS will be accompanied by a signed FONSI, if determined appropriate based on agency coordination and public comments. These actions will provide full compliance with NEPA.

### 6.1.13 Wild and Scenic Rivers Act

Wild and Scenic Rivers Act, 16 USC Section 1271 et seq., President's Environmental Message of August 1979, and CEQ Memorandum of August 10, 1980, for Heads of Agencies. The purpose of the Wild and Scenic Rivers Act is to preserve and protect wild and scenic rivers and immediate environments for the benefit of present and future generations. The San Joaquin River is not designated as a component of the Wild and Scenic Rivers system. The proposed action is in full compliance with the Wild and Scenic Rivers Act.

### 6.1.14 Executive Order 11988, Flood Plain Management

This Executive order requires the project proponent to provide leadership and take action to (1) avoid development in the base (100-year) flood plain; (2) reduce the hazards and risk associated with floods; (3) minimize the impact of floods on human safety, health, and welfare; and (4) restore and preserve the natural and beneficial values of the base flood plain. The proposed action is in full compliance with Executive Order 11988.

### 6.1.15 Executive Order 11990, Protection of Wetlands

This order directs the project proponent to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in implementing civil works. No jurisdictional features would be affected by the proposed action and that the proposed action would not result in the loss or degradation of any wetlands. The proposed action is in complete compliance with Executive Order 11990.

### 6.1.16 Executive Order 12898, Environmental Justice

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. The proposed action is in full compliance with Executive Order 12898. Increased flood protection provided by the proposed action would

directly benefit all communities including minority and low-income communities in the neighborhoods adjacent to the Project in the RD 404 area.

### 6.1.17 Farmland Protection Policy Act

Farmland Protection Policy Act, 7 USC Section 4201 et seq, requires a Federal agency to consider the effects of its actions and programs on the Nation's farmlands. The proposed action will not affect any farmlands and is in full compliance with the Farmland Protection Policy Act.

### 6.1.18 Noise Control Act

Noise Control Act of 1972, 42 USC Section 4901 to 4918 establishes a national policy to promote an environment for all Americans free from noise that jeopardized their health and welfare. Compliance with this act is being addressed though compliance with the City of Stockton and San Joaquin County Noise Ordinances. Avoidance and minimization measures to lessen potential Project effects on sensitive receptors, including restricting hours of construction, have been incorporated into the proposed Project. The proposed action is in full compliance with the Noise Control Act.

## 6.2 STATE LAWS AND REGULATIONS

### 6.2.1 California Endangered Species Act and Native Plant Protection Act

A list of threatened and endangered species that may be in the project area was obtained from the USFWS, CDFG, and the CNPS. An evaluation of potential project effects was conducted. The proposed action with mitigation implemented would not affect any state listed species including special status species plants, western burrowing owl, Swainson's hawk, other raptors and migratory birds. The proposed action is in partial compliance with the California Endangered Species Act.

### 6.2.2 California Environmental Quality Act

CEQA requires the full disclosure of the environmental effects, potential mitigation, and environmental compliance of the proposed project. DWR as the non-Federal sponsor has prepared this EA/IS to ensure compliance with the requirements of CEQA and has prepared a Draft MND. This Draft EA/IS and MND will be submitted to the State Clearinghouse for a 30-day public review. All comments received will be considered and incorporated into the Final EA/IS/MND, as appropriate in a comments and responses appendix. DWR will approval the Mitigated Negative Declaration and the Final IS/MND after incorporating any comments. This last action provides full compliance with CEQA.

### 6.2.3 Central Valley Flood Protection Board

The CVFPB requires an encroachment permit for any activity along or near Federal flood control project levees and floodways or in CVFPB designated floodways to ensure that proposed local

actions or projects do not impair the integrity of existing flood control systems to withstand flood conditions. DWR has applied for an encroachment permit for the proposed action. The proposed action is in partial compliance with the encroachment permit requirements of the CVFPB.

### 6.2.4 State Historic Preservation Officer

State Resources Code 21084.1- Historical Resources Guidelines and 21083.2 -Archeological Resources require that the lead agency determine whether the project may have a significant effect on archaeological or historical resources. An historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources. Determinations will include the preparation of a Cultural Resource survey that if provided to the SHPO for review. Coordination with the SHPO is complete.

### 6.2.5 State Lands Commission

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. A project cannot use these State lands unless a lease is first obtained from the State Lands Commission. The proposed action would not require the use of any State lands. Therefore, no lease is required.

### 6.2.6 California Clean Air Act

California Clean Air Act (CCAA) of 1988, California Health and Safety Code Section 40910 et seq. Air quality permitting and enforcement is delegated to the regional San Joaquin Valley Air Pollution Control Board (SJVAPCD). Through early consultation, the SJVAPCD staff determined that the Project fell within the Small Project Analysis Level (SPAL) determination criteria. They determined that the Project would not exceed significance thresholds for air quality standards that would require that the Project quantify emissions. The proposed action is in full compliance with the CCAA.

## 6.3 LOCAL ORDINANCES

### 6.3.1 San Joaquin County General Plan

The Project area is located within the jurisdiction of the San Joaquin County General Plan. The proposed project would comply with all of the relevant local plans.

### 6.3.2 San Joaquin County Multi-Species Habitat Conservation and Open Space Plan.

The Project area is subject to all provision the Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). The proposed project would comply with all condition within the SJMSCP.

