

**DRAFT
ENVIRONMENTAL ASSESSMENT/
INITIAL STUDY**

**AMERICAN RIVER COMMON FEATURES
POCKET AREA GEOTECHNICAL
REACHES 2 AND 9**

MAY 2006



**US Army Corps
of Engineers**



SAFCA

Sacramento
Area Flood
Control
Agency

**DRAFT
ENVIRONMENTAL ASSESSMENT/
INITIAL STUDY**

**AMERICAN RIVER COMMON FEATURES
POCKET AREA GEOTECHNICAL
REACHES 2 AND 9**

MAY 2006

**U.S. ARMY CORPS OF ENGINEERS
SACRAMENTO DISTRICT**

**THE RECLAMATION BOARD
STATE OF CALIFORNIA**

**SACRAMENTO AREA FLOOD CONTROL AGENCY
SACRAMENTO, CALIFORNIA**

DRAFT FINDING OF NO SIGNIFICANT IMPACT
American River Watershed Common Features Project, California
Pocket Area Geotechnical Reaches 2 and 9

I have reviewed and evaluated the information presented in this Environmental Assessment/Initial Study (EA/IS) prepared for the American River Watershed Common Features Project, California, Pocket Area Geotechnical Reaches 2 and 9. The project would repair seepage problems on flood control levees at river miles (RM) 52.1 to 52.4 (Reach 2) and RM 45.5 to 45.7 (Reach 9) on the east bank of the Sacramento River. The repair work would involve constructing cutoff walls to address under-seepage at Reach 2 and through-seepage at Reach 9.

During this review, the possible consequences of the work described in the EA/IS have been studied with consideration given to environmental, socioeconomic, cultural, and engineering feasibility. I have also considered the views of other interested agencies, organizations, and individuals. The environmental effects have been coordinated with the U.S. Fish and Wildlife Service (Service), NOAA Fisheries, California State Historic Preservation Officer, the California Department of Fish and Game, and The Reclamation Board of the State of California.

Compensation to reduce the effects on the Federally listed threatened valley elderberry longhorn beetle would include planting 0.7 acres of elderberry shrubs and associated native plants at a Service-approved site. In addition, all areas disturbed by construction would be revegetated for erosion control. Best management practices (BMP's) would be implemented to reduce construction traffic conflicts and to ensure public safety in areas where construction traffic is near levee access routes. These compensation measures and BMP's are sufficient to reduce any potential effects to vegetation, valley elderberry longhorn beetle habitat, and Swainson's hawks to less than significant.

Based on my review of the EA/IS and my knowledge of the project area, I have determined that the proposed levee repair work, including access routes and staging areas, would have no significant, long-term effects on environmental or cultural resources. Based on these considerations, I am convinced that there is no need to prepare an environmental impact statement. Therefore, an EA and Finding of No Significant Impact provide adequate environmental documentation for the proposed action.

Date

Ronald N. Light
Colonel, Corps of Engineers
District Engineer

CONTENTS

| | | |
|-------|--|----|
| 1.0 | Purpose and Need for Action..... | 1 |
| 1.1 | Proposed Action..... | 1 |
| 1.2 | Location of the Project Area..... | 1 |
| 1.3 | Background and Need for Action..... | 1 |
| 1.4 | Authority..... | 2 |
| 1.5 | Purpose of the EA/IS..... | 2 |
| 1.6 | Decisions Needed..... | 2 |
| 2.0 | Alternatives..... | 2 |
| 2.1 | Alternatives Eliminated from Further Consideration..... | 2 |
| 2.2 | No Action Alternative..... | 3 |
| 2.3 | Construct Cutoff Walls..... | 3 |
| 2.3.1 | Reach 2..... | 3 |
| 2.3.2 | Reach 9..... | 6 |
| 3.0 | Affected Environment and Environmental Consequences..... | 9 |
| 3.1 | Environmental Resources Not Considered in Detail..... | 10 |
| 3.1.1 | Climate..... | 10 |
| 3.1.2 | Topography, Geology, and Soils..... | 10 |
| 3.1.3 | Land Use and Socioeconomics..... | 11 |
| 3.1.4 | Public Utilities and Services..... | 12 |
| 3.1.5 | Fisheries..... | 12 |
| 3.2 | Recreation..... | 12 |
| 3.2.1 | Existing Conditions..... | 12 |
| 3.2.2 | Environmental Effects..... | 13 |
| 3.2.3 | Mitigation..... | 13 |
| 3.3 | Vegetation and Wildlife..... | 14 |
| 3.3.1 | Existing Conditions..... | 14 |
| 3.3.2 | Environmental Effects..... | 15 |
| 3.3.3 | Mitigation..... | 16 |
| 3.4 | Special Status Species..... | 17 |
| 3.4.1 | Existing Conditions..... | 17 |
| 3.4.2 | Environmental Effects..... | 17 |
| 3.4.3 | Mitigation..... | 18 |
| 3.5 | Air Quality..... | 19 |
| 3.5.1 | Existing Conditions..... | 19 |
| 3.5.2 | Environmental Effects..... | 21 |
| 3.5.3 | Mitigation..... | 22 |
| 3.6 | Water Resources and Quality..... | 23 |
| 3.6.1 | Existing Conditions..... | 23 |
| 3.6.2 | Environmental Effects..... | 24 |
| 3.6.3 | Mitigation..... | 25 |
| 3.7 | Traffic and Circulation..... | 25 |
| 3.7.1 | Existing Conditions..... | 25 |
| 3.7.2 | Environmental Effects..... | 26 |
| 3.7.3 | Mitigation..... | 28 |

| | | |
|--------|---|----|
| 3.8 | Noise | 29 |
| 3.8.1 | Existing Conditions..... | 29 |
| 3.8.2 | Environmental Effects | 31 |
| 3.8.3 | Mitigation..... | 32 |
| 3.9 | Esthetics/Visual Resources | 32 |
| 3.9.1 | Existing Conditions..... | 32 |
| 3.9.2 | Environmental Effects | 32 |
| 3.9.3 | Mitigation..... | 33 |
| 3.10 | Cultural Resources | 34 |
| 3.10.1 | Existing Conditions..... | 34 |
| 3.10.2 | Environmental Effects | 36 |
| 3.10.3 | Mitigation..... | 37 |
| 3.11 | Hazardous and Toxic Waste | 37 |
| 3.11.1 | Existing Conditions..... | 37 |
| 3.11.2 | Environmental Effects | 38 |
| 3.11.3 | Mitigation..... | 39 |
| 4.0 | Growth-Inducing Effects | 39 |
| 5.0 | Cumulative Effects..... | 40 |
| 6.0 | Compliance with Environmental Laws and Regulations..... | 41 |
| 6.1 | Federal..... | 41 |
| 6.2 | State..... | 43 |
| 7.0 | Coordination and Review of the Draft EA | 43 |
| 8.0 | Findings..... | 44 |
| 9.0 | List of Preparers | 44 |
| 10.0 | References..... | 45 |
| 10.1 | Printed Sources | 45 |
| 10.2 | Personal Communications | 46 |

Tables

| | | |
|----|---|----|
| 1. | Air Emission Thresholds per Project for Federal and State Criteria Pollutants | 20 |
| 2. | Combined Estimated Air Emissions for Reaches 2 and 9 | 22 |
| 3. | Traffic Volumes in and near the Project Area | 27 |

Plates

1. State and Vicinity Maps
2. Location Map and Access Routes for Reach 2
3. Location Map and Access Routes for Reach 3
4. Reach 2 Levee Stationing and Plan Sheet Layout
5. Reach 9 Levee Stationing and Plan Sheet Layout
6. Staging and Stockpile Area for Reach 9

Appendixes

- A. Draft Coordination Act Report [pending completion by U.S. Fish & Wildlife Service]
- B. Correspondence Regarding Special Status Species
- C. Construction/ Emission Estimates using the Road Construction Emissions Model, Version 5.1
- D. Correspondence Regarding Cultural Resources

1.0 Purpose and Need for Action

1.1 Proposed Action

The U.S. Army Corps of Engineers (Corps), the State Reclamation Board, and the Sacramento Area Flood Control Agency (SAFCA) propose to strengthen the flood control levees along two reaches of the Sacramento River in the Pocket area. This work would address potential levee seepage problems, as well as ensure that these levees meet the Federal Emergency Management Agency's (FEMA) criteria for a 100-year flood event.

1.2 Location of the Project Area

The proposed work is located along two levee reaches on the east side of the Sacramento River in the Pocket area of south Sacramento (Plate 1). These two reaches are referred to as "Reaches 2 and 9" in this EA/IS. Reach 2 extends for approximately 1,750 feet from river mile (RM) 52.1 to RM 52.4 along a residential area of the Pocket (Plate 2). Reach 9 extends for approximately 1,480 feet from RM 45.5 to RM 45.7 along a more rural area to the south of Reach 2 (Plate 3). These levees are components of the Sacramento River Flood Control Project.

1.3 Background and Need for Action

During the storms in 1986, the Reclamation Board observed 14 boils and 6 areas of seepage on the landside of the Sacramento River levees in the Pocket Area. These boils and seepage indicated that flood water from the river was moving through the levee to landside areas of lower hydraulic pressure. Since such "through-seepage" could affect the integrity of the levee and possibly lead to levee failure, the Corps constructed an impervious cutoff wall through the center of the levee in several areas in the early 1990's.

The cutoff wall was constructed by excavating a trench and then filling it with a slurry mixture of water, bentonite, and soil. This "slurry wall" was installed to several feet below the base of the existing levee, and in some areas, a deeper wall was constructed to depths of about 16 feet below the base of the levee. At the time, it was believed that the underlying, fine-grained soil would effectively eliminate seepage beneath the wall. However, field surveys during the winter of 1995 revealed 16 areas of levee seepage in the same area of the Pocket. Subsequent geotechnical investigations and flood events in 1997 revealed that such "under-seepage" at depths below existing slurry walls could also affect levee integrity.

In August 2003, it was determined that the levee in the Pocket Area would not meet FEMA's criteria for a 100-year flood event until the problems of seepage in this area were resolved. As a result, the Corps conducted a geotechnical evaluation of the east levee of the Sacramento River in 2005 from about RM 53.7 to RM 45.3 in the Pocket Area. This evaluation divided this section of levee into nine reaches, and the results indicated that most of the seepage was limited to Reaches 2 and 9 (Corps, 2005).

Currently, there is a 30-foot slurry wall at Reach 2. This wall was constructed as part of the Corps slurry wall work in the Pocket Area between 1991 and 1993. During this period, a slurry wall was constructed south along the levee, eventually terminating at the north end of the proposed cutoff wall at Reach 9. Results of the 2005 geotechnical evaluation indicated the integrity of the levees continues to be at risk from under-seepage at Reach 2 and through-seepage at Reach 9. This seepage could lead to levee failure, resulting in damage to property, disruption of infrastructure, and potential loss of life. Levee work is needed to address these seepage problems, as well as ensure that these levees to meet FEMA's criteria for a 100-year flood event.

These two seepage sites are not part of Governor's Schwarzenegger's February 24, 2006 Executive Order S-01-01 regarding repair of critical erosion sites.

1.4 Authority

The proposed levee work is part of the ongoing American River Watershed Common Features project. Authorization for the Common Features project is provided by Section 101 of Water Resources Development Act of 1996 (WRDA) (Public Law 104-303) and Section 366 of WRDA 1999 (Public Law 106-53).

1.5 Purpose of the EA/IS

This Environmental Assessment/Initial Study (EA/IS) (1) describes the existing environmental resources in the project area, (2) evaluates the environmental effects of the alternatives on these resources, and (3) identifies measures to avoid or reduce any effects to less than significant. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

1.6 Decisions Needed

The District Engineer, commander of the Sacramento District, must decide whether or not the proposed levee work qualifies for a Finding of No Significant Impact (FONSI) under NEPA or whether an EIS must be prepared. Also, the Reclamation Board must decide if the proposed action qualifies for a Mitigated Negative Declaration under CEQA or whether an EIR must be prepared.

2.0 Alternatives

2.1 Alternatives Eliminated from Further Consideration

The existence of urban development near or at the landside toe of the east levee in the Pocket area restricted the use of some methods of seepage management. Seepage berms and relief wells would require access at and beyond the landside toe of the levee. The existence of nearby urban development, including homes, city streets, and Highway

160, would preclude the use of seepage berms and relief wells. As a result, these alternatives were eliminated from further consideration.

2.2 No Action Alternative

Under this alternative, the Corps would not participate in strengthening the levees in Reaches 2 and 9 by constructing cutoff walls. Levee conditions would remain the same, and through-seepage and under-seepage problems would continue to threaten the integrity of the levee structure. Without resolution of the seepage problems, the levees would not meet FEMA's criteria for a 100-year flood event. As a result, homeowners would continue to be required to purchase flood insurance policies. This alternative provides the baseline conditions for the evaluation of the proposed action on environmental resources in the project area.

2.3 Construct Cutoff Walls

This section describes the proposed action at Reaches 2 and 9. This includes a discussion of features, construction details, staging and stockpile area, borrow and disposal sites, construction workers and schedule, and operation and maintenance for each reach. Currently, the levees have an average height of 21 feet, a 20-foot average-width crown, a waterside slope of 3H:1V, and a landside slope of 2H:1V.

2.3.1 Reach 2

Features. The work at Reach 2 would involve constructing 1,750 feet of cutoff wall between RM 52.1 and RM 52.4 (Station 192+00 to 209+50) to a depth of 110 feet from the top of the levee (Plate 4). The depth of the wall was determined based on the depth of the nearest layer of impervious soil below the depth of the under-seepage as identified in the 2005 geotechnical evaluation. Due to the required depth of the wall and the nearby residential development, deep soil mixing (DSM) was the only construction method capable of reaching the depth necessary to accomplish the work.

Construction Details

Access and Staging. The south access to the levee would be through the vacant lot immediately south of the property at 6534 Benham Way. This vacant lot, which is located between two residences, would also be used as a staging area for equipment, materials, and/or soil. This open grassy lot currently slopes up toward the top of the levee and is approximately 0.3 acre in area. A temporary ramp would be constructed on the landside slope of the levee to allow vehicles and equipment to access the top of the levee at approximately Station 217+60.

The north access to the levee would be on North Point Way at approximately Station 178+00. A permanent ramp would be constructed on the landside slope of the levee to accommodate vehicular traffic from the access at North Point Way to the top of

the levee. Since the greenbelt in this area would also be used for staging or placement of the construction trailer, this would be the primary access for delivery of materials.

The levee would be accessed via the property at 6534 Benham Way, as well as the greenbelt along North Point Way. The greenbelt would serve as the staging area for materials. All deliveries of cement and bentonite would be made to this location from Riverside Boulevard to Grangers Dairy Drive to North Point Way. All trucks accessing the levee or delivering materials would enter and exit the staging area on the north end of the site onto North Point Way parallel to Station 178+00.

Site Preparation. Construction of the cutoff wall would require that the levee crown be degraded (remove crown material) temporarily to accommodate the drilling/mixing equipment. The equipment would require a 30-foot-wide working area with a 10-foot buffer on either side (50 feet total width). This would make up the temporary construction easement. The construction footprint would encompass approximately 2 acres.

On average, the levee in Reach 2 would be degraded 2 feet in height to establish the 30-foot-wide working area. The gravel roadway on the top of the levee would be removed, as well as any structures on the levee slopes within the temporary construction easement, such as stairs, fences, and gates. Degrading the levee by 2 feet levee would remove approximately 4,000 cubic yards (CY) of soil. A portion of this “degrade material” may be used to construct the north end permanent access ramp on the landside slope of the levee. However, most of the degrade material would be temporarily stockpiled either on the waterside slope of the levee or in the staging area for later reuse.