# 7 FINDINGS

This EA/IS evaluated the potential environmental effects of the proposed project of constructing levee seepage remediation along a 1,200 foot reach of the San Joaquin River in the southwest Stockton area. Potential adverse effects to the following resources were evaluated in detail: aesthetics/visual resource; recreation; cultural resources; wildlife, fish and vegetation resource; special status species; hydrology and water quality; geology and soils; air quality; climate change; transportation/traffic; noise; hazards and hazardous materials; and environmental justice.

Results of the EA/IS, field visits, and coordination with other agencies indicate that the proposed project would have no significant long-term effects on environmental resources. Short-term effects during construction would either be less than significant or mitigated to less than significance using best management practices.

Based on the information presented in the EA/IS, the proposed project would have no significant adverse effect on the quality of human environment, and the mitigation measures proposed in the EA/IS are sufficient to reduce effects to less-than-significant levels.

Chapter 4 of this document contains the analysis and discussion of potential environmental impacts of the proposed project. Based on the issues evaluated in that chapter, it was determined that the proposed project would have no impact related to the following issue areas:

- agricultural an forestry resources
- population and housing
- land use and planning
- mineral resources
- public utility and services

The proposed project would result in less-than-significant impacts on the following issue areas:

- aesthetics/visual resource
- recreation
- climate change

The proposed project would result in less-than-significant impacts *following* mitigation on the following issue areas:

- cultural resources
- wildlife, fish and vegetation resources
- special status species
- hydrology and water quality
- geology and soils
- air quality
- transportation/traffic
- noise
- hazards and hazardous materials

Based on this evaluation, the proposed project would have no significant adverse effects on the quality of human environment, and BMPs and mitigation measures proposed in the EA/IS are sufficient to reduce potential adverse effects to less than significant. DWR has reviewed and evaluated the information in this EA/IS and determined that an EIR is not necessary. Therefore a draft Mitigated Negative Declaration accompanies the draft EA/IS in this document. The Chief of the DWR Levee Repairs Branch will, following public review of the draft EA/IS, determine whether a MND is appropriate or if a supplemental EIR should be prepared.

# 8 LIST OF PREPARERS

This document was prepared by the following individuals.

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DOT. See California Department of Transportation.

DWR. *See* Department of Water Resources.

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## PERSONAL COMMUNICATIONS

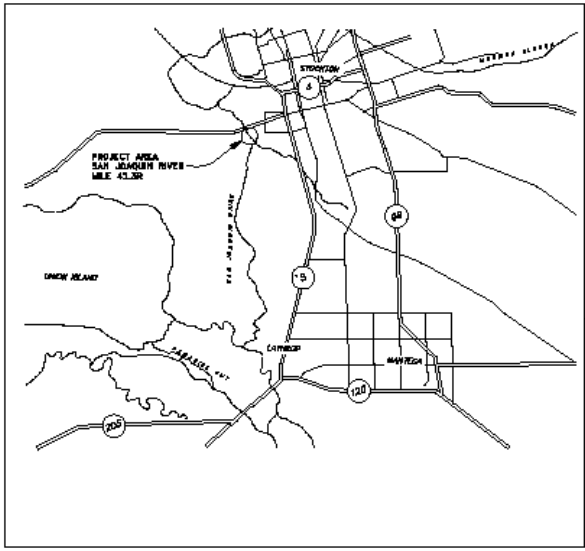
Martinez, Madelyn, Biologist, National Marine Fishery Service, Sacramento, CA. February 18, 2009

# APPENDIX A

# SEEPAGE REMEDIATION REPAIRS

STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
# DEPARTMENT OF WATER RESOURCES
DIVISION OF ENGINEERING

## LEVEE STABILITY PROGRAM
## SAN JOAQUIN FLOOD PROTECTION PROJECT
## SAN JOAQUIN RIVER RM 42.3R
SPECIFICATION NO. 10-XX



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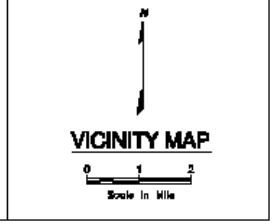


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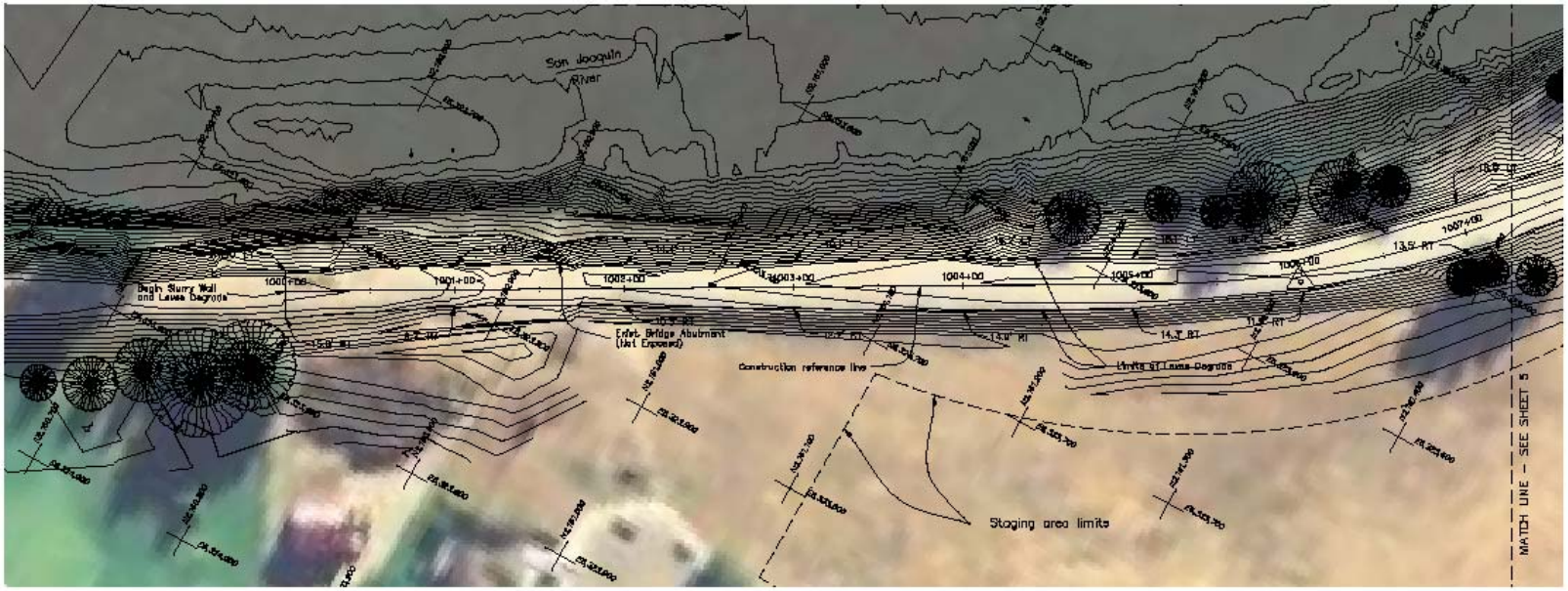


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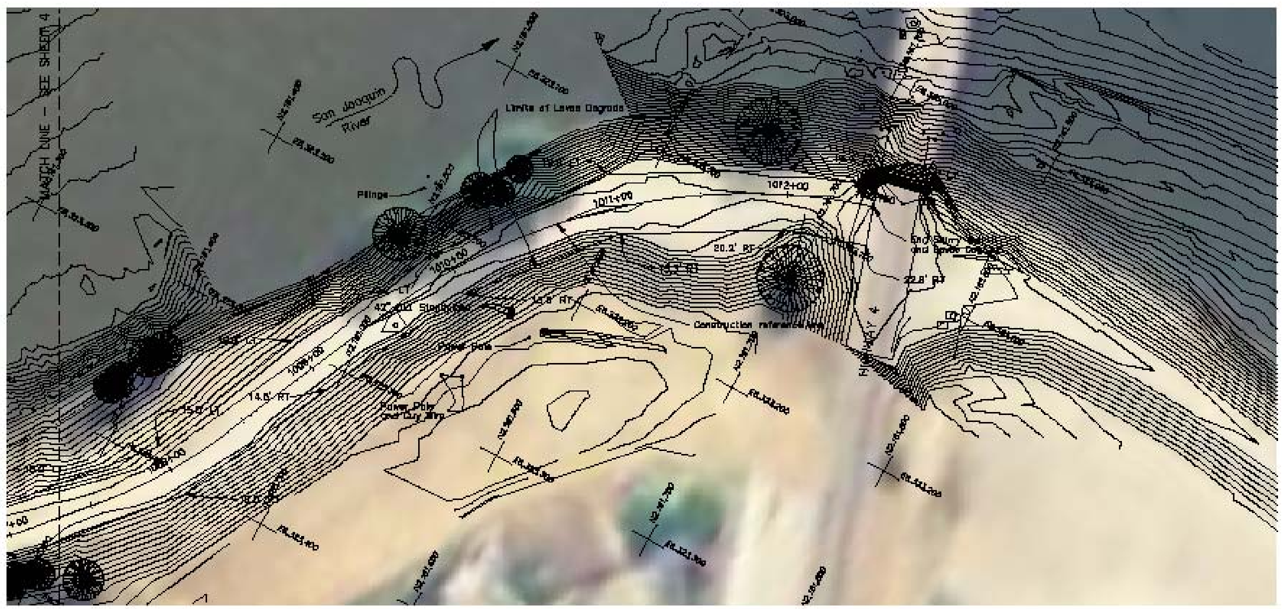


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STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
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DIVISION OF FLOOD MANAGEMENT

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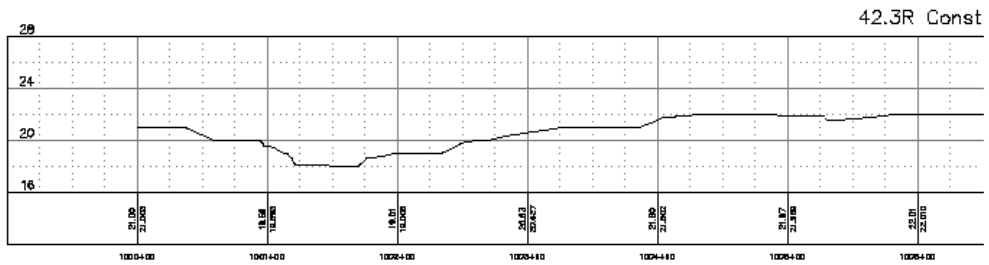