The DSM batch plant would be located within a widened section of the levee between Station 190+50 and Station 193+00. Because a portion of this levee section is within the north end of the cutoff wall, this section of the levee may be degraded 2 to 4 feet lower in order to provide a wider footprint for the batch plant. Some of the degrade material would be used to further widen this section on the landside slope of the levee. The waterside slope of the levee would be used for placement of the remaining degrade material.

The grassy vegetation would be stripped off the waterside slope of the levee to foster placement of the degrade material against the slope. This would help minimize the footprint of the stockpiled material. The degrade material to be placed on the waterside levee slope is estimated to be approximately 2 feet thick.

Installation of Cutoff Wall. The construction of the cutoff wall using DSM would involve the use of a specialized boring rig. The rig uses a series of hollow centered augers. Typically, the augers are 30 inches in diameter and are oriented in a straight alignment. Each auger is connected end-to-end with additional sections to reach the desired depth of the wall. Once the augers reach the designed depth and width of the cutoff wall, the concrete mix is delivered through the hollow center of the augers.

The wall in Reach 2 is estimated to make up a total volume of 18,000 CY of combined soil/mix material. The mix, made of approximately 4,000 tons (6,500 CY) of cement and 1,250 tons (2,000 CY) of bentonite, would be combined with soil from the boring process to complete the cutoff wall mixture. The process is expected to generate approximately 45 percent (8,500 CY) of the total volume in spoils. The cement and bentonite mixture would be processed at a batch plant temporarily located on a wide section of the levee between Station 190+50 and Station 193+00.

Restoration and Cleanup. Once the levee work is completed, all equipment and excess materials would be transported offsite via neighborhood streets and regional highways. The barren earthen and levee slopes would be reseeded with native grasses to promote revegetation and minimize soil erosion. The access ramps and the North Point Way staging area would also be restored to pre-project conditions and reseeded. The other two staging areas would be reseeded or replaced with sod, if necessary. Any damage to the residential streets 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.

Staging and Stockpile Areas. Three staging/stockpile areas have been proposed for Reach 2 (Plate 4) The main stockpile area would be located between Station 195+25 and Station 204+50, where the degrade material would be placed against the waterside slope of the levee. The south access ramp adjacent to 6534 Benham Way would also be used as a staging area for the construction office trailer, employee parking, and some equipment. This staging/access area is approximately 0.25 acre. The greenbelt located on North Point Way between Station 178+00 and Station 187+00 would also be used to temporarily store and stage some equipment and materials. The staging/stockpile areas would be accessed via the property adjacent to 6534 Benham Way on the south and via the greenbelt at North Point Way on the north.

Borrow and Disposals Sites. All disposal material would be temporarily stockpiled at the staging areas. The contractor would be responsible for determining and providing certification of the condition of the disposal material.

Construction would require that 1,300 CY of excess soil and 6,500 CY of spoils from the DSM be hauled away for disposal. Likewise, 1,300 CY of soil would be imported for the clay cap over the cutoff wall, and 650 CY of base rock would be required to reconstruct the crown roadway.

Two haul routes are proposed for trucks exiting the residential area. First, from the south access, trucks would travel along Benham Way to Surfside Way to Park Riviera Way. Park Riviera Way leads to Riverside Boulevard in either direction. From the north access, trucks would travel along North Point Way to Grangers Dairy Drive. Grangers Dairy Drive leads directly to Riverside Boulevard. Riverside Boulevard offers direct access to major transportation corridors such as Interstate 5 (I-5) (Plate 2).

Construction Workers and Schedule. An estimated 10 to 20 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles in the staging area located adjacent to 6534 Benham Way or at the North Point Way staging area. Construction hours would be limited daily to the hours from 7:00 a.m. to 6:00 p.m. Monday through Saturday. Construction activities are expected to begin in July 2006 and continue for 4 months.

Operation and Maintenance. Once construction is completed, responsibility for the project would be turned over to the Reclamation Board, the non-Federal sponsor for the project. This would include operation, maintenance, repair, rehabilitation, and replacement of all project features. The Reclamation Board would convey these responsibilities to SAFCA. It is anticipated that SAFCA would contract with another agency to operate and maintain the levee. Regular maintenance activities include mowing and spraying levee slopes, controlling rodents, clearing the maintenance road, and inspecting the levee.

2.3.2 Reach 9

Features. The work at Reach 9 would involve constructing 1,480 feet of cutoff wall between RM 45.5 and RM 45.7 (Station 541+00 to 556+00) to a depth of 40 feet (Plate 5). The depth of wall was determined based on the depth of other nearby cutoff walls that have successfully addressed problems with through-seepage as identified in the 2005 geotechnical evaluation. Due to the shallower depth and rural area, the more common slurry wall construction method is anticipated for this reach although the DSM method could be used, depending on economic factors.

Construction Details

Access and Staging. The south access to the levee would be through the parking lot immediately north of Cliff's Marina. Entry to this area is directly from Highway 160 at approximately Station 556+00. This area, which is approximately 0.3 acre, would also serve as a staging area for the slurry batch plant and some associated materials. It is currently surfaced with a patchwork of gravel and asphalt, which would be removed prior to degrading of the levee.

The north access to the levee would be via an existing maintenance ramp on the landside of the levee at approximately Station 539+00. The ramp would require some grading and widening to accommodate construction equipment. An existing access gate at the base of the ramp on Highway 160 would be removed during construction, but would be replaced at the completion of the project.

The primary staging/stockpile area would be located directly across Highway 160 from the project area. This area is made up of three properties: the north and south properties are owned by a private landowner, and the middle property is owned by the Sacramento County Sanitation District No. 1. They are all within the newly constructed North Beach levee feature of the South Sacramento County Streams Project. Although

only two parcels would be required for staging and parking, temporary easements for all three parcels must be acquired for the project. The total area is approximately 7.25 acres. The site currently has an established access point at the south end of one of the parcels (Plate 6).

Site Preparation. This section of the levee system is topped by railroad tracks previously used by the Southern Pacific Railroad. These tracks, now part of the Walnut Grove Line Railroad, are owned by the State Railroad Museum under the State Department of Parks and Recreation. Although not currently in use, the tracks, ties, and ballast must be removed prior to construction of the slurry wall.

Because of the cultural significance of the Walnut Grove Line Railroad, the tracks would be removed and stored in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. All activities regarding removal and replacement of the tracks would be coordinated with, and approved by, the State Historic Preservation Officer (SHPO).

The tracks would be disassembled, and the rails and ties would be removed using a small crane positioned on the southbound shoulder and partial lane of Highway 160. The rails and ties would be loaded onto flatbed trucks and delivered to the City's storage yard located on Highway 160, approximately 3 miles north of the project area, at the water tower. The ballast would be stockpiled in the staging area directly across Highway 160 from the project area. The ballast, likely mixed with too much soil to be reusable for reconstruction, would be hauled away for disposal.

Construction of the cutoff wall would require that the levee crown be degraded temporarily to accommodate the footprint of the excavation or drilling equipment, with a vehicle access lane. The equipment configuration would require a 30-foot-wide working area with a 10-foot temporary construction easement on either side (50 feet total width). The construction footprint is approximately 1.6 acres.

The levee in Reach 9 would be degraded between 2 feet and 4 feet in height to establish the 30-foot-wide working area. Due to the limited width of the levee crown, the levee would be degraded using an excavator and dump trucks rather than larger equipment such as scrapers that are typically used for this activity. This work would extend from the existing landside access ramp on the north (Station 540+25) to the parking lot at Cliff's Marina on the south (Station 555+10).

The degrade material would be stockpiled in a staging area directly across Highway 160 from the construction area. If the establishment of the 30-foot-wide working footprint requires that the levee be degraded by 4 feet, a maximum of approximately 8,800 CY of material would be removed. This would equate to 880 round trips to the stockpile site across Highway 160. The north access ramp would require some improvements such as widening to accommodate construction equipment.

Installation of Cutoff Wall. The installation of the cutoff wall using either the more common slurry wall construction or DSM method would begin at the north end of the reach and progress to the south end. Assuming the more common method, the slurry wall trench would be excavated directly under the alignment of the railroad tracks using two excavators and dump trucks. Approximately 1,200 tons (1,700 CY) of cement and 400 tons (600 CY) of bentonite would be required for the slurry wall at Reach 9.

The initial slurry, primarily water with bentonite, would be mixed at the batch plant and pumped into the trench to keep the walls of the trench from eroding or collapsing. The batch plant would be located in the Cliff's Marina parking lot at the south end of the reach. A denser backfill slurry composed of soil, cement, and bentonite would then be mixed in the portable bin on top of the levee. This denser backfill slurry would be slowly placed into the trench using the excavator bucket. This would displace approximately 2,300 CY of the initial slurry, which would be removed from the excavation and hauled away for disposal.

Once the placement of the denser backfill slurry has been completed and cured, an impervious clay cap would make up the top 2 feet of the cutoff wall. This would require the approximately 1,200 CY of clay. The levee crown roadway would be reconstructed. Approximately 600 CY of baserock would be used to complete this reconstruction. The State Railroad Museum would then reinstall the railroad ballast, ties, and tracks.

Restoration and Cleanup. Once the levee work is completed, all equipment and excess materials would be transported offsite via local streets and regional highways. The barren earthen and levee slopes would be reseeded with native grasses to promote revegetation and minimize soil erosion. The access ramps and the Cliff's Marina parking lot would be restored to pre-project conditions. The staging area at the marina parking lot would be resurfaced with gravel, or asphalt if necessary. The staging area east of Highway 160 would also be restored to pre-project conditions suitable for agricultural use. The gate would be replaced at the access ramp on the landside slope at the north end of the reach. Any damage to Highway 160 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.

Staging and Stockpile Areas. The primary staging/stockpile area would be composed of three parcels located directly across Highway 160 from the project area (Plate 6). The north and south parcels are owned by a private landowner, and the middle parcel is owned by the Sacramento County Sanitation District No 1. All three are within the newly constructed North Beach levee feature of the South Sacramento County Streams Project. Although only two of the parcels (parcels 2 and 3) would be used for staging, temporary easements for all three parcels must be acquired for the project. The total area is approximately 7.25 acres. The staging/ stockpile area has established access at the south end of parcel 3.

Part of the staging area would be used for temporary parking for Cliff's Marina since the existing marina parking lot would not be available to the public during construction.

The railroad rails and ties would be stored at a site owned by the State Railroad Museum, adjacent to the city water tower, located on Highway 160 approximately 3 miles north of the project site.

Borrow and Disposal Sites. All disposal material would be temporarily stockpiled at the staging area. The contractor would be responsible for determining and providing certification of the condition of the disposal material.

Construction would require that 1,200 CY of excess soil and 2,300 CY of spoils from the denser backfill slurry mixture be hauled away for disposal. Likewise, 1,200 CY of soil would be imported for the clay cap over the cutoff wall, and 650 CY of base rock would be required to reconstruct the crown roadway.

The haul route would require travel primarily on Highway 160 north to Meadowview/Pocket Road and I-5 to transport loads to and from the site (Plate 3).

Construction Workers and Schedule. An estimated 10 to 20 workers would be onsite each day during construction. These workers would access the area via regional and local roadways, and park their vehicles in the staging area across Highway 160. Construction hours would be limited daily to the hours from 6:00 a.m. to 8:00 p.m. Monday through Saturday, and 8:00 a.m. to 6:00 p.m. on Sundays. Construction activities are expected to begin in July 2006 and continue for 4 months.

Operation and Maintenance. Once construction is completed, responsibility for the project would be turned over to the Reclamation Board, the non-Federal sponsor for the project. This would include operation, maintenance, repair, rehabilitation, and replacement of all project features. The Reclamation Board would convey these responsibilities to SAFCA. It is anticipated that SAFCA would contract with another agency to operate and maintain the levee. Regular maintenance activities include mowing and spraying levee slopes, controlling rodents, clearing the crown of the levee, and inspecting the levee.

3.0 Affected Environment and Environmental Consequences

This section describes the environmental resources in the project area, as well as any effects of the alternatives on those resources. When necessary, mitigation measures are also proposed to avoid, reduce, minimize, or compensate for any significant effects. Since the existing conditions and construction details differ for Reaches 2 and 9, they are evaluated separately for most resources.

In addition, although two different construction methods are possible at Reach 9, the affected environment and environmental effects would be basically the same since

only some types of equipment and the construction methods would change. All other features, construction footprint, staging and stockpile areas, borrow and disposal sites, construction workers and schedule, and operation and maintenance would remain the same.

3.1 Environmental Resources Not Considered in Detail

Initial evaluation of the effects of the project indicated that there would likely be little to no effect on several resources. These resources are discussed below to add to the overall understanding of the project area.

3.1.1 Climate

The climate of the area is characterized by cool, wet winters and hot, dry summers. Most of the seasonal rainfall occurs in two or three of the winter months. Precipitation ranges from 16 to 20 inches on the valley floor. Annual precipitation occurs almost entirely during the winter storm season (November to April). Air temperatures in the valley are high in summer and moderate in winter. The prevailing wind direction in the Lower American River basin is from the south and southeast from April to September and from the north from October to March. The project would have no effect on the climate in the project area.

3.1.2 Topography, Geology, and Soils

The floor of the Sacramento Valley is generally flat and open with little natural relief. Flood control levees provide the only significant topographic relief in and near the project area. Once construction of the cutoff walls is completed, the levees at both Reaches 2 and 9 would be restored to their preconstruction conditions and elevations. As a result, the project would have no effects on the topography of the area.

Helley and Harwood's (1985) geologic map of the Sacramento Valley indicates that the near-surface geologic units in the project area include Quaternary alluvium and the lower member of the Riverbank Formation, which are composed of unconsolidated and semi-consolidated gravel, sand, silt, and clay. The Soil Survey of Sacramento County indicates that overlying native soils consist primarily of somewhat poorly drained and poorly drained soils of the Valpac and Sailboat series, which range in texture from clay loam to sandy loam (Tugel, 1993).

In 1989, Wahler Associates conducted a study of the levee soil conditions in this area following emergency work authorized under Public Law (PL) 84-99. The work was conducted in order to repair levees that experienced significant damage or seepage and boils. The Wahler study concluded that the levee in this area consists of "sandy soils or stratified layers of sandy soils." This soil stratification does not occur naturally, but is a result of the original levee construction and subsequent repairs.

Soils in Reaches 2 and 9 the project area would be disturbed during construction due to degrading of the levee and stockpiling of levee soil material, trenching for the cutoff wall, and reuse of the stockpiled material. The contractor would be required to prepare an Erosion and Sediment Control Plan identifying specific best management practices to avoid or minimize soil erosion.

All suitable excavated soils material would be reused in the project, and any unsuitable material would be disposed offsite at a commercial landfill. Areas temporarily disturbed by construction would be returned to pre-project conditions after construction. Barren areas would be seeded with native grasses to reduce the potential for erosion. As a result, there would be no significant adverse effects on soils due to the project.

3.1.3 Land Use and Socioeconomics

Reach 2 is located within the city limits of Sacramento. The City's current Pocket Community Plan designates the land adjacent to the landside toe of the levee as Residential, and the area is built out to capacity. The levee road and adjacent benches, beaches, and greenbelt are designated as Parks/Open Space. The Community Plan is an accepted subset of the City's General Plan (2003), which is currently being updated. The new plan is expected to be finalized in late 2006/early 2007.