PROFILE VIEW AT REFERENCE LINE
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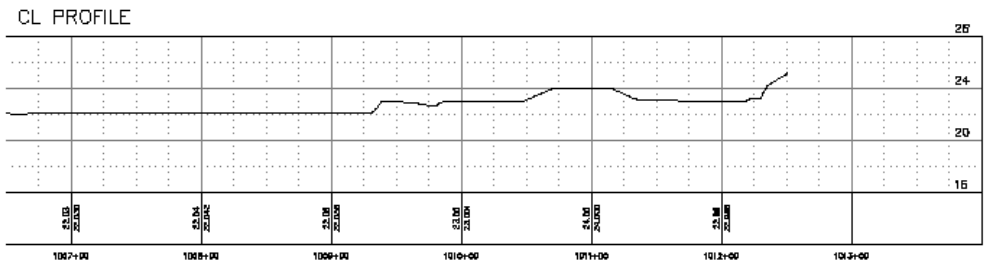


PROFILE VIEW AT REFERENCE LINE
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SUBMITTED P. LeCann
REG. CE. NO. 72294

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STATE OF CALIFORNIA
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PROFILE VIEW

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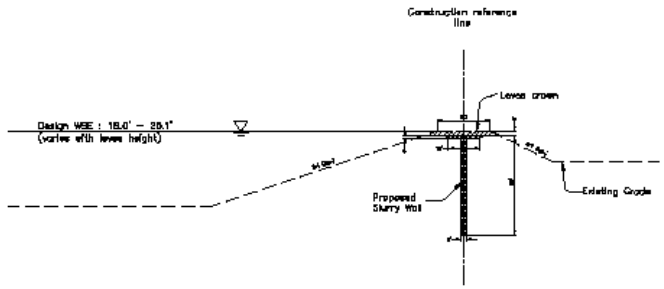


TYP. SECTION
NTS

NOTES

1. De-Grade existing levee crown by a depth of 2 feet. Soil shall be stockpiled for later use.
2. Excavate an additional depth of 1 foot and width of 12 feet centered on the construction centerline to provide a stable working platform.
3. Mix stockpiled soil with bentonite per project specifications. Fill in working platform with soil/bentonite mix in 3" lifts.
4. Excavate 2 foot wide by 38 foot deep cement bentonite slurry wall.
5. After slurry wall has cured, fill levee to proper height with remaining soil/bentonite mix.
6. Place 6 inches of compacted aggregate base rock over 20 foot width of levee.

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REG. GE. NO. 91,888
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REG. GE. NO. 91,888
SUBMITTED P. LeCann
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LEVEE STABILITY PROGRAM
SAN JOAQUIN FLOOD PROTECTION PROJECT
SAN JOAQUIN RIVER 42.39
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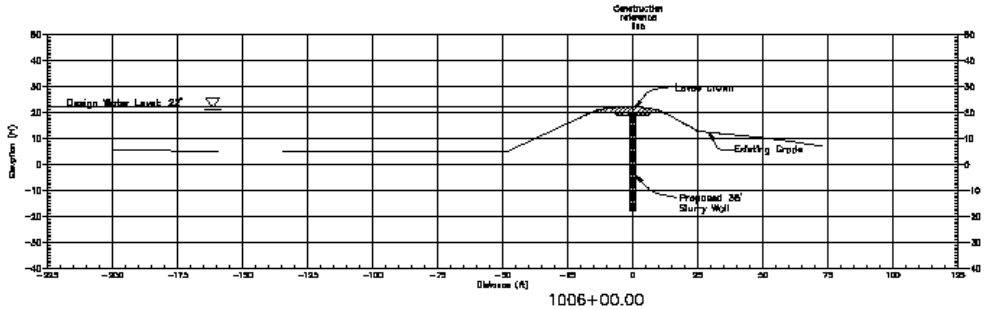


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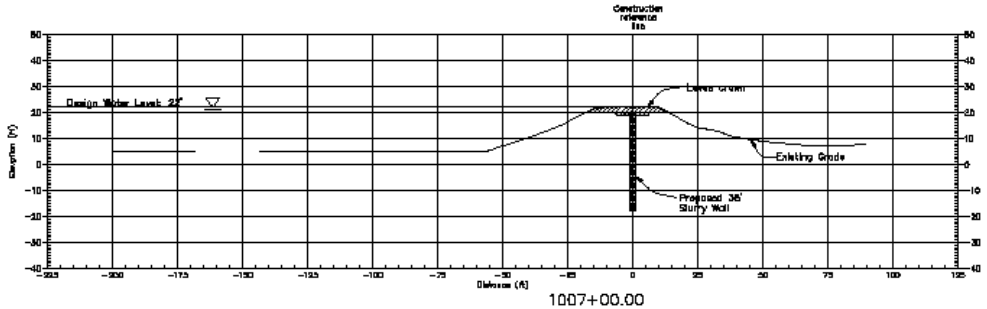


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SUBMITTED: P. LeCann
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STATE OF CALIFORNIA
CALIFORNIA NATURAL RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF ENGINEERING
DIVISION OF FLOOD MANAGEMENT

LEVEE STABILITY PROGRAM
SAN JOAQUIN FLOOD PROTECTION PROJECT
SAN JOAQUIN RIVER 42.39
SECTION VIEWS
STA. 1006+00.00 & STA. 1007+00.00

SPEC NO. 10-XX
DRAWING NO. C1-06
REV. SHEET NO. 97

# APPENDIX B

# CORRESPONDENCE REGARDING SPECIAL STATUS SPECIES

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

**Sacramento Fish and Wildlife Office**
**2800 Cottage Way, Room W-2605**
**Sacramento, California 95825**

April 30, 2010

Document Number: 100430052134

Deborah Condon
California Dept. of Water Resources
3464 El Camino Ave., Suite 200
Sacramento, CA 95821

Subject: Species List for DWR Levee Stability Program, RD 404, RM 42.3R Slurry Wall

Dear: Ms. Condon

We are sending this official species list in response to your April 30, 2010 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

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 July 29, 2010.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

# 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: 100204111207

Database Last Updated: December 1, 2009

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## Quad Lists

### Listed Species

#### Invertebrates

*Branchinecta conservatio*
- Conservancy fairy shrimp (E)
- Critical habitat, Conservancy fairy shrimp (X)

*Branchinecta lynchi*
- Critical habitat, vernal pool fairy shrimp (X)
- vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*
- valley elderberry longhorn beetle (T)

*Lepidurus packardi*
- vernal pool tadpole shrimp (E)

#### Fish

*Acipenser medirostris*
- green sturgeon (T) (NMFS)

*Hypomesus transpacificus*
- Critical habitat, delta smelt (X)
- delta smelt (T)

*Oncorhynchus mykiss*
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central Valley steelhead (X) (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 aurora draytonii*
- California red-legged frog (T)

#### Reptiles

*Thamnophis gigas*
- giant garter snake (T)

#### Birds

*Vireo bellii pusillus*

Least Bell's vireo (E)

Mammals

*Neotoma fuscipes riparia*
riparian (San Joaquin Valley) woodrat (E)

*Sylvilagus bachmani riparius*
riparian brush rabbit (E)

*Vulpes macrotis mutica*
San Joaquin kit fox (E)

Candidate Species

Birds

*Coccyzus americanus occidentalis*
Western yellow-billed cuckoo (C)

Quads Containing Listed, Proposed or Candidate Species:

RIPON (443B)
WESTLEY (443C)
VERNALIS (444A)
SOLYO (444D)

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## County Lists

San Joaquin County

Listed Species

Invertebrates

*Branchinecta conservatio*
Conservancy fairy shrimp (E)

*Branchinecta longiantenna*
longhorn fairy shrimp (E)

*Branchinecta lynchi*
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*
valley elderberry longhorn beetle (T)

*Lepidurus packardi*
vernal pool tadpole shrimp (E)

Fish

*Acipenser medirostris*
green sturgeon (T) (NMFS)

*Hypomesus transpacificus*
Critical habitat, delta smelt (X)

delta smelt (T)

*Oncorhynchus mykiss*
Central Valley steelhead (T) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

*Oncorhynchus tshawytscha*
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

## Amphibians

*Ambystoma californiense*
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

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

## Reptiles

*Masticophis lateralis euryxanthus*
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

*Thamnophis gigas*
giant garter snake (T)

## Mammals

*Neotoma fuscipes riparia*
riparian (San Joaquin Valley) woodrat (E)

*Sylvilagus bachmani riparius*
riparian brush rabbit (E)

*Vulpes macrotis mutica*
San Joaquin kit fox (E)

## Plants

*Amsinckia grandiflora*
Critical habitat, large-flowered fiddleneck (X)
large-flowered fiddleneck (E)

*Castilleja campestris ssp. succulenta*
Critical habitat, succulent (=fleshy) owl's-clover (X)
succulent (=fleshy) owl's-clover (T)

## Proposed Species

### Amphibians

*Rana aurora draytonii*

Critical habitat, California red-legged frog (PX)

## 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) 414-6580.

## 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 May 05, 2010.

# APPENDIX C

# GREENHOUSE GAS EMISSIONS INVENTORY

**DWR Levee Stability Program, SJ RM 42.1 R - 42.3R Slurry Wall -**
**Greenhouse Gas Emissions Inventory and Calculation**

## Construction Equipment Emissions

| Type of Equipment | Maximum Number per Day | Total Operation Days | Total Operation Hours[1] | Fuel Consumption Per Hour[2] | Total Fuel Consumption (gal. diesel) | $CO_2e$/gal Diesel[3] | Total $CO_2$ Equivalent Emissions (Metric Tons) |
|---|---|---|---|---|---|---|---|
| Bobcats | 1 | 14 | 112 | 2 | 224 | 0.010391 | 2.3 |
| Compactors | 1 | 7 | 56 | 18 | 1,008 | 0.010391 | 10.5 |
| Earth Mover | 1 | 7 | 56 | 57 | 3,192 | 0.010391 | 33.2 |
| Excavators | 1 | 7 | 56 | 9 | 504 | 0.010391 | 5.2 |
| Generators | 1 | 14 | 112 | Varies | 0 | 0.010391 | 0.0 |
| Grader | 1 | 7 | 56 | 9 | 504 | 0.010391 | 5.2 |
| Loaders | 1 | 14 | 112 | 10 | 1,120 | 0.010391 | 11.6 |
| Off-road Trucks | 1 | 14 | 112 | 28 | 3,136 | 0.010391 | 32.6 |
| Scrapers | 1 | 7 | 56 | 21 | 1,176 | 0.010391 | 12.2 |
| TOTAL | | | | | **9,688** | | **112.9** |

[1] A 8-hour work day is assumed.