Reach 9 is located outside the City limits in Sacramento County. The only development includes several residences east of Highway 160 across from Reach 9 and Cliff's Marina at the south end of the reach on the Sacramento River. The County's General Plan (rev 2003) has designated the area associated with the construction activities as Recreational. The area across Highway 160 is designated as General Agriculture.

The project would not result in any long-term changes in land use or socio-economics in the area. The residential development adjacent to the levee in Reach 2 would remain the same, and the staging/stockpile areas would be returned to pre-project uses after construction. Cliff's Marina at Reach 9 would remain in operation. However, land use on the three parcels across Highway 160 from Reach 9 would change during construction. Temporary easements would be acquired for these properties, and two of the parcels would be used for staging and additional temporary parking for the marina. The third parcel would remain fallow. However, the land would be out of agricultural use for only one season, and the landowners/tenants would be compensated for any economic loss.

As directed in Executive Order 12898, all Federal agencies must identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are no minority or low-income populations in the project area. All nearby residents would benefit equally from the project.

3.1.4 Public Utilities and Services

No utilities or services would be interrupted or affected in Reach 2. Construction would not require accessing the existing potable water supply, sanitary sewer, or storm sewer systems. Natural gas supply or electrical transmission lines would not be augmented except to establish the temporary electrical connection for the construction trailer and batch plant. All employee vehicles would be parked in off the residential streets to avoid interruption of refuse pick-up.

No long-term interruption of utilities or services would take place in Reach 9. Construction would not require accessing the existing potable water supply, sanitary sewer, or storm sewer systems. Natural gas supply and electrical transmission lines would not be augmented except to establish the temporary electrical connection for the construction trailer and batch plant.

To avoid potential problems during excavation of the cutoff wall trench, the irrigation water and the electrical power to the pumphouse would be temporarily diverted around the construction site to maintain the water supply to the agricultural fields east of the new North Beach levee. The permanent supply would be reconnected after that portion of the trench has been completed.

A water supply pipe and associated electrical service conduit run through the levee at Reach 9. These are connected to the pumphouse (at approximately Station 541+75) that provides irrigation water to the property owned by the Sacramento County Sanitation District No. 1, as well as another private landowner. This property is leased for agriculture. During the removal of the elderberry shrubs for transplanting, the power to the pumphouse was turned off, and the conduit and wiring was cut. After completion of the transplanting, the conduit and wiring will be replaced. This will take place before planting and irrigation of the agricultural crops.

3.1.5 Fisheries

The project would have no effects on fish. All construction activities would take place on the crown of the levee. Construction and/or silt fencing would be installed within 10 feet of the work area on both the landside and waterside slopes of the levee along Reaches 2 and 9. There would be no dredging or fill in open waters, nor would there be any construction activities that may result in effects on fish habitat.

3.2 Recreation

3.2.1 Existing Conditions

The project area is located along the Sacramento River. In Reach 2, the City of Sacramento has designated the levees and waterside access areas as parks, but there are no developed recreation facilities or bicycle/pedestrian trails. In addition, public access for recreation is limited by a series of locked gates along approximately 3 miles of the

levee in this area. These include pipe gates, which restrict vehicle access, but allow pedestrian access, and full fence/gates, which run from the property owner's fence to the river's edge, restricting both vehicle and pedestrian access. In this area, the levee and gravel maintenance road offer mainly limited pedestrian use for walking and nature study.

In Reach 9, the top of the levee has railroad tracks formerly used by the Southern Pacific Railroad. The remaining space is narrow, uneven, and partially covered with ballast for the tracks. There are no developed recreation facilities or bicycle/pedestrian trails. As a result, Reach 9 has limited recreational potential. However, since there are no gates or other barriers to public access, there is some recreational use by pedestrians.

3.2.2 Environmental Effects

Basis of Significance. Effects to recreational resources are considered significant if construction would cause substantial long-term disruption of an existing recreational activity.

No Action Alternative. Under this alternative, there would be no effects on recreation. Limited public access and recreational use would continue at Reaches 2 and 9.

Construct Cutoff Walls

Reach 2. Land access to the river for recreational use would likely be restricted to residents along Reach 2. Approximately 20 to 30 residents would periodically lose direct access to the top of the levee and the river for recreational use during the 3- to 4-month construction period. Since construction would progress from the north end of the reach to the south, residents may have limited access to the river after the end of the daily work period and on Sundays. As a result, the project would have a limited effect on recreation in Reach 2.

Reach 9. During the construction of the cutoff wall, there would be few, if any, barriers for local residents to access the river north or south of the project reach for recreational use. Although the north parking lot of Cliff's Marina would be unavailable for commercial use during construction, the marina would remain open, and customers would continue to have access to the other marina parking lots. Also, additional temporary parking would be provided east of Highway 160 across from the marina.

3.2.3 Mitigation

The construction of the cutoff walls in both Reach 2 and Reach 9 would be short term and limited in scope. Restriction of access for recreational use at Reach 2 would be limited to short periods. To ensure public safety, warning signs and signs restricting access would be posted before and during construction at both reaches, as necessary.

Any effects on recreation are considered to be less than significant; therefore, no mitigation would be required.

3.3 Vegetation and Wildlife

3.3.1 Existing Conditions

Both Reaches 2 and 9 have been disturbed by past activities including construction and maintenance of the levee, roadways and other transportation facilities, residential and commercial structures, and public utilities. As a result, natural vegetation is limited to nearby waterside areas and less developed landside areas along the levees. The tops of the levees are devoid of vegetation.

There are five different land cover types in the project area: ruderal herbaceous, ornamental landscaping, developed areas, riparian habitat and open water (Sacramento River). Sensitive natural communities are land cover types that are especially diverse, regionally uncommon, or of special concern to Federal, State, and local agencies. The riparian and open water (Sacramento River) communities are considered as sensitive natural communities. These land cover types and their associated wildlife are described below.

Ruderal Herbaceous. The ruderal herbaceous community occurs on the landside and waterside slopes of the levee in Reach 2 and on the landside slope in Reach 9. There are approximately 4.5 acres of the ruderal herbaceous land cover within the limits of work in Reach 2 and approximately 1.6 acres at Reach 9.

The ruderal herbaceous community is dominated by annual grasses such as ripgut brome (*Bromus diandrus*) and wild oat (*Avena fatua*), and forbs including horsetail (*Equisetum hymela*). Ruderal herbaceous vegetation provides cover and foraging areas for resident and migratory songbirds and small mammals.

Ornamental Landscape. Ornamental landscaping consists of landscaped areas on the landside toe of the levee in Reach 2. Many of the residents extend landscaped plantings beyond the property line of their back yard. These plantings often encroach on the specified 10-foot easement from the toe of the levee. The plantings in the greenbelt on North Point Way would also be considered ornamental. Ornamental landscaping provides nesting, cover, and foraging areas for resident and migratory songbirds and small mammals.

Developed Areas. Developed areas at and near Reaches 2 and 9 include all residential development, the Sacramento River levee, railroad tracks, the maintenance road on the levee crown, Highway 160, all surface streets, and Cliff's Marina parking lot. Developed areas normally do not provide habitat for wildlife.

Riparian Forest and Scrub. Riparian habitat, including riparian forest and scrub, is present on the waterside of the levee, but outside of the construction footprint. Riparian vegetation is composed of native and nonnative tree, shrub, and vine species in a

narrow band along on the levee slope and at the river's edge. The riparian habitat is classified as great valley riparian forest (Holland 1986). There are approximately 1.4 acres of riparian vegetation on the waterside bench in Reach 2 and approximately 4 acres on the waterside slope of the levee in Reach 9.

Riparian habitat has an overstory of deciduous broadleaf trees, primarily Fremont cottonwood (*Populus fremontii*) and valley oak (*Quercus lobata*). Other native riparian tree species include Oregon ash (*Fraxinus latifolia*) and California black walnut (*Juglans hindsii*). Nonnative black locust (*Robinia pseudoacacia*) also occurs in the area. The limited riparian forest understory is typically be dominated by riparian tree, shrub, and vine species, including Himalaya blackberry (*Rubus discolor*) and wild grape (*Vitis californica*).

The habitat values for the riparian forest are significant. However, they provide less habitat value than a wider corridor with a more complex vegetation structure in a rural setting. The riparian forest is also subject to human disturbance from pedestrians and recreational users who occasionally use the waterside bench at Reach 2. Both reaches are frequented by recreational boaters, particularly during the spring to late fall. These boating activities could disturb nesting or foraging wildlife.

The riparian forest provides important nesting, cover, and foraging habitat for a diverse group of wildlife species. The riparian trees provide suitable nesting and roosting habitat for raptors, numerous songbirds, and migratory birds. Several migratory birds also use the riparian canopy for foraging and cover while moving along their migration route. Although the limited understory does not provide dense cover for mammals, small mammals such as raccoon, striped skunk, and Virginia opossum could occur in this habitat.

Open Water. The Sacramento River is located on the west side of Reaches 2 and 9 is well outside the construction footprint. There are no wetlands in the project area.

3.3.2 Environmental Effects

Basis of Significance. Effects are considered to be significant if construction of the project would substantially reduce the amount of native vegetation and wildlife habitat in the project area or vicinity. In addition, removal or disturbance of sensitive natural communities would constitute a significant effect under CEQA.

No Action. Under this alternative, the levees at Reach 2 and Reach 9 would continue to be maintained by the local maintenance districts. Maintenance activities typically include mowing and spraying levee slopes to regulate vegetation growth so that annual inspections can occur. There would be no effect to vegetation or wildlife under this alternative.

Construct Cutoff Walls

Reach 2. Placement of the batch plant on the top of the levee between Stations 190+50 and 193+00 would require approximately 20 feet of buildout on the landside slope of the levee. This would temporarily remove 0.4 acre of ruderal herbaceous cover. In addition, approximately 1.5 acres of ruderal herbaceous community on the greenbelt on North Point Way would be disturbed during construction. After construction, these acres would be restored by reseeding with native grasses.

No trees would need to be removed at Reach 2. The use of the greenbelt on North Point Way as a staging area would require minimal trimming of one California black walnut tree.

Reach 9. Construction activities would disturb approximately 0.5 acre of ruderal herbaceous community, primarily on the landside slope of the levee. After construction, these acres would be restored by reseeding with native grasses.

A tree survey on March 29, 2006, determined that no trees would need to be removed at Reach 9 and that only a maximum of 16 trees could require trimming. These 16 trees include 11 valley oaks (*Quercus lobata*), 2 California black walnut (*Juglans hindsii*), 2 almond (*Prunus dulcis*), and 1 Oregon ash (*Fraxinus latifolia*). None of the oaks meet the 36-inch-diameter at breast height criterion for heritage designation under the County's native oak tree ordinance. Only one valley oak and one California black walnut may require trimming as much as 20 to 25 percent of branches up to 20 feet high for equipment clearance. The remaining trees may only require trimming of 10 percent, or less, of the branches. All tree trimming would be conducted by a certified arborist.

3.3.3 Mitigation

The Corps is currently coordinating with U.S. Fish and Wildlife Service (FWS) to determine the effects on vegetation and wildlife in the project area. The FWS is currently preparing a Coordination Act Report (CAR) to address these effects. The draft CAR will be included as Appendix A in this EA/IS. The CAR will be finalized prior to completion of the final EA/IS.

Any trimming of the California black walnut tree at Reach 2 would not be considered significant and would not require mitigation. The trimming of the 16 trees on the waterside slope and landside toe of the levee at Reach 9 would not be considered significant and would not require mitigation. All tree trimming would be conducted by a certified arborist.

3.4 Special Status Species

3.4.1 Existing Conditions

A list of Federally listed and candidate species, and species of concern that may be affected by projects in USGS quads Sacramento West and Florin was obtained in October 2005 via the FWS website and updated on March 14, 2006 (Appendix B). In addition, a search of the California Natural Diversity Database (CNDDDB) conducted on March 21, 2006, indicated that there were no reported occurrences of the 12 Federally listed species in the project reaches. However, elderberry shrubs (*Sambucus sp.*) were identified on the levee in Reach 9. Although the site is not designated as critical habitat for the valley elderberry longhorn beetle (*Desmoceros californicus dimorphus*), the shrubs are the sole host plant for the beetle. The Corps and FWS conducted an elderberry survey at Reach 9 on November 2, 2005. A follow-up elderberry survey was conducted at Reach 2 on December 12.

The CNDDDB search also indicated that one State-listed species that appears on the FWS list (Swainson's hawk, *Buteo swainsonii*) has had three occurrences within one-half mile of the project areas within the past 15 years. To avoid potential effects to nesting Swainson's hawks, the California Department of Fish and Game requires the avoidance of nesting sites during construction activities. These measures include avoiding construction during the breeding season (March to August) within one-half mile of a nesting site. If construction or other project-related activities that may cause abandonment or forced fledging are necessary within one-half mile, monitoring of the nest site by a qualified biologist is required.

3.4.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on special status species if it would (1) result in the take of a Federally or State-listed threatened or endangered species, (2) adversely affect designated critical habitat, or (3) substantially affect any other special status species, including degradation of its habitat to the degree of jeopardizing the continued existence of the species or critical habitat.

No-Action Alternative. Under the no action alternative, there would be no effects on existing special status species in the project area. The types of species and their associated habitat would be expected to remain the same.

Construct Cutoff Walls

Reach 2

Valley Elderberry Longhorn Beetle. The access at 6534 Benham Way is a residential property. The access to the levee is proposed for the south side of the property. The elderberry shrubs identified on December 12, 2005, are located on the

northwest corner of the property, approximately 25 feet from the landside toe of the levee. Because permission had not been sought or granted to enter the property, the survey data was gathered from the top of the levee (rapid ocular survey method). The activities associated with the construction of the cutoff wall would require occasional daily traffic on the maintenance road on the top of the levee.

Swainson's Hawk. Swainson's hawk surveys were conducted during March and April 2006 at Reach 2 by FWS biologists. During the April 7 survey, a pair of hawks were sighted just north of the northern end of the project reach within the one-half mile required buffer zone.

Reach 9

Valley Elderberry Longhorn Beetle. Construction activities at Reach 9 would require disturbing the top of the levee. The survey conducted on November 2, 2005, determined that 11 shrubs within the construction footprint could not be avoided or protected using the measures described under Reach 2. On November 18, 2005, a letter initiating formal consultation for the beetle was sent to the FWS. Specifically, the letter proposed that these 11 shrubs would be removed and transplanted in accordance with the "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," July 1999. Also, as a result of the direct effects to the shrubs, the Corps proposed compensation for the removal of the plants using the same guidelines. That compensation would require 85 additional elderberry plantings and 85 associated native plantings on 0.7 acre of new habitat.

On December 7, 2005, the FWS issued their Biological Opinion (BO) approving the project approach and compensation measures. The BO required that the transplanting of the elderberry plants be accomplished by February 15, 2006. However, heavy rainfalls in late December and early January prompted concerns regarding excavating in the levee to remove the elderberry shrubs during high water levels in the Sacramento River. On January 24, 2006, a letter was sent to the FWS requesting that the BO be amended by extending the transplant window to March 15. The FWS approved the requested extension on February 9, 2006, and the BO was amended. The BO and related correspondence are included in Appendix B.

Swainson's Hawk. Swainson's hawk surveys were conducted during March and April 2006 at Reach 9 by a qualified biologist. During the April 6 survey, a pair of hawks were sighted just south and east of the project reach within the one-half mile required buffer zone.

3.4.3 Mitigation

Reach 2

Valley Elderberry Longhorn Beetle. To avoid adverse effects on the elderberry shrubs located near the project area, the following measures taken from the FWS's

“Conservation Guidelines for the Valley Elderberry Longhorn Beetle,” July 1999, are proposed in consultation with the FWS. Consultation with the FWS will be completed prior to initiation of any construction.

- A minimum setback of 20 feet from the dripline of the elderberry bushes would be established. This area would be fenced and flagged to be avoided during construction activities.
- Contractors would be briefed on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements.
- Signs would be erected every 50 feet along the edge of the avoidance area with the following information: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.” The signs should be readable from a distance of 20 feet and would be maintained for the duration of the construction.
- Work crews would be instructed about the status of the beetle and the need to protect its elderberry host plant.

Swainson’s Hawk: Although a pair of Swainson’s Hawk were sighted within the project reach during the April 7 survey, evidence of an inhabited nest were inconclusive. However, another survey would be conducted just prior to initiation of construction activities. If the survey determines that a nesting pair is present or that a hatched fledgling occupies a nest, the Corps would coordinate with the State Department of Fish and Game, and the proper avoidance and minimization measures would be implemented.

Reach 9

Valley Elderberry Longhorn Beetle. The 11 elderberry shrubs at Reach 9 were transplanted by SAFCA under a separate CEQA action.

Swainson’s Hawk. Although a pair of Swainson’s hawks was sighted within the ½-mile buffer zone of Reach 9 during the April 6 survey, evidence of an inhabited nest was inconclusive. However, another survey will be conducted just prior to initiation of construction. If the survey determines that a nesting pair is present or that a hatched fledgling occupies a nest, the Corps would coordinate with the State Department of Fish and Game, and the proper avoidance and minimization measures would be implemented.

3.5 Air Quality

3.5.1 Existing Conditions

Regulatory Background. The Federal Clean Air Act establishes National Ambient Air Quality Standards (AAQS) and delegates enforcement to the states, with

direct oversight by the U.S. Environmental Protection Agency (EPA). In California, the Air Resources Board (CARB) is the responsible agency for air quality regulation.

The California Clean Air Act established California AAQS. These standards are more stringent than Federal standards and include pollutants not listed in Federal standards. All Federal projects in California must comply with the stricter State air quality standards. The Federal standards and local thresholds for Sacramento County are shown in Table 1.

Table 1. Air Emission Thresholds for Federal and Local Criteria Pollutants

| Criteria Pollutant | Federal Standard (tons/year) | SMAQMD Threshold (lbs/day) |
|--------------------|---------------------------------|-------------------------------|
| NO _x | 100 | 85 |
| CO | 100 | * |
| SO | 100 | * |
| PM ₁₀ | 100 | * |
| ROG | 100 | 65 |

NO_x = nitrogen oxides

PM₁₀ = particulate matter

CO = carbon monoxide

ROG = reactive organic gases

SO = sulfur oxides

* = default to State standard

SMAQMD = Sacramento Metropolitan Air Quality Management District

Source: www.airquality.org/ceqa/index.shtml, 2005

On November 3, 1993, the U.S. EPA issued the General Conformity Rule, stating that Federal actions must not cause or contribute to any violation of a National AAQS or delay timely attainment of air quality standards. A conformity determination is required for each pollutant where the total of direct and indirect emissions caused by a Federal action in a nonattainment area exceeds *de minimus* threshold levels listed in the rule (40 CFR 93.153).

Local Air Quality Management. The Sacramento area is included in the Sacramento Valley Air Basin. The air quality in the area is managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD), which is included in the Sacramento Federal Ozone Nonattainment Area (SFNA) and is also subject to regulations, attainment goals, and standards of the U.S. and California EPA's.

With two exceptions, the SFNA is in attainment for all National and State AAQS. However, the area is designated a "serious" nonattainment area for the National 8-hour AAQS for ozone and is a "serious" nonattainment area for the State's 1-hour ozone standard. As a part of the SFNA, Sacramento County is out of compliance with the State and Federal ozone standards.

With respect to the State and Federal 24-hour particulate matter 10 microns or larger (PM₁₀) AAQS, Sacramento County is designated as a nonattainment area. Additionally, in June 2004, the U.S. EPA proposed to classify Sacramento County in attainment of the new Federal PM_{2.5} standard (SMAQMD, 2004). The California Clean Air Act of 1988 requires nonattainment areas to achieve and maintain the State ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining State ozone standards.

Sources of Pollutants/Sensitive Receptors. The main sources of emissions contributing to elevated ozone and PM₁₀ concentrations in this area of the Sacramento Air Basin are vehicular emissions and airborne pollutants from road dust and plowing of fields. Light industry and emissions from recreational boaters and Sacramento Executive Airport also contribute to reduced air quality in the region. Sensitive receptors in the project area include residents and wildlife.

3.5.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on air quality if it would (1) violate any ambient air quality standard, (2) contribute on a long-term basis to an existing or projected air quality violation, (3) expose sensitive species or humans to substantial pollutant concentrations, or (4) not conform to applicable Federal and State standards, and local thresholds on a long-term basis.

No Action Alternative. Under the no action alternative, there would be no effects on existing air quality in the project area. Air quality would continue to be influenced by climatic conditions, and local and regional emissions from vehicles. However, air quality is expected to improve in the future. The CARB and the SMAQMD will be implementing stricter ozone precursor and PM₁₀ standards.

Construction of Cutoff Walls. Emissions associated with the project would be short-term during construction. Combustion emissions would result from the use of construction equipment, truck haul trips to and from commercial sources and disposal sites, and worker vehicle trips to and from the work areas. Exhaust from these sources would contain reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NO_x), and PM₁₀. Exhaust emissions would vary depending on the type of equipment, the duration of use, and the number of construction workers and haul trips to and from the construction site. Fugitive dust would also be generated during disturbance of the ground surfaces during construction.

The Road Construction Emissions Model, Version 5.1, was used in favor of the Urban Emissions Model, Version 7.5, as it applies to linear construction activities such as levee construction and repair activities. The road construction model was used to estimate project emission rates for ROG, CO, NO_x, sulfur dioxides, and PM₁₀. The estimated equipment to be used, volume of material to be moved, and disturbance acreages were compiled to determine the data to input into the emissions model. The emission calculations are based on standard vehicle emission rates built into the model.

The emissions were calculated separately for the work at Reaches 2 and 9. Details and results of the calculations for each reach are provided in Appendix A. However, because of the regional nature of the resource and because construction would be conducted at both reaches concurrently, the results of the calculations were combined to determine compliance with standards and thresholds, and significance of effects. The estimated combined emissions are shown in Table 2.

Table 2. Combined Estimated Air Emissions for Reaches 2 and 9

| | ROG | NO _x | CO | PM ₁₀ |
|---------------------------------|-----|-----------------|------|------------------|
| Site Preparation & Construction | | | | |
| Total emissions (lbs/day) | 17 | 100 | 74 | 10 |
| | | | | |
| SMAQMD thresholds (lbs/day) | 65 | 85 | N/A | N/A |
| | | | | |
| Total (tons/year) | 3.1 | 18.2 | 13.6 | 1.8 |
| Federal standards (tons/year) | 100 | 100 | 100 | 100 |

ROG = reactive organic gases

PM₁₀ = particulate matter

NO_x = nitrogen oxides

SO_x = sulfur oxides

CO = carbon monoxide

Note: Estimates rounded.

Reaches 2 and 9. Table 2 summarizes the combined estimated emissions (in pounds per day and tons per year) for the project and compares them to the Federal standards and local thresholds. The results show that the combined NO_x emissions would exceed the SMAQMD threshold of 85 pounds per day.

The table also shows that construction emissions of PM₁₀ and ROG would each be less than the *de minimis* thresholds established by the U.S. EPA for conformity analyses. In addition, the best management practices listed in Section 3.5.3 would be implemented to reduce the NO_x emissions below the Federal standard. As a result, the proposed action does not require an in-depth conformity analysis to evaluate ambient air quality concentrations and instead is presumed to conform to the region's ozone State implementation plan. Thus, the Corps has determined that the proposed action is exempt from the conformity rule.

3.5.3 Mitigation

Implementation of the best management practices listed below would reduce air emissions and ensure that the project emissions would remain at less-than-significant levels. Since there would be no significant effects on air quality, no mitigation would be required.

- 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.
- Revegetate or pave areas cleared by construction in a timely manner to control fugitive dust.

3.6 Water Resources and Quality

3.6.1 Existing Conditions

The Sacramento metropolitan area is situated at the confluence of the American and Sacramento Rivers in a low-lying flood basin. Levees along these rivers provide flood protection for the Sacramento Valley and conveyance for waters flowing from the Sierra Nevada to the Sacramento-San Joaquin Delta. High winter flows can stress levees and berms, weakening them and causing them to erode and possibly fail in certain locations. To maintain the integrity of the flood control system, areas with existing or potential erosion and seepage are identified and repaired.

The Sacramento River is the major surface water body in the immediate vicinity of the project area. The reach of the Sacramento River along the project area is characterized by a very low gradient and a low-velocity flow that is composed almost entirely of deep flatwater with a sand bed. River stage is controlled by flow in the Sacramento and American Rivers, and is subject to diurnal tidal fluctuation. The channel in the project area is approximately 500 to 800 feet wide.

The upper reaches of the Sacramento River generally have excellent mineral and nutrient quality, with a low total dissolved solids content. As water flows into the Central Valley, its quality typically degrades because of water diversions and returns. Sources of degradation include waste discharges such as treated municipal wastewater, urban storm water runoff, and irrigated agricultural return flows.

The average total suspended solids concentration, as recorded for water collected from the Sacramento River just upstream of the Pocket area is 27 milligrams per liter (Sacramento Regional County Sanitation District, 2002). Data generally indicate that in the vicinity of the project area, the Sacramento River has relatively low concentrations of most constituents as compared to applicable regulatory criteria or guidelines described in the State Regional Water Quality Control Board (RWQCB), Central Valley Region (1998).

3.6.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on water resources if it would (1) result in the loss of a surface or groundwater source or (2) interfere with existing beneficial uses or water rights.

An alternative would be considered to have a significant effect on water quality if it would (1) substantially degrade water quality, (2) contaminate a public water supply, substantially degrade or deplete ground-water resources or interfere with ground-water recharge, or (3) expose sensitive species or humans to substantial pollutant concentrations.

No Action Alternative. Under the no action alternative, there would be no effects on water resources or quality. The surface and groundwater conditions would be expected to remain basically the same.

Construction of Cutoff Walls. Construction of the cutoff walls at Reach 2 and Reach 9 would have no effect on water resources, but could potentially affect the quality of water in the Sacramento River. These effects could include an increase in turbidity from soil entering the river and contamination from equipment fuel leaks or spills.

Reach 2. Site preparation at Reach 2 would remove surface vegetation on the waterside levee slope, and the degrade material would be stockpiled against the slope. The levee slope is separated from the river by a waterside bench between 14 feet and 40 feet wide. Approximately 1,000 feet of bare soil would be exposed until construction is completed and the levee slope is reseeded. Dust control measures would be implemented on the levee maintenance road and stockpiles to avoid dust and soil from entering the river or other drainages as a result of construction activities. Precautions would be followed to avoid erosion and movement of soils into the drainage system.

In addition, inadvertent spills of oil or fuels from construction equipment could be a source of contamination at work or staging areas. Precautions would be followed to avoid contamination. The contractor would be required to properly store and dispose of any hazardous waste generated at the site.

Reach 9. Site preparation at Reach 9 would primarily involve removing the tracks and degrading the top of the levee. The degrade material would be stockpiled in the staging area across Highway 160 away from the river. Construction fencing would be

erected 10 feet downslope from the construction footprint on both sides of the levee. This fencing would prevent material from inadvertently entering the Sacramento River. The potential for inadvertent spills of oil or fuels, as well as the precautions, would be the same as for Reach 2.

3.6.3 Mitigation

The contractor would be required to obtain a NPDES permit from the RWQCB, Central Valley Region, since the project would disturb 1 or more acres of land and involve possible storm water discharges to surface waters. 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 of construction on surface waters.

Implementation of the following best management practices would ensure that the effects on water quality would remain at less-than-significant levels. Since there would be no significant effects on water quality, no mitigation would be required.

- Prepare a spill control plan and a SWPPP prior to initiation of construction activities. The SWPPP would be developed in accordance with guidance from the CRWQCB, Central Valley Region. These plans would also be reviewed and approved by the Corps.
- Implement appropriate measures to prevent any debris, soil, rock, or other construction activities from getting into the water. Install silt fencing and hay bales along the 10-foot setback and at the base of the stockpile on the waterside bench at Reach 2; install silt fencing on both waterside and landside slopes within 10 feet of the degrade limit at Reach 9. Use a water truck or other appropriate measures to control dust on the haul road and stockpiles.
- Properly dispose of oil or liquid wastes.
- Fuel and maintain vehicles in specified areas that are designed to capture spills.
- Inspect and maintain vehicles and equipment to prevent dripping of oil and other fluids.
- Schedule construction to avoid as much of the rainy season as possible. Ground disturbance activities would not begin until mid- to late summer to minimize the risk of soil erosion and runoff. If rains are forecast during the construction period, erosion control measures would be implemented as described in the CRWQCB Erosion and Sediment Control Field Manual.
- Train construction personnel in stormwater pollution prevention practices.
- Revegetate areas cleared by construction in a timely manner to control erosion.

3.7 Traffic and Circulation

3.7.1 Existing Conditions

The major roadways in and near Reaches 2 and 9 include I-5, Highway 160 (Freeport Boulevard), Riverside Boulevard, Florin Road, Pocket Road, residential streets,

and the gravel maintenance road on top of the levee. I-5 is a divided multi-lane freeway located east of both reaches. I-5 carries traffic within the State of California from Sacramento south to San Diego and all the way north through Oregon and Washington.

Reach 2 may be accessed from I-5 via the Riverside Boulevard, Florin Road, and Pocket Road exits. Riverside Boulevard runs west of I-5 from the exit and then south, intersecting with Pocket Road just south of Reach 2. Florin Road runs west of I-5 and then north, connecting with Riverside Boulevard east of Reach 2. Residential streets near Reach 2 include Granger's Dairy Drive, Park Riviera Way, North Point Way, Driftwood Street, Surfside Way, and Benham Way. Reach 9 may be accessed from I-5 via the Freepoint Boulevard exit.

The types of traffic on I-5, Highway 160, and other larger roadways in the area include automobiles, small utility vehicles, recreational vehicles, buses, emergency vehicles, trucks, and motorcycles. Levee maintenance vehicles use the gravel roads on the levee during inspections and repair work. The smaller residential roads are used primarily by residents traveling to work, taking their children to school, and accessing commercial businesses in the area. Traffic flow is generally smooth and moves relatively well, except during rush hours or when there are accidents on the roadways.

The Caltrans Traffic Operations Program reports average daily traffic volumes (ADT) on Interstate and State highways in California. The annual average daily traffic (AADT) volume northbound on I-5 between the Pocket Road/Meadowview Road exit and the Florin Road exit is 95,000. The AADT volume northbound on I-5 between the Florin Road exit and the 43rd Avenue exit is 112,000 (Caltrans, 2002).

The City of Sacramento (2006) posts traffic counts on their website for locations within the city limits. The City defines the AADT count as the number of vehicles that travel along a specified road on a typical day, which is defined as a Tuesday, Wednesday, or Thursday. Table 3 includes the AADT volumes for residential streets near Reaches 2 and 9. The information posted on the website is the most current data collected for the specified residential streets (Bhatt, 2006 pers comm). In some areas, traffic counts have not been performed since 1993, 1995, or 2001. Based on the growth in this region, the AADT volumes would be expected to have increased since the time that the traffic counts were conducted.