[2] Caterpillar Performance Handbook, Edition 36

[3] World Resources Institute-Mobile combustion CO2 emissions tool. June 2003 Versio

## Construction Workforce Transportation Emissions

| Average Number of Workers per Day | Total Number of Workdays | Average Distance Travelled (round trip) | Total Miles Travelled | Average Passenger Vehicle Fuel Efficiency[4] | Total Fuel Consumption (gal. gasoline) | $CO_2e$/gal Gasoline[3] | Total $CO_2$ Equivalent Emissions (metric tons) |
|---|---|---|---|---|---|---|---|
| 10 | 30 | 20 | 6000 | 20.8 | **288.5** | 0.00901 | **2.6** |

[4] United States Environmental Protection Agency. 2008. Light-Duty Automotive

## Construction Materials Transportation Emissions

| Trip Type | Total Number of Trips[5] | Average Trip Distance | Total Miles Travelled | Average Semi-truck Fuel Efficiency | Total Fuel Consumption (gal. diesel) | $CO_2e$/gal Diesel[3] | Total $CO_2$ Equivalent Emissions (metric tons) |
|---|---|---|---|---|---|---|---|
| Delivery | 30 | 50 | 1500 | 7 | 214.3 | 0.010391 | 2.2 |
| Spoils | 30 | 50 | 1500 | 7 | 214.3 | 0.010391 | 2.2 |
| TOTAL | | | | | | | **4.5** |

[5] Trips are per day for a total of 420 trip, equipment is dumptrucks

| | | |
|---|---|---|
| Construction Equipment Emissions | 112.9 | (from line 11 above) |
| Workforce Transportation Emissions | 2.6 | (from line 18 above) |
| Construction Materials Emissions | 4.5 | (from line 25 above) |
| Operational Emissions | - | No operational emissions |
| **Total Greenhouse Gas Emissions** | **119.9** | **MT $CO_2$ equivalents** |
| **Estimated Project Useful Life** | 50 | Years[5] |
| **Average Annual Total GHG Emissions[6]** | **2.4** | **MT $CO_2$ equivalents** |

[5] Corps of Engineers design requirement is for 50-year project life. All designs approved and conformed to Corps standards.

# APPENDIX D

# CORRESPONDENCE REGARDING CULTURAL RESOURCES

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

June 10, 2009

In Reply Refer To: COE090605A

Thomas L. Schumann
Regulatory Project Manager
Department of the Army
U.S. Army Engineer District
Sacramento Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Re: Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act Authorization for the San Joaquin Flood Protection Project 2009 Sites – DWR Project, San Joaquin County, California (Regulatory Division SPK-2009-00711).

Dear Mr. Schumann:

Thank you for submitting to my office, your letter and supporting documentation regarding the undertaking noted above. The U.S. Army Engineer District, Sacramento Corps of Engineers, is seeking my comments on the effects that the subject undertaking will have on historic properties, pursuant to 36 CFR Part 800 (as amended 8-05-04) regulations implementing Section 106 of the National Historic Preservation Act (NHPA). The proposed undertaking, the San Joaquin Flood Protection Project 2009 Sites – DWR Project, will affect waters under the jurisdiction of the United States and requires authorization pursuant to Section 404 of the Clean Water Act and authorization pursuant to Section 10 of the Rivers and Harbors Act. The COE has identified these actions as an undertaking pursuant to Section 106 of the NHPA.

The project, which will be implemented by the California Department of Water Resources, consists of the repair of five eroded segments of the levee on the east bank of the San Joaquin River at the western edge of the City of Stockton (Stockton West 7.5' USGS Quadrangle) and one eroded levee site on the east bank of the San Joaquin River near the Durham Ferry State Recreation Area (Vernalis 7.5' USGS Quadrangle). There are also five potential staging locations that may be utilized during project construction. The project Area of Potential Effects (APE) consists of these locations. In addition to your letter of June 2, 2009, you have submitted the following document as evidence of your efforts to identify and evaluate historic properties in the APE:

● *Department of Water Resources Archaeological Survey Report: San Joaquin Flood Protection 2009 Project* (Tiffany A. Schmid, California Department of Water Resources: April 30, 2009).

COE090605A 6/10/09

After reviewing your letter and supporting documentation, I have no objection to your finding of No Adverse Effect for this undertaking. Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the COE may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and for considering historic properties in planning your project. If you require further information, please contact William Soule, Associate State Archeologist at phone 916-654-4614 or email wsoule@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

**Note: The 2009 Cultural Survey covers the entire RD 404 area including the proposed Project site.**

# APPENDIX E

# TREE SPECIES OBSERVED

**Tree Surveys - All Trees Both Land And Waterside within San Joaquin River Mile 42.1 and 42.3 R ( Slurrywall Alignment)**