3.7.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on traffic if it would cause an increase in traffic that is substantial in relation to the existing load and capacity of a roadway, an increase in safety hazards on area roadways, or cause substantial deterioration of the physical conditions of area roadways.

No Action Alternative. The no-action alternative would have no effect on traffic and circulation in the project area. The existing freeway/roadway network, bicycle and pedestrian facilities, types of traffic, and circulation patterns would be expected to remain

Table 3. Traffic Volumes in and near the Project Area

| Intersection/Location | Direction | Year | AADT¹ |
|---|------------------|-------------|-------------------------|
| Riverside Blvd and 43 rd Ave | West | 1995 | 24,714 |
| Riverside Blvd and Grangers Dairy Drive | South | 1995 | 7,721 |
| Riverside Blvd and Surfside Way | East/west | 2004 | 2,629 |
| Surfside Way and Harmon Drive | North/south | 2001 | 1,116 |
| Benham Way and Surfside Drive | North/south | 1993 | 246 |
| Freeport Blvd and Meadowview Road | South | 2005 | 3,662 |
| Freeport Blvd and Stonecrest Road | North | 1993 | 1,893 |

¹AADT = Annual average daily traffic from City of Sacramento, 2006.

the same. The volume of traffic could continue to increase in the region due to continuing development.

Construct Cutoff Walls

Reach 2. The number of truck trips associated with Reach 2 was based on an average of 10 CY per truckload. Based on the total number of CY of cement (6,500), bentonite (2,000), imported soil for clay cap (1,300), excess soil (1,300), base rock (650), and spoils (8,500), approximately 1,900 round trip truck trips would be required during the anticipated 3-month construction period. These truck trips would require travel on residential surface streets to transport loads to or from the site. Any damage to the roadways resulting from the project activities would be repaired by the contractor.

During commute hours, workers would likely travel to Reach 2 via I-5, Riverside Boulevard, Grangers Dairy Drive, and North Point Way to reach the staging area. In addition, trucks would be traveling on the roadways to transport materials such as clay, bentonite, and rock for the slurry that would be mixed onsite. Trucks would also be hauling away spoils from the construction. Trucks would access the work area along several different routes. It is likely that all trucks would access Reach 2 using I-5 to Riverside Boulevard to Surfside Way to Benham Way or use the same access route as the construction workers, depending on what part of Reach 2 is undergoing work.

The work at Reach 2 would cause a short-term increase in traffic on local roadways during construction. The daily traffic in Reach 2 would involve (1) 40 vehicle trips (2 trips per day x 20 workers) for the entire construction period and (2) 2025 truck trips for 104 days, which is approximately 20 truck trips per day or 2 trucks per hour

based on an 11-hour work day. A daily maximum increase of 60 trips would not be significant (approximately 0.007 percent) based on the average annual daily traffic at Riverside Boulevard and Grangers Dairy Drive.

Movement of large equipment and trucks could potentially affect public safety at roadway intersections and damage roadway surfaces. However, the contractor would be required to implement measures to ensure public safety during movement of equipment and trucks on area roadways. In addition, the contractor would be required to repair existing paved streets or pay for road repairs for any damage to roadway surfaces resulting from the operation of heavy equipment and trucks. As a result, there would be no significant effects on public safety or roadway surfaces.

Reach 9. The number of truck trips associated with Reach 9 was also based on an average of 10 CY per truckload. Based on the total number of CY of soil removed from degrading of the levee (8,800), cement (1,700), bentonite (600) imported clay (1,200), soil to reconstruct levee (7,300), base rock (600), unused levee fill (1,200), and spoils (2,300), approximately 2,400 round trip truck trips would be required during the anticipated 3-month construction period. This does not account for the transporting of the railroad rails and ties for storage, and the disposal of the slurry. However, it assumed that these would result in fewer than 50 combined round trips. These truck trips would require travel primarily on Highway 160 and I-5 to transport loads to or from the site. Any damage to the roadways resulting from the project activities would be repaired by the contractor.

During commute hours, workers would likely travel to work via I-5 or Highway 160 (Freeport Boulevard). In addition, trucks would be traveling these same roadways to bring and haul away materials for the construction.

The work at Reach 9 would also cause a short-term increase in traffic on local roadways during the construction. The daily traffic in Reach 9 would involve (1) 40 vehicle trips (2 trips per day x 20 workers) for the entire construction period of approximately 120 days (includes Sundays) and (2) 2,450 truck trips for 120 days, which is approximately 25 truck trips per day or 2 trucks per hour based on a 13-hour work day. A daily maximum increase of 45 trips would not be significant (approximately 0.02 percent) based on the average annual daily traffic.

The potential public safety and roadway damage issues at Reach 9 would be the same as at Reach 2 although there are fewer local roadways and intersections because the adjacent area is not residential. Similar to Reach 2, the contractor would be required to ensure public safety and repair or pay for any construction-related road damages.

3.7.3 Mitigation

Since there would be no significant effects on traffic and circulation, no mitigation would be required. However, the contractor would be required to develop a Traffic Management Plan, which would be coordinated and approved by the City prior to

construction. This plan would require implementation of the following types of measures to reduce any adverse effects on traffic and ensure public safety:

- 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. Crossing guards would be provided when truck trips coincide with school hours and when haul routes cross student travel paths.
- Obey all speed limits, traffic laws, and transportation regulations during construction.
- Use signs and flaggers, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflicts with construction vehicles or equipment.
- Use different streets for truck entering and exiting.
- Use temporary traffic lights operated by the contractor during movement of equipment and vehicles.

Implementation of these measures would ensure public safety and that traffic flow and patterns in the project area would experience minimal disruption. No other mitigation would be necessary.

3.8 Noise

3.8.1 Existing Conditions

Noise is defined as unwanted sound that evokes a subjective reaction to the physical characteristics of a physical phenomenon. Ambient noise in the project area is generated by the traffic on Riverside Boulevard, Highway 160 and adjacent surface streets. Other noise may be generated primarily in the summer by motorized recreation on the Sacramento River. Based on experience with similar settings, it is assumed that existing noise levels in the project area are in the range of 60– 70 decibels (dB) day-night sound level (Ldn). Noise-sensitive receptors in the project area include residents, recreational users and wildlife.

Reach 2 is a relatively quiet area of single family residential homes. Currently, the main sources of noise include motor vehicles, human activity, and natural sounds. Sensitive receptors include nearby residents, visitors, and wildlife. A school is located approximately 1,000 feet from the project site.

Because Reach 2 lies within the city of Sacramento, the City’s noise policies and regulations apply to the project. The City has established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses. The General Plan is a document required by state law that serves as the city’s “blueprint” for land use and development. The General Plan provides an overall framework for development in the City and protection of its natural and cultural resources. The Noise Element of the General Plan contains planning guidelines

relating to noise. The noise ordinance is an enforcement mechanism for controlling noise in the City.

The City of Sacramento's General Plan Noise Element establishes 60 A-weighted decibels (dBA) Ldn as the maximum acceptable exterior noise level for schools and single and multi-family residential areas.

The City of Sacramento Noise Ordinance states that exterior noise limits must not exceed 50 dBA between 10:00 p.m. and 7:00 a.m. and 55 dBA between 7:00 a.m. and 10:00 p.m. for residential and agricultural areas. However, construction activities between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday, and 9:00 a.m. and 6:00 p.m. on Sunday are exempt from this ordinance. The ordinance further states that internal combustion engines in use on construction sites must be equipped with "suitable exhaust and intake silencers which are in good working order."

Construction noise varies with the type of equipment and length of activity. The typical noise output by the equipment to be used at the Reach 2 site as measured at 50 feet would be 85 dBA for backhoes, 90 dBA for large trucks, and 80 dBA for compressors. Attenuation of sound by the atmosphere is typically 6 dBA per doubling of the distance from the source if no other sound barriers are used (U.S. EPA, 2004).

Reach 9 is located in a rural setting in south Sacramento County, along Highway 160. The Sacramento River is located to the west of the reach and to the east, across Highway 160, it is primarily agricultural farmland. There are 5 residences and one commercial establishment near the project area. The two residences located directly east across Highway 160 are approximately 200 feet from the levee. Three residences are located southeast across Highway 160 from the south terminus of the proposed cutoff wall. They are also approximately 200 feet from the construction activities.

The structure associated with Cliff's Marina is located on the south end of the parking lot at the south terminus of the proposed cutoff wall. The structure is approximately 100 feet from construction activities associated with the cutoff wall; however, construction vehicles would pass through the parking lot during the construction period. This is estimated to be no more than 2 to 3 per hour during the height of the construction period.

The County of Sacramento General Plan Noise Element (1993) has established noise standards for various land use categories. These standards are broken out into Acceptable, Conditionally Acceptable and Unacceptable noise exposure ranges based on A-weighted decibel (dBA) Ldn, measurements. Reach 9 would most likely fall into the land use category of Agricultural/Residential 5 to 10 acres. The noise standards for this land use category are: Acceptable – up to 60; Conditionally Acceptable – 65 to 75; Unacceptable – above 75.

Although construction equipment may cause noticeable increases in ambient noise levels near individual levee construction and staging areas any noise increases

would be short term and intermittent. Construction noise would fluctuate, depending on construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between noise source and receptor. Noise from construction activity generally attenuates at six to nine dBA per doubling of distance. Assuming an attenuation rate of six dBA per doubling of distance, construction equipment noise in the range of 80 to 90 dBA at 50 feet would generate noise levels of 74 to 84 dBA at 100 feet from the source. The residences in this project area are located approximately 200 feet from the construction area. Using the same attenuation rate of six dBA per doubling of distance, the noise levels would drop to 68 to 78 dBA at 200 feet from the source.

3.8.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on noise if it would substantially increase the ambient noise levels for adjoining areas. The significance of short-term noise effects is evaluated with reference to existing noise levels, the duration of the noise, and the number of sensitive receptors affected.

No-Action Alternative. Under the no action alternative, there would be no effects on noise. Sources of noise and noise levels would continue to be determined by local activities, development, and natural sounds.

Construct Cutoff Walls

Reach 2. Construction activities would result in short-term increases in ambient noise. Sensitive receptors that could be affected by this increase include residents, wildlife and recreationists. Construction of the project would occur between the hours of 7:00 a.m. and 6:00 p.m., Monday through Saturday. The City of Sacramento exempts construction projects from the noise ordinance that restrict noise to these times. Because construction would be short term and the increases in noise are exempt from the City's ordinance, this effect would be less than significant.

Construction activities associated with the project may result in some minor amount of ground vibration. Vibration from construction activity is typically below the threshold of perception when the activity is more than about 50 feet from receiver. Additionally, vibration from these activities would be short term and would end when construction is completed. Because construction activity would not involve high-effect activities like pile driving, and is short-term in nature, this effect would be less than significant.

Reach 9. Construction activities would result in short-term increases in ambient noise. Sensitive receptors that could be affected by this increase include residents, wildlife and recreationists. Construction of the project would occur between the hours of 6:00 a.m. and 8:00 p.m., Monday through Saturday. The noise associated with the construction activities would typically fall within the County of Sacramento's Conditionally Acceptable noise exposure category at the point of sensitive receptors. The

construction activities would be short in duration, would be limited to the hours of 6:00 a.m. to 8:00 p.m., and there are several rows of large trees that would further absorb the noise. Because construction would be short-term and the increases in noise would be attenuated by distance and environmental barriers, this effect is less than significant.

Construction activities associated with the project may result in some minor amount of ground vibration. Vibration from construction activity is typically below the threshold of perception when the activity is more than about 50 feet from receiver. Additionally, vibration from these activities would be short term and would end when construction is completed. Because construction activity would be short term and would not involve high-effect activities like pile driving, this effect is considered less than significant.

3.8.3 Mitigation

Since there would be no significant effects on noise, no mitigation would be required. However, best management practices would be used to reduce noise levels and minimize effects on residents and students during construction. These practices would include mufflers on all construction equipment, generators, and vehicles. Whenever possible, noise-generating construction equipment would be shielded from nearby residences by noise-attenuating buffers such as trees.

3.9 Esthetics/Visual Resources

3.9.1 Existing Conditions

The Sacramento River flows through the core of the urban Sacramento area and separates the city of Sacramento from the city of West Sacramento. In many areas, the levees and maintenance roads provide recreational opportunities for local residents. As the Sacramento River flows toward the Delta, more rural and agricultural elements become part of the overall system, offering a greater variety of visual experiences, which include terraces and benches, backwater areas, and riparian vegetation. The natural environment is a refreshing contrast to the urban development of the surrounding Sacramento areas. The State has designated Highway 160 as a California State Scenic Highway.

3.9.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant effect on esthetics if changes in landform, vegetation, or structural features create substantially increased levels of visual contrast as compared to surrounding conditions.

No Action Alternative. Under the no action alternative, there would be no effect on esthetics. The views and esthetic quality of Reach 2 and Reach 9 would remain the same.

Construct Cutoff Walls

Reach 2. Construction of the cutoff wall would affect the esthetics in the project area. Short-term effects would include the presence and activities of equipment and workers. Long-term effects would include permanent changes in the viewshed.

At Reach 2, short-term activities would include preparing the site, removing vegetation on the waterside slope of the levee, degrading the top of the levee, grading the greenbelt staging area, installing the batch plant and constructing the cutoff wall. A permanent ramp would be constructed on the landside slope of the levee in the greenbelt staging area. During construction, the ramp would be used for delivery of materials and access to the construction site. The ramp would be used on a permanent basis for levee maintenance and floodfighting access. The ramp would be constructed of compacted soil and would be consistent with the current design of the levee. The ramp would not exceed the height of the levee and would be restricted to approved levee maintenance vehicles; however, it would be accessible to pedestrians. After completion of construction, the site would be landscaped consistent with the preconstruction condition. Although the ramp would be a permanent change to the viewshed, the viewshed would not be significantly altered as the ramp would be consistent with the flood control features in this area.

Reach 9. Construction of the cutoff wall would temporarily affect the esthetics in the project area. Short-term effects would include the presence and activities of equipment and workers.

At Reach 9, short-term activities would include preparing the site, removing the tracks, ties and ballast from the top of the levee, degrading the top of the levee, staging of soil and materials across Highway 160, and constructing the cutoff wall. After completion of construction, the site would be landscaped consistent with the preconstruction condition. The viewshed would not be altered as a result of the construction activities.

Changes in the viewshed during construction activities would not be considered significant because they would be short term. The permanent changes would not obscure the scenic views of the area and would be consistent with the surrounding area. As a result, there would be no substantially increased levels of visual contrast as compared to surrounding conditions.

3.9.3 Mitigation

Because there would be no significant long-term effects on esthetics or visual resources in the project area, no mitigation would be required.

3.10 Cultural Resources

3.10.1 Existing Conditions

Construction of various Corps projects has resulted in continuous investigations of historical and archeological resources along the Sacramento River. Numerous literature and record searches, field examinations, and mitigation efforts have been performed. The region around the area of potential effects (APE) has a concentration of known historic resources.

Records and Literature Search

Records and literature searches were conducted at the North Central Information Center at California State University, Sacramento on February 24, 2004 and January 12, 2005. Approximately 90 percent of the APE has been previously surveyed. These surveys were conducted by K.J. McIvers in 1987; Environmental Sciences Associates in 1996; Far Western Anthropological Research Group, Inc. (FWARG), in 1990 and 1995; the Corps in 2001; Jones & Stokes Associates, Inc. (J&S) in 1997; PAR and Associates in 1988; Peak and Associates in 1984, 1985, 1987, and 1988; and Roger H. Werner in 1988. These surveys discovered the following resources outside the APE:

- CA-SAC-29 – Located north of the study area, this site was leveled by cultivation and construction of a house. Previous investigations indicate that artifacts were present.
- CA-SAC-30 – Although leveled by cultivation, auger investigations revealed charcoal deposits at this site, located north of the APE near Chicory Bend.
- CA-SAC-41 – The Deangelis Ranch site has been partially excavated and found to contain a variety of prehistoric and historic deposits. Found at the site were midden deposits, biface and projectile point fragments, debitage, groundstone fragments, shell beads, baked clay, possible human bone, and mammal, bird, and fish bone.
- CA-SAC-42 – Previously recorded as the Souza Mound, this site is located near Pocket Road in a residential area. Construction of homes and roads has affected the site although the mound is still visible.
- CA-SAC-43 – Located partially under the levee, this site consists of two collections, one including human remains and associated artifacts recovered in 1939 to 1940 and a second including a diversity of artifact forms and midden constituents obtained in 1968. Occupation dates to 2400-600 B.P. This site was fully analyzed, evaluated, and mitigated for by the Corps through FWARG in 1995.

- CA-SAC-44 – Older site records indicate this site is located adjacent to the Freeport Wastewater and Sewage Disposal Plant upstream from Freeport. Construction of the treatment plant has likely displaced any semblance of a cultural deposit. An auger hole test by FWARG indicated clean sand to a depth of 140 centimeters.
- CA-SAC-46 – Vaguely described as an artifact scatter, this site could not be located in 1978 by Jerald Johnson or by FWARG in 1990.
- CA-SAC-641-H – A remodeled Victorian home, this site consists of the residence and outbuildings. The building was likely built in 1857 and County tax records indicate it was moved to its current location around 1906.
- CA-SAC-642-H – A remodeled Victorian home, this site consists of the residence and outbuildings. The buildings were constructed around 1906 and are currently in a state of neglect.

The Walnut Grove Branch Line Railroad was the only known resource within the APE. Constructed in 1908, the railroad was constructed in order to compete with agricultural shipping and river traffic between Isleton and Sacramento. The railroad is considered unique because most of the line is elevated on top of the levees. Not just a freight train, passenger service was soon added to the railroad, and today the California State Railroad Museum uses a portion of the tracks for recreational and educational purposes.

Field Survey

Most of the APE has already been surveyed. However, since some of the previous surveys date back to a decade ago or longer, the APE was resurveyed in its entirety. Field visits conducted in August, November, and December 2005 confirmed the location of the Walnut Grove Branch Line Railroad, a known historic property that is eligible for listing in the National Register of Historic Places (NRHP) and discovered three previously unrecorded resources:

- Freeport Pump House – Currently owned and operated by the Sacramento County Sanitation District No. 1, this pump house was likely built in the 1920s. It is used as a river diversion from the Sacramento River to agricultural fields east of the levee and across Freeport Boulevard. The pump house remains in operation today, providing agricultural water May 1st through October 1st annually.
- Davis and Roberts Property Trash Scatter – Located adjacent to a residential home, this approximately five acre agricultural field was a part of a 100-acre plus parcel owned by Davis and Roberts in 1885. Currently owned by a revocable trust established in 1950 under the name Bellmeda L. Correa, this property has been owned by the same family for more than fifty years. The site is a small trash scatter mainly consisting of glass fragments and was located in the southern

portion of the field. Approximately six pieces of glass were located, including olive, brown, blue, aqua, white and purple glass, dating at least some of the materials to pre-1917.

- Sacramento River Levee RM 51.8 to 52.7 and RM 45.5 to 45.7 – The left bank levee at these river miles was likely built around 1905, as were many of the levees surrounding Sacramento. It has undergone many alterations since its original construction, including the addition of the Walnut Grove Branch Line Railroad tracks on top of the levee crown at RM 45.5 to 45.7.

Also noted was the presence of several private boat docks and stairs. Upon closer examination, no dates engraved in the concrete stairs were found, though based on the current state of the various stairs and lack of upkeep, none of the stairs are likely older than the 1970's. No other known prehistoric or historic resources have been observed within the APE.

3.10.2 Environmental Effects

Basis of Significance. An alternative would be considered to have a significant adverse effect on cultural resources if it diminishes the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Types of effects include physical destruction, damage, or alteration; isolation or alteration of the character of the setting; introduction of elements that are out of character; neglect; and transfer, lease, or sale.

No Action Alternative. The no-action alternative assumes that no cutoff wall would be constructed by the Corps. The cultural resources are expected to remain as described in the existing conditions and there would be no effects to these resources.

Construct Cutoff Walls

Reach 2. The construction activities associated with the installation of the cutoff wall in this reach would not affect any known cultural resources.

Reach 9. The only known cultural resource that would be affected by this alternative is the Walnut Grove Branch Line Railroad. All of the other sites recorded by previous surveys are outside of the APE and the three sites discovered during the Corps field survey were determined not eligible for listing in the NRHP.

Based on its eligibility to the NRHP, the Walnut Grove Branch Line Railroad would be adversely affected by project construction. The railroad ties, tracks, ballast and all associated materials would be removed so that the slurry wall could be constructed in the levee. Additionally, the levee crown would be graded down in order to support the construction easement needed for equipment.

In order to mitigate adverse effects, a mitigation plan was developed under the guidance of the California State Railroad Museum and State Parks. The Corps would follow this mitigation plan at Reach 9. The tracks would be removed and stored in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. All activities regarding the removal and replacement of the railroad tracks would be coordinated with, and approved by, the State Historic Preservation Officer. The mitigation plan has previously been used for mitigating adverse effects to the railroad in 1991 for the Sacramento Urban Area Flood Control Project and in August 2005 for the Sacramento River Bank Protection Project at River Mile 56.7 Left.

The project would have no effect on any other known prehistoric or historic resources. The possibility exists that potentially significant unidentified cultural remains could be encountered during project construction. If buried or otherwise obscured cultural resources are encountered during construction, activities in the area of the find would be halted, and a qualified archeologist would be consulted immediately to evaluate the find.

Should any potentially significant cultural resources be discovered, compliance with 36 CFR 800.13(b), "Discoveries without prior planning," would be implemented. Data recovery or other mitigation measures might be necessary to mitigate adverse effects to significant properties. Implementation of Mitigation Measure CUL-MM-1, Compliance With National Historic Preservation Act of 1966, Historic and Archeological Resources Protection Act, and Protection of Historic Properties, would reduce this effect to a less-than-significant level.

3.10.3 Mitigation

The principle element of the mitigation plan is to restore the Walnut Grove Branch Line Railroad to a pristine working condition to allow the railroad to regain its operational status. The levee would be rebuilt and the railroad alignment reconstructed so that the integrity of location, setting, design, workmanship, and feeling would be retained. Since the railroad has undergone annual and regular maintenance by the California State Railroad Museum, the integrity of materials does not affect the property's eligibility, and the replacement of the railroad and associated materials would not be an adverse effect. Overall, this allows the Corps to fully mitigate adverse effects to a level of no significance.

3.11 Hazardous and Toxic Waste

3.11.1 Existing Conditions

The levee road at Reach 2 has extremely restricted access to pedestrians and vehicles. Anyone attempting to access the levee in this reach encounters a series of locked gates. Specifically, the area is segregated by gates that prohibit both pedestrian and vehicle access to the levee without unlocking the gate or through the back yard of

one of the residences adjacent to the landside toe of the levee. Only personnel associated with levee maintenance have vehicular access to the levee. The levee material was disturbed during the original construction of the levee and then most recently when the original cutoff wall was constructed in 1993 as part of the Sacramento Urban Area Levee Reconstruction Project. For these reasons, no past HTRW issues are anticipated in this reach.

The top of the levee in Reach 9 is topped by railroad tracks originally used by the Southern Pacific Railroad. The railroad last used this section of tracks in 1978. These tracks would typically have carried all types of freight, including hazardous and toxic materials. During the period of time that the tracks were used, small amounts of diesel fuel and lubricants may have leaked from railroad engines and freight cars. In addition, some freight materials being transported may have leaked, and some of these materials could be categorized as hazardous.

Typically, railroad ties were treated with creosote as a preservative as well as to inhibit growth of vegetation along the tracks.

3.11.2 Environmental Effects

Basis of Significance. The effect of those substances identified as potentially hazardous by CERCLA; the Resource, Conservation, and Recovery Act; and/or 40 CFR Parts 260 through 270 would be considered to be significant if they would (1) expose workers to hazardous substances in excess of OSHA standards, or (2) contaminate the physical environment, thereby posing a hazard to humans, animals, or plant populations by exceeding Federal exposure, threshold, or cleanup limits.

No Action Alternative. Under the no action alternative, there would be no effects on hazardous and toxic waste. The railroad tracks at Reach 9 would not be disturbed, and any hazardous materials would continue to be present in the same amounts.

Construct Cutoff Walls

Reach 2. One of the constituents associated with the construction of the cutoff wall is cement. The cement would be delivered in large bags, which would be offloaded at the batch plant for mixing with bentonite and soil. The cement is a hazardous material, characterized as a caustic. As such, it would be stored and handled in compliance with all Federal, state and local regulations, as well as in adherence to OSHA worker safety standards. The contractor would be responsible for developing and implementing a SWPPP as well as all applicable spill prevention measures associated with the batch plant and avoiding slurry or soil/concrete/bentonite mixture from entering the Sacramento River. All spoils would be properly characterized and disposed of at a licensed regulated facility.

In addition, inadvertent spills or leaks of oil or fuels from construction equipment could result in soil contamination at the work or staging areas. Precautions would be followed to avoid contamination, including having a spill control plan. The contractor would be required to properly store and dispose of any hazardous waste generated at the site.

Reach 9. A Phase I Site Assessment is currently being conducted to identify and evaluate potential HTRW issues associated with the railroad, marina, and other activities in and near the project area. If any evidence of HTRW is identified, then more detailed studies including field sampling and analysis would likely be conducted to determine the nature and extent of any HTRW. Any material determined to be hazardous waste would be segregated and disposed of in compliance with all Federal, State, and local regulations and standards. The final Phase I Site Assessment is scheduled to be completed in mid-June 2006.

As is the case with Reach 2, one of the constituents associated with the construction of the cutoff wall is cement. The cement would be delivered in large bags, which would be offloaded at the batch plant for mixing with bentonite and soil. The cement is a hazardous material, characterized as a caustic. As such, it would be stored and handled in compliance with all Federal, State, and local regulations, as well as in adherence to OSHA worker safety standards. The contractor would be responsible for developing and implementing a SWPPP as well as all applicable spill prevention measures associated with the batch plant and avoiding slurry or soil/concrete/bentonite mixture from entering the Sacramento River. All spoils would be properly characterized and disposed of at a licensed regulated facility.

In addition, inadvertent spills or leaks of oil or fuels from construction equipment could result in soil contamination at the work or staging areas. Precautions would be followed to avoid contamination, including having a spill control plan. The contractor would be required to properly store and dispose of any hazardous waste generated at the site.

3.11.3 Mitigation

Identification, characterization, segregation, transportation, and disposal of all hazardous wastes would be conducted in accordance with all applicable Federal, State, and local regulations to ensure safety to workers and the public against exposure and contamination.

4.0 Growth-Inducing Effects

The project would not induce growth in or near the project area. Local population growth and development would be consistent with the draft Sacramento County General Plan (2003), as well as the City of Sacramento General Plan (2003). The City's plan is currently being updated.

5.0 Cumulative Effects

The NEPA and CEQA require the consideration of cumulative effects, which are the incremental effects of an action when added to other past, present, and reasonably foreseeable future actions (CFR 40 Part 1508.7). Related water resource projects in and near the project area include the Sacramento River Flood Control System, Sacramento River Flood Control System Evaluation, ongoing Sacramento River Bank Protection Project, proposed Pioneer Reservoir Project, and transplanting of elderberry shrubs by SAFCA.

As part of the Sacramento River Bank Protection Project, the Corps and the Reclamation Board propose to implement bank protection measures to prevent ongoing erosion at eight sites on the east bank of the Sacramento River near the Pocket Area (RM 49.6 to RM 53.1). The eight erosion sites are located between the Sacramento River Parkway adjacent to Riverside Avenue near the intersection with 43rd Avenue, and Garcia Bend Park. This bank protection project will also help meet FEMA's 100-year flood criteria for the levee system.

The bank protection measures would include (1) protecting the toe of the bank with rock revetment both below and above water levels, (2) placing 1 foot of non-engineered fill on the revetment at elevations above water levels, (3) placing and preserving existing in-stream wood material clusters for aquatic habitat and bank stabilization, and (4) planting pole and container plantings to stabilize the bank and provide riparian habitat. Nearly all construction would be conducted from barges in the river. The project is scheduled to begin in July and be completed in November 2006.

While the proposed bank protection project spans the seepage site at Reach 2, there are no bank protection measures proposed for Reach 2. However, the bank protection project would be conducted during the same construction season as the geotechnical project. As a result, there would be cumulative effects on several resources, including vegetation and wildlife, air quality, traffic, and esthetics.

The Corps and the Reclamation Board propose to construct a seepage berm and five relief wells on the landside of the Sacramento River east bank levee adjacent to the City's Pioneer Reservoir at RM 58.5. The relief wells would be constructed on both the north and south ends of the new berm. The project along approximately 700 feet of levee would minimize the potential for levee under-seepage and resulting landside boils that could jeopardize the integrity of the levee. Construction is scheduled to begin in August 2006 and would be completed in 2 months.

The bank protection and seepage projects would be required to comply with applicable Federal, State, and local environmental laws and regulations. Implementation of best management practices and mitigation measures would be necessary to reduce any potential cumulative effects to less than significant. As a result, these projects would have no significant cumulative effects on the environment.

In addition, the projects would help to improve flood protection to residents by ensuring the integrity of the levees along the Sacramento River. This bank protection project would also help meet FEMA's 100-year flood criteria for the levee system. These would be considered beneficial cumulative effects.

On March 15, 2006, SAFCA removed and transplanted the 11 elderberry shrubs at Reach 9 at a FWS-approved site on the American River Parkway. The shrubs were transplanted at an alternate site to the one identified in the FWS's consultation letter to the Corps due to policy concerns raised by the Reclamation Board. The compensation required by the December 7, 2005, BO, as amended, will be accomplished at a FWS-approved beetle conservation bank or at a FWS-approved site on the American River Parkway. The mitigation will be accomplished within 30 days of the completion of the construction. Since this transplanting facilitates implementation of the work at Reach 9, this would be considered to have a beneficial cumulative effect.

6.0 Compliance with Environmental Laws and Regulations

6.1 Federal

Archaeological Resources Protection Act of 1979, 16 U.S.C. 470, et seq. *Full Compliance.* This act prohibits the removal, sale, receipt, and interstate transportation of archaeological resources obtained illegally (without permits) from public lands. The proposed project would not involve any such archaeological resources.

Clean Air Act of 1972, as amended, 42 U.S.C. 7401, et seq. *Full compliance.* The proposed action is not expected to violate any Federal air quality standards, exceed the U.S. EPA's general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin. Implementation of best management practices would reduce NOx emissions to below local thresholds. Thus, the Corps has determined that the proposed project would have no significant effects on the future air quality of area.