**Survey Conducted in April, 2010**

| Tree ID | Northing | Easting | Easting | Northing | Species | Native? | Diameterte | Notes |
|---|---|---|---|---|---|---|---|---|
| 9570 | 37.92875938 | -121.3270533 | 6323129 | 2161699 | black walnut | Y | 35" | landside |
| 9599 | 37.92861538 | -121.3272894 | 6323060 | 2161649 | eucalyptus | N | 35" | waterside |
| T1 | 37.928577 | -121.327225 | 6323077 | 2161634 | eucalyptus | N | 5" | waterside; partly dead; approx. 18' from apex |
| T2 | 37.928322 | -121.326965 | 6323151 | 2161539 | cottonwood | Y | 4-5' | waterside; cluster of trees; approx. 20' from levee apex |
| T4 | 37.928322 | -121.326927 | 6323163 | 2161539 | cottonwood | Y | 5-6' | waterside; located approx. 10' south of T3 and 20' from levee apex |
| T3 | 37.928318 | -121.326935 | 6323160 | 2161539 | cottonwood | Y | 6" | waterside; cluster of trees; located approx. 15' south of T2 and 20' from levee apex |
| T5 | 37.9282 | -121.326706 | 6323226 | 2161494 | cottonwood | Y | 4' | waterside; located approx. 10' south of T3 and 20' from levee apex |
| T15 | 37.928013 | -121.325867 | 6323467 | 2161336 | eucalyptus | N | 2' | waterside; top of riprap, wrapped with burlap netting |
| T8 | 37.928005 | -121.326302 | 6323343 | 2161424 | eucalyptus | N | 5" | waterside; uphill of T6 |
| T13 | 37.927963 | -121.325821 | 6323482 | 2161405 | eucalyptus | N | 12" | landside, on levee |
| T6 | 37.927959 | -121.326309 | 6323340 | 2161406 | eucalyptus | N | 18" | waterside; located at water's edge |
| T7 | 37.927948 | -121.326286 | 6323346 | 2161402 | eucalyptus | N | 18" | waterside; located at water's edge |
| T9 | 37.92794 | -121.326241 | 6323360 | 2161398 | eucalyptus | N | 18" | waterside; at water's edge |
| T10 | 37.927933 | -121.32621 | 6323369 | 2161395 | eucalyptus | N | 1' | waterside |
| T14 | 37.927914 | -121.325768 | 6323496 | 2161386 | eucalyptus | N | 10" | landside; on levee |
| T11 | 37.927837 | -121.325966 | 6323438 | 2161361 | eucalyptus | N | 8" | waterside, top of riprap |
| T12 | 37.927765 | -121.325867 | 6323467 | 2161423 | eucalyptus | N | 3' | landside, on levee; next to concrete pipe |
| T16 | 37.927696 | -121.325829 | 6323478 | 2161310 | eucalyptus | N | 9" | waterside, 5' from water's edge; wrapped with box and netting |
| T17 | 37.927685 | -121.325798 | 6323486 | 2161306 | eucalyptus | N | 14" | waterside, 10' from water's edge; wrapped with box and netting |
| T18 | 37.927612 | -121.325737 | 6323504 | 2161277 | eucalyptus | N | 4' | waterside, 10' from water's edge; wrapped with box and netting |
| T20 | 37.927517 | -121.325607 | 6323541 | 2161244 | cottonwood | Y | | waterside at RM 41.3, 5' upslope from riprap, planted as part of repair |
| T19 | 37.927509 | -121.325623 | 6323538 | 2161240 | eucalyptus | N | 9" | waterside, middle of riprap, tagged "794" |
| T21 | 37.927429 | -121.3256 | 6323543 | 2161211 | eucalyptus | N | 2' | waterside, within RM 41.3 repair |
| T22 | 37.927338 | -121.3255 | 6323572 | 2161178 | eucalyptus | N | 18" | waterside, diameter is for cluster of trees, loc. Top of riprap, w/in RM 41.3 repair site |

# APPENDIX F

# CEQA ENVIRONMENTAL CHECK LIST

## CEQA APPENDIX G:
## ENVIRONMENTAL CHECKLIST FORM

NOTE: The following is a sample form and may be tailored to satisfy individual agencies' needs and project circumstances. It may be used to meet the requirements for an initial study when the criteria set forth in CEQA Guidelines have been met. Substantial evidence of potential impacts that are not listed on this form must also be considered. The sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance.

1. Project title: Levee Stability Program, RD 404, San Joaquin River, River Mile 42.1 To 42.3R, Seepage Repair ,Stockton, California
2. Lead agency name and address: Department of Water Resources
   3464 El Camino Ave. RM 200
   Sacramento, CA 95821
3. Contact person and phone number: Deborah Condon (916) 574-1426
4. Project location: Stockton, San Joaquin County, San Joaquin RM 42.1 to 42.3 right bank
5. Project sponsor's name and address: Same as Lead Agency
6. General plan designation: City 7. Zoning: City
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   Through and under seepage remediation of federal levee by constructing a cement-bentoinite slurry wall (cutoff wall) along 1,200 linear ft of the levee along the right bank of the San Joaquin River to a depth of 40 ft and width of 2 ft at the centerline of the levee
9. Surrounding land uses and setting: Briefly describe the project's surroundings:
   The levee repair reach is south of the State Highway 4 and Garwood Bridge, west of a vacant county-owned 6 acre lot and residential neighborhood, north of the Van Buskirk Golf Course. The San Joaquin River is immediately west.
10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)

Central Valley Flood Protection Board - Encroachment Permit, DFG - Streambed Alteration Permit, USFWS and NMFS - ESA consultation, RWQCB - SWPPP, SHPO - Section 106, USACOE - Section 408 permission, RD 404 - O&M Agreement, DFG- CESA

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

_____ _____
Signature Date

_____ _____
Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

a) the significance criteria or threshold, if any, used to evaluate each question; and

b) the mitigation measure identified, if any, to reduce the impact to less than significance