Clean Water Act of 1972, as amended, 33 U.S.C. 1251, et seq. *Full compliance.* The proposed action is not expected to adversely affect surface or ground water quality or deplete ground water supplies. Best management practices would be implemented to avoid movement of soils or accidental spills into the river. The Corps has determined that the proposed project would have no significant effects on the future water quality of the area.

The contractor would be required to obtain a NPDES permit from the CRWQCB, Central Valley Region, since the project would disturb 1 or more acres of land and involve possible storm water discharges to surface waters. As part of the permit, the contractor would be required to prepare a SWPPP identifying best management practices to be used to avoid or minimize any adverse effects of construction on surface waters.

Endangered Species Act of 1973, as amended, 16 U.S.C. 1531, et seq. *Full compliance.* In accordance with Section 7(c), the Corps obtained a list of Federally listed and proposed species likely to occur in the project area. The only listed species affected by the project would be the valley elderberry longhorn beetle. The Biological Opinion prepared by the FWS is included in Appendix B. The Corps will meet all required Terms and Conditions in their Biological Opinion.

On March 15, 2006, SAFCA removed and transplanted 11 elderberry shrubs at Reach 9 under a separate CEQA action. The compensation required by the December 7, 2005, BO, as amended, will be accomplished at a FWS-approved beetle conservation bank or at a FWS-approved site on the American River Parkway. The mitigation will be accomplished within 30 days of the completion of the construction.

The Corps as the action agency has made the determination that there would be no effect on any listed species under the jurisdiction of the National Marine Fisheries Service (NMFS). As a result, no formal consultation was required with NMFS under Section 7 of the Endangered Species Act.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. *Full compliance.* This order directs all Federal agencies to identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. There are no minority or low-income populations in the project area. All nearby residents would benefit from the proposed project.

Fish and Wildlife Coordination Act of 1958, as amended, 16 U.S.C. 661, et seq. *Full compliance.* The Corps is currently coordinating with FWS to determine the effects on vegetation and wildlife in the project area. The FWS is currently preparing a Coordination Act Report (CAR) to address these effects. The draft CAR will be included as Appendix A in this EA/IS. The CAR will be finalized prior to completion of the final EA/IS.

National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321, et seq. *Partial Compliance.* This draft EA/IS is in partial compliance with this act. Comments received during the public review period will be incorporated into the EA, as appropriate, and a comments and responses appendix will be prepared. The final EA will be accompanied by a final FONSI. These actions will provide full compliance with this act.

National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. *Partial Compliance.* This act requires Federal agencies to take into account the effects of their undertaking on properties included in, or eligible for, inclusion in the National Register of Historic Places. Letters to potentially interested Native Americans were sent on November 23, 2005, asking for their knowledge of locations of archeological sites, or areas of traditional cultural interest or concern. No responses have been received.

A letter to the SHPO asking for their concurrence with a finding of no adverse effect in accordance with 36 CFR 800.4(c)(2) was sent on January 10, 2006. In an April 13, 2006, meeting with the Corps, the SHPO agreed with the findings and determinations made by the Corps. The concurrence is pending a signed agreement letter from State Parks to the Corps accepting several stipulations for the reconstruction of the Walnut Grove Branch Line Railroad tracks. Once that signed agreement letter is received by the Corps, the project may proceed as planned.

Native American Graves Protection and Repatriation Act of 1990, 23 U.S.C. 3002. *Full Compliance.* 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 action would not involve any such cultural items.

6.2 State

California Clean Air Act of 1988. *Full compliance.* The SMAQMD determines whether project emission sources and emission levels significantly affect air quality based on Federal standards established by the U.S. EPA and State standards set by the California Air Resources Board. The project is in compliance with all provisions of the Federal and State Clean Air Acts.

California Endangered Species Act of 1984. *Full compliance.* The California Department of Fish and Game administers this State law providing protection of fish and wildlife resources. This act requires the non-Federal lead agencies to prepare biological assessments if a project may adversely affect one or more State-listed endangered species. No State-listed species would be adversely affected by the project.

California Environmental Quality Act, California Public Resources Code, Section 21000 et seq. *Partial compliance.* This draft EA/IS is in partial compliance with this act. All comments received during the public review period will be considered and incorporated into the EA/IS, as appropriate. The final EA/IS will be accompanied by a final Negative Declaration. The Reclamation Board as the non-Federal sponsor will ensure full compliance with the requirements of this act.

7.0 Coordination and Review of the Draft EA

The draft EA/IS and FONSI/Neg Dec will be circulated for 30 days to agencies, organizations and individuals known to have a special interest in the project. Copies of the draft EA/IS will be made available for viewing at local public libraries. This project has been coordinated with all the appropriate Federal, State, and local government agencies.

8.0 Findings

This EA/IS evaluated the environmental effects of the proposed project of constructing cutoff walls along two reaches in the Pocket Area. Potential adverse effects to the following resources were evaluated in detail: land use, special status species, air quality, water resources and quality, socioeconomics and environmental justice, traffic and circulation, noise, cultural resources, and hazardous and toxic waste.

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 this evaluation, the proposed project meets the definition of a FONSI as described in 40 CFR 1508.13. A FONSI may be prepared when an action would not have a significant effect on the human environment and for which an environmental impact statement would not be prepared. Therefore, a FONSI has been prepared and accompanies this EA.

9.0 List of Preparers

Melissa Montag
Historian/Social Scientist
3 years environmental and cultural studies
Historical and cultural resources

Kim Stevens
Environmental Manager, Corps of Engineers
6 years environmental studies
Traffic and circulation

Lynne Stevenson
Environmental Writer, Corps of Engineers
21 years planning and environmental studies
Report review

John Suazo
Environmental Manager, Corps of Engineers
13 years environmental management and environmental studies
Report preparation and coordination

10.0 References

10.1 Printed Sources

California Regional Water Quality Control Board, Central Valley Region. 1998. Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River Basin. Fourth Edition.

City of Sacramento. 2006. Engineering Service, Traffic Counts Database.
www.cityofsacramento.org/transportation/traffic/list.cfm.

Environmental Sciences Associates. 1996. North Beach Lake/SRWTP Levee Improvement Project: Environmental Impact Report.

Far Western Anthropological Research Group, Inc. 1990. Intensive Cultural Resources Survey and National Register Evaluation: Sacramento Urban Area Flood Control Project.

Far Western Anthropology Research Group, Inc. 1995. Final Report on the Archaeological Analysis of CA-Sac-43, Cultural Resources Mitigation for the Sacramento Urban Area Levee Restoration Project, Sacramento County, California.

Johnson, Jerald. 1974. Reconnaissance Archeological Survey of the Morrison Stream Group in Sacramento County, California.

PAR and Associates. 1988. Cultural Resources Survey and Evaluation of Da Rose Marina Project, Sacramento County, California.

PAR Environmental Services, Inc. 1991. National Register of Historic Places Significance Evaluation of Walnut Grove Branch Line Railroad, Sacramento, California.

Peak and Associates. 1984. Cultural Resources Assessment of the Pocket Road Country Estates, Sacramento County, California.

Peak and Associates. 1985. Cultural Resource Assessment of the DeAngelis Home Site, Pocket Road, Sacramento, California.

Peak and Associates. 1987. Report on the Archeological Testing Program to Define a Portion of the Boundaries of CA-Sac-43, Sacramento, California.

Peak and Associates. 1988. Cultural Resource Assessment of Parcels 1, 2, and 3, Pocket Road, Sacramento, California.

Sacramento Regional County Sanitation District. 2000. Sacramento River Coordinated Monitoring Program, 1999-2000 Annual Report. Sacramento, California.

U.S. Army Corps of Engineers (Corps). 2005. American River Watershed Project (Common Features), California, Geotechnical Evaluation of Safety, Sacramento River East Bank Levees from Approximately RM 53.7 to RM 45.3 Pocket Area to New North Beach Levee. Sacramento District, Sacramento, CA.

10.2 Personal Communications

Bhatt, Mahesh. 2006. Traffic Engineer, City of Sacramento. Telephone conversation. April 11.

Baxter, Robert. 2006. State Parks Landscape Architect, California State Parks. Email message. April 25.

Plates



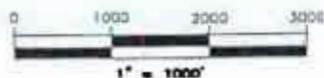
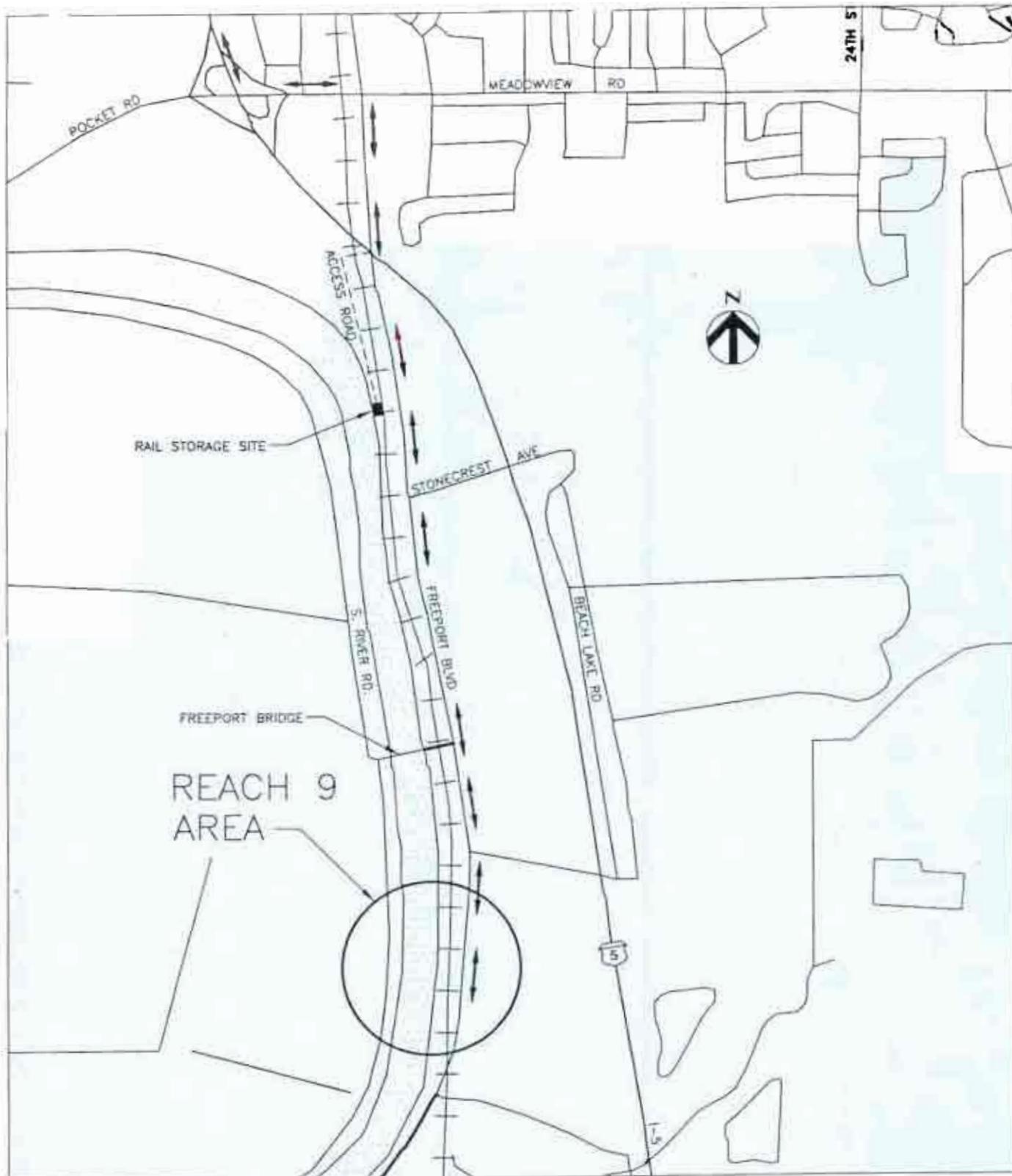
STATE MAP
NTS



VICINITY MAP
NTS



LOCATION MAP AND ACCESS ROUTES



LOCATION MAP AND ACCESS ROUTES



Staging and stockpile area for Reach 9

Note: Numbers refer to three parcels

Appendix A

Draft Coordination Act Report

[Pending completion by U.S. Fish and Wildlife Service]

Appendix B

Correspondence Regarding Special Status Species

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: 060314032208
Database Last Updated: March 1, 2006

Quad Lists

SACRAMENTO WEST (513D)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus mykiss - Critical habitat, Central Valley steelhead (X)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - Critical Habitat, Central Valley spring-run chinook (X)

Oncorhynchus tshawytscha - Critical habitat, winter-run chinook salmon (X)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

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

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)
Anthicus sacramento - Sacramento anthicid beetle (SC)
Branchinecta mesovallensis - Midvalley fairy shrimp (SC)
Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Acipenser medirostris - green sturgeon (SC)
Lampetra ayresi - river lamprey (SC)
Lampetra tridentata - Pacific lamprey (SC)
Pogonichthys macrolepidotus - Sacramento splittail (SC)
Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondi (*was Scaphiopus h.*) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)
Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)
Athene cunicularia hypugaea - western burrowing owl (SC)
Baeolophus inornatus - oak titmouse (SLC)
Branta canadensis leucopareia - Aleutian Canada goose (D)
Buteo regalis - ferruginous hawk (SC)
Buteo swainsoni - Swainson's hawk (CA)
Carduelis lawrencei - Lawrence's goldfinch (SC)
Chaetura vauxi - Vaux's swift (SC)
Charadrius montanus - mountain plover (SC)
Elanus leucurus - white-tailed (=black shouldered) kite (SC)
Empidonax traillii brewsteri - little willow flycatcher (CA)
Falco peregrinus anatum - American peregrine falcon (D)
Grus canadensis tabida - greater sandhill crane (CA)
Lanius ludovicianus - loggerhead shrike (SC)
Melanerpes lewis - Lewis' woodpecker (SC)
Numenius americanus - long-billed curlew (SC)
Picoides nuttallii - Nuttall's woodpecker (SLC)
Plegadis chihi - white-faced ibis (SC)
Riparia riparia - bank swallow (CA)
Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (=Plecotus) townsendii townsendii - Pacific western big-eared bat (SC)
Myotis ciliolabrum - small-footed myotis bat (SC)
Myotis volans - long-legged myotis bat (SC)
Myotis yumanensis - Yuma myotis bat (SC)

Perognathus inornatus - San Joaquin pocket mouse (SC)

County Lists

No county species lists requested

Key:

(E) *Endangered* - Listed (in the Federal Register) 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 Marine 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.

(CA) Listed by the State of California but not by the Fish & Wildlife Service.

(D) *Delisted* - Species will be monitored for 5 years.

(SC) *Species of Concern*/(SLC) *Species of Local Concern* - Other species of concern to the Sacramento Fish & Wildlife Office.

(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 quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine 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 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.

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.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game [Wildlife and Habitat Data Analysis Branch](#) for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and 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 [critical habitat page](#) for maps.

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

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

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, candidate and special concern 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 June 12, 2006.

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: 060314031902
Database Last Updated: March 1, 2006

Quad Lists

FLORIN (496B)

Listed Species

Invertebrates

Branchinecta lynchi - vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus - valley elderberry longhorn beetle (T)

Lepidurus packardi - vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus - Critical habitat, delta smelt (X)

Hypomesus transpacificus - delta smelt (T)

Oncorhynchus mykiss - Central Valley steelhead (T)

Oncorhynchus tshawytscha - Central Valley spring-run chinook salmon (T)

Oncorhynchus tshawytscha - winter-run chinook salmon, Sacramento River (E)

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

Haliaeetus leucocephalus - bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha - Central Valley fall/late fall-run chinook salmon (C)

Oncorhynchus tshawytscha - Critical habitat, Central Valley fall/late fall-run chinook (C)

Species of Concern

Invertebrates

Anthicus antiochensis - Antioch Dunes anthicid beetle (SC)

Anthicus sacramento - Sacramento anthicid beetle (SC)

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)

Linderiella occidentalis - California linderiella fairy shrimp (SC)

Fish

Acipenser medirostris - green sturgeon (SC)

Lampetra ayresi - river lamprey (SC)

Lampetra hubbsi - Kern brook lamprey (SC)

Lampetra tridentata - Pacific lamprey (SC)

Pogonichthys macrolepidotus - Sacramento splittail (SC)

Spirinchus thaleichthys - longfin smelt (SC)

Amphibians

Spea hammondi (was *Scaphiopus h.*) - western spadefoot toad (SC)

Reptiles

Clemmys marmorata marmorata - northwestern pond turtle (SC)

Phrynosoma coronatum frontale - California horned lizard (SC)

Birds

Agelaius tricolor - tricolored blackbird (SC)

Athene cunicularia hypugaea - western burrowing owl (SC)

Baeolophus inornatus - oak titmouse (SLC)

Branta canadensis leucopareia - Aleutian Canada goose (D)

Buteo regalis - ferruginous hawk (SC)

Buteo Swainsoni - Swainson's hawk (CA)

Carduelis lawrencei - Lawrence's goldfinch (SC)

Chaetura vauxi - Vaux's swift (SC)

Charadrius montanus - mountain plover (SC)

Elanus leucurus - white-tailed (=black shouldered) kite (SC)

Empidonax traillii brewsteri - little willow flycatcher (CA)

Falco peregrinus anatum - American peregrine falcon (D)

Grus canadensis tabida - greater sandhill crane (CA)

Lanius ludovicianus - loggerhead shrike (SC)

Limosa fedoa - marbled godwit (SC)

Melanerpes lewis - Lewis' woodpecker (SC)

Numenius americanus - long-billed curlew (SC)

Picoides nuttallii - Nuttall's woodpecker (SLC)

Plegadis chihi - white-faced ibis (SC)

Riparia riparia - bank swallow (CA)

Selasphorus rufus - rufous hummingbird (SC)

Mammals

Corynorhinus (= *Plecotus*) *townsendii townsendii* - Pacific western big-eared bat (SC)

Myotis ciliolabrum - small-footed myotis bat (SC)

Myotis volans - long-legged myotis bat (SC)

Myotis yumanensis - Yuma myotis bat (SC)

Perognathus inornatus - San Joaquin pocket mouse (SC)

Plants

Legenere limosa - legenere (SC)

Sagittaria sanfordii - valley sagittaria (=Sanford's arrowhead) (SC)

County Lists

No county species lists requested

Key:

(E) *Endangered* - Listed (in the Federal Register) 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 Marine 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.

(CA) Listed by the State of California but not by the Fish & Wildlife Service.

(D) *Delisted* - Species will be monitored for 5 years.

(SC) *Species of Concern*/(SLC) Species of Local Concern - Other species of concern to the Sacramento Fish & Wildlife Office.

(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 regard-less of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the quad or quads covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the nine 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 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.

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.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. However you should contact the California Department of Fish and Game [Wildlife and Habitat Data Analysis Branch](#) for official information about these species.

Your Responsibilities Under the Endangered Species Act

All plants and 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 [critical habitat page](#) for maps.

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

Your list may contain a section called Species of Concern. This is an informal term that refers to those species that the Sacramento Fish and Wildlife Office believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. At one extreme, there may only need to be periodic monitoring of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a Federal threatened or endangered species. Species of concern receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

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, candidate and special concern 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 June 12, 2006.



REPLY TO
ATTENTION OF

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

NOV 18 2005

Environmental Resources Branch

Mr. Wayne White, Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846

Dear Mr. White:

This letter is to initiate formal consultation for the Federally listed valley elderberry longhorn beetle (*Desmocerus californicus*) under Section 7(a) of the Endangered Species Act, as amended, for the American River Common Features Pocket Area Geotech project. We are requesting appending the programmatic Biological Opinion 1-1-96-F-66, Subject: Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California. The entire project is located in Sacramento County along the Sacramento River between river miles (RM) 45.5L and 52.4L. It is hoped that this request will provide sufficient time for consultation to enable the Corps to perform elderberry transplanting during the transplant window.

The project entails repairs to two sections (Reaches 2 and 9) of the levee in the Pocket Area to correct through-seepage and under-seepage in order to receive Federal Emergency Management Agency certification for the levee system. Reach 2 extends from RM 52.1 to RM 52.4, and Reach 9 extends from RM 45.5 to RM 45.7. The project will be conducted in partnership between the Corps, the Reclamation Board, and the Sacramento Area Flood Control Agency (SAFCA). A full description and analysis of the project alternatives will be included in the draft Environmental Assessment/Initial Study (EA/IS). This draft document is expected to be completed by January/February 2006. Construction is expected to begin in July 2006 and end by October 2006.

The levee repairs will require the construction of cutoff walls to alleviate the seepage problems. The two alternatives being considered for construction are a bentonite slurry wall or deep soil mixing (DSM). Due to the depth of the proposed cutoff wall in Reach 2 (110 feet), DSM is the only method capable of reaching that depth. The through-seepage in Reach 9, however, will only require a cutoff wall to a depth of 40 feet. Both DSM and the slurry wall technique are being evaluated for accomplishing this repair. Elderberry shrubs are located only in Reach 9 and the slurry wall construction method has the larger footprint requirement. Therefore, our request for consultation will be based on the most conservative approach, which is using the larger footprint.

Reach 9 is located parallel to Highway 160/Freeport Boulevard and the south terminus of the cutoff wall will tie into the North Beach Lake Levee currently under construction. The repair to Reach 9 will require a cutoff wall 1,500 feet in long by 3 feet wide. The cutoff wall will be constructed down the center of the levee. The use of the slurry wall technique will require that the levee be degraded by one-third of its height (approximately 7 feet) in order to alleviate hydraulic stress on the levee and to provide the proper working footprint for the excavation equipment. Prior to degrading the levee, railroad tracks, ties, and ballast must be removed and stored. The levee will be degraded using a Cat D-6 bulldozer, or similarly sized equipment, an excavator, a loader, and haul trucks. The width of the footprint after degrading will be approximately 75 feet. Equipment access considerations will add approximately 100 feet in length to the north end of the project footprint. The material removed from the levee crown is expected to be stockpiled on the east side of Highway 160 in an area already evaluated for the South Sacramento County Streams project. Material no longer meeting levee construction standards will be disposed of in the appropriate manner.

The construction of the slurry wall will involve a continuous process of excavating a 100-foot section of trench and backfilling with slurry, until the reach is completed. Once the slurry wall has cured, the levee will be reconstructed with a 7-foot cap of clay and covered with a new levee crown. The railroad tracks, ties, and ballast will be replaced, and the levee slope will be revegetated using a native grass mixture to minimize soil erosion.

On November 2, 2005, an elderberry survey was conducted by Ms. Stephanie Rickabaugh from your office and Mr. John Suazo from the Corps. During the survey 7 elderberry shrubs or clumps were located within the 1,500-foot cutoff wall footprint, and an additional 4 shrubs were located within 100 feet of the north end of the cutoff wall footprint. No exit holes were identified on any of the shrubs. The survey identified a total of 33 stems greater than 1 inch in diameter. The survey results are provided in enclosure 1. It is assumed that all 11 of the elderberry shrubs would be directly affected by the construction. The Corps proposes that all 11 shrubs would be removed and transplanted. The shrubs would be transplanted in accordance with the U.S. Fish and Wildlife Service's "Conservation Guidelines for the Valley Elderberry Longhorn Beetle," July 1999.

The adverse effects on beetle habitat were determined, and compensation was proposed using the above referenced guidelines. Compensation for the 11 transplants would require 0.7 acre of new habitat, and consist of 85 elderberry seedlings and 85 associated native plantings. Mr. Trevor Burwell from the Sacramento County Department of Regional Parks, Recreation, and Open Space (County Parks) was contacted regarding the availability of a mitigation site. He proposed that the mitigation

site currently being developed for the RM 56.7L project would have enough excess acreage to accommodate the requirement for this project. The mitigation site is located at American RM 0.9R, and preparation of the site has already begun in accordance with the above referenced guidelines. The entire site has already been inspected and approved by County Parks, Department of Water Resources (for the Reclamation Board), SAFCA, and the Service. An aerial photograph of the proposed site is enclosure 2.

Some additional woody vegetation would be affected as a result of degrading the levee and clearing an existing landside access ramp. These effects will be documented in the Coordination Act Report being prepared by your office.

Please let us know as soon as possible if you concur with the proposed compensation and if it is possible to receive a biological opinion on this work prior to the end of the February 15 transplanting seasonal window. If you need additional information, please contact Mr. John Suazo, Environmental Planner, at (916) 557-6719 or email: john.suazo@usace.army.mil. Thank you for your coordination on this project.

Sincerely,



 Brandon C. Muncy
Chief, Planning Division

Enclosures

Copy furnished (without enclosures):

**Ms. Stephanie Rickabaugh, U.S. Fish and Wildlife Service, 2800 Cottage Way,
Sacramento, CA 95825**

**Mr. Doug Weinrich, U.S. Fish and Wildlife Service, 2800 Cottage Way, Sacramento, CA
95825**



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In reply refer to:
1-1-06-F-0017

DEC 7 2005

Mr. Brandon C. Muncy
Chief, Planning Division
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814

Subject: Review of the American River Common Features Pocket Area Geotech Project, Sacramento County, California, for Inclusion with the Valley Elderberry Longhorn Beetle Programmatic Consultation (Service File Number 1-1-96-F-66)

Dear Mr. Muncy:

This letter responds to the U.S. Army Corps of Engineers (Corps) November 18, 2005, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed American River Common Features Pocket Area Geotech Project (proposed project), Sacramento County, California. Your letter was received on November 21, 2005. The Service has determined that the proposed project is likely to adversely affect the valley elderberry longhorn beetle (VELB) and can be appended to the Service's *Formal Programmatic Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office* (Programmatic Consultation) (Service file number 1-1-96-F-66). This response is in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The findings and recommendations in this formal consultation are based on: (1) your November 18, 2005, letter requesting formal consultation; (2) a site visit attended by Jennifer Hobbs and Stephanie Rickabaugh of the Service and John Suazo and Mark Boedtker of the Corps on September 20, 2005; (3) a meeting on the conceptual design for the proposed project held on October 31, 2005; (4) an elderberry shrub survey completed by Stephanie Rickabaugh and John Suazo on November 2, 2005; and (5) information available to the Service.

Biological Opinion

Project Description

The proposed project is located in Sacramento County along the Sacramento River between river miles (RM) 45.5L and 52.4L. The project entails repairs to two sections (Reach 2 and Reach 9) of the levee in the Pocket Area to correct through-seepage and under-seepage in order to receive Federal Emergency Management Agency certification for the levee system. Reach 2 extends from RM 52.1 to RM 52.4 and Reach 9 extends from RM 45.5 to RM 45.7. The project would be conducted in partnership between the Corps, the Reclamation Board, and the Sacramento Area Flood Control Agency.

The levee repairs would require construction of cutoff walls to alleviate the seepage problems. The two alternatives being considered for construction are a bentonite slurry wall or deep soil mixing (DSM). Due to the depth of the proposed cutoff wall in Reach 2 (110 feet), DSM is the only method capable of reaching that depth. The through-seepage in Reach 9, however, would only require a cutoff wall to a depth of 40 feet. Both DSM and the slurry wall technique are being evaluated for this repair. Elderberry shrubs (*Sambucus* sp.) are located only in Reach 9 and the slurry wall construction method would have the largest project footprint. Therefore, the Corps has proposed the larger footprint for the proposed project description.

Reach 9 is located parallel to Highway 160/Freeport Boulevard and the south terminus of the cutoff wall would tie into the North Beach Lake Levee currently under construction. The repair to Reach 9 would require a cutoff wall 1,500 feet long by 3 feet wide. The cutoff wall would be constructed down the center of the levee. The use of the slurry wall technique would require that the levee be degraded by one-third of its height (approximately 7 feet) in order to alleviate hydraulic stress to the levee and to provide the proper working footprint for the excavation equipment. Prior to degrading the levee, the railroad tracks, ties, and ballast must be removed and stored. The levee would be degraded using a Cat D-6 bulldozer, or similarly sized equipment, an excavator, a loader, and haul trucks. The width of the footprint after degrading would be approximately 75 feet. Equipment access points would add another 100 feet to the project length on the north end of the footprint. The material removed from the levee crown would be stockpiled on the east side of Highway 160 in an area currently being used as part of the South Sacramento County Streams project. Material that does not meet levee construction standards would be taken to a disposal site.

The construction of the slurry wall would involve a continuous process of excavating a 100-foot section of trench and backfilling with slurry, until the reach is completed. Once the slurry wall has cured, the levee would be reconstructed with a 7-foot cap of clay and covered with a new levee crown.

Valley Elderberry Longhorn Beetle

Elderberry shrubs are the sole host plant for VELB, and stems greater than one inch in diameter at ground level are required for completion of the beetle's life cycle. Adult beetles feed on elderberry pollen and are present from March through early June, during which time mating occurs. Females lay their eggs in bark crevices or at the junction of stem/trunk or leaf petiole/stem. After hatching, larvae burrow into stems and feed on the live wood. The larval stage may last 2 years. Prior to entering the pupal stage, larvae chew a pupal chamber and exit hole. Transformation from larvae to adult takes place in the pupal chamber, after which adult beetles emerge out of the exit hole. Use of the plants by the animal is rarely apparent. Frequently, the only exterior evidence of the shrub's use by the beetle is an exit hole.

Effects

Eleven elderberry shrubs containing 33 stems with a diameter of one-inch or greater at ground level occur within the action area, all of which are in riparian habitat and had no visible exit holes. Seven elderberry shrubs are located along the levee and are within the project site. The other four elderberry shrubs occur within 100 feet of the construction footprint but will be directly affected by heavy machinery, access ramps and ground disturbance. The Corps has proposed compensation for the direct effects to the VELB inhabiting all eleven elderberry shrubs.

Conservation Measures

The Corps will adhere to all compensation measures outlined in their November 18, 2005, letter and follow the Services' *July 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines), specifically the trimming and transplant procedures which should occur during the shrubs dormant period from approximately November 1 through February 15, 2006.

2. The Corps will utilize no less than 0.7 acres as compensation for adverse effects to the beetle from construction of the proposed project. Compensation will occur at American River Watershed Project conservation site at RM 0.9R or other Service-approved site.
3. The Corps will ensure that all contractors and crews are briefed on the need to avoid damaging the elderberry shrubs and informed of the penalties for not complying with the avoidance measures.
4. The Corps will comply with reporting requirements and procedures pursuant to the incidental take of elderberry shrubs by this project. The Sacramento Endangered Species Office will be notified if elderberry shrubs outside the construction zone are disturbed in any way. The Service contact is Chief of Endangered Species Division, Sacramento Fish and Wildlife Office, at telephone (916) 414-6600.

5. The Corps will ensure that insecticides, herbicides, and fertilizers or other chemicals that might harm the beetle or its host plant will not be used during habitat restoration activities within 100 feet of elderberry shrubs with stems one inch or greater in diameter at ground level.
6. The Corps will appoint a Service approved biological