SAMPLE QUESTION

Issues:

| | **Potentially Significant Impact** | **Less Than Significant with Mitigation Incorporated** | **Less Than Significant Impact** | **No Impact** |
|---|---|---|---|---|
| I. AESTHETICS. Would the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☒ | ☐ |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | ☐ | ☒ |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | ☐ | ☐ | ☐ | ☒ |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☐ | ☒ |
| II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project: | | | | |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |
| c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? | ☐ | ☐ | ☐ | ☒ |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |
| III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project: | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☐ | ☐ | ☒ |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | ☐ | ☒ | ☐ | ☐ |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | X | ☐ |
| e) Create objectionable odors affecting a substantial number of people? | ☐ | ☐ | ☐ | X |
| IV. BIOLOGICAL RESOURCES: Would the project: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | ☐ | X | ☐ | ☐ |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | ☐ | ☐ | ☐ | X |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | ☐ | ☐ | ☐ | X |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | ☐ | ☐ | X | ☐ |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | X | ☐ |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | ☐ | ☐ | ☐ | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| V. CULTURAL RESOURCES. Would the project: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5? | ☐ | X | ☐ | ☐ |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5? | ☐ | X | ☐ | ☐ |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☐ | X | ☐ |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | ☐ | X | ☐ | ☐ |
| VI. GEOLOGY AND SOILS. Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | ☐ | ☐ | ☐ | X |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | ☐ | ☐ | ☐ | X |
| ii) Strong seismic ground shaking? | ☐ | ☐ | ☐ | X |
| iii) Seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☐ | X |
| iv) Landslides? | ☐ | ☐ | ☐ | ☐ |
| b) Result in substantial soil erosion or the loss of topsoil? | ☐ | X | ☐ | ☐ |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | ☐ | ☐ | ☐ | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | ☐ | ☐ | ☐ | ☒ |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | ☐ | ☐ | ☐ | ☒ |
| VII. GREENHOUSE GAS EMISSIONS. Would the project: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☒ | ☐ |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☐ | ☒ |
| VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project: | | | | |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | ☐ | ☐ | ☒ | ☐ |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | ☐ | ☒ | ☐ | ☐ |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | ☐ | ☐ | ☒ | ☐ |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☐ | ☒ |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | ☐ | ☐ | ☐ | ☒ |
| IX. HYDROLOGY AND WATER QUALITY. Would the project: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | ☐ | ☐ | ☐ | ☒ |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | ☐ | ☐ | ☐ | ☒ |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site? | ☐ | ☐ | ☒ | ☐ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | ☐ | ☐ | ☐ | ☒ |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | ☐ | ☐ | ☐ | ☒ |
| f) Otherwise substantially degrade water quality? | ☐ | ☒ | ☐ | ☐ |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | ☐ | ☐ | ☐ | ☒ |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | ☐ | ☐ | ☐ | ☒ |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | ☐ | ☐ | ☐ | ☒ |
| j) Inundation by seiche, tsunami, or mudflow? | ☐ | ☐ | ☐ | ☒ |
| X. LAND USE AND PLANNING. Would the project: | | | | |
| a) Physically divide an established community? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | ☐ | ☐ | ☐ | ☒ |
| XI. MINERAL RESOURCES. Would the project: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ☒ |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | ☐ | ☐ | ☐ | ☒ |
| XII. NOISE -- Would the project result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | ☐ | ☐ | ☒ | ☐ |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☒ | ☐ |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☐ | ☐ | ☒ |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | ☐ | ☒ | ☐ | ☐ |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| XIII. POPULATION AND HOUSING. Would the project: | | | | |
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | ☐ | ☐ | ☐ | ☒ |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |
| XIV. PUBLIC SERVICES. | | | | |
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | ☐ | ☐ | ☐ | ☒ |
| Fire protection? | ☐ | ☐ | ☐ | ☒ |
| Police protection? | ☐ | ☐ | ☐ | ☒ |
| Schools? | ☐ | ☐ | ☐ | ☒ |
| Parks? | ☐ | ☐ | ☐ | ☒ |
| Other public facilities? | ☐ | ☐ | ☐ | ☒ |
| XV. RECREATION. | | | | |
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | ☐ | ☐ | ☐ | ☒ |
| XVI. TRANSPORTATION/TRAFFIC. Would the project: | | | | |
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | ☐ | ☐ | ☐ | ☒ |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | ☐ | ☐ | ☒ | ☐ |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | ☐ | ☐ | ☐ | ☒ |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☐ | ☒ |
| e) Result in inadequate emergency access? | ☐ | ☐ | ☐ | ☒ |
| f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | ☐ | ☐ | ☐ | ☒ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| XVII. UTILITIES AND SERVICE SYSTEMS. Would the project: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | ☐ | ☐ | ☐ | ☒ |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | ☐ | ☐ | ☐ | ☒ |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | ☐ | ☐ | ☐ | ☒ |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | ☐ | ☐ | ☐ | ☒ |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ |
| XVIII. MANDATORY FINDINGS OF SIGNIFICANCE. | | | | |
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number o restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | ☐ | ☐ | ☒ | ☐ |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | ☐ | ☐ | ☒ | ☐ |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | ☐ | ☐ | ☒ | ☐ |

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino,*(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors,* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

*Revised 2009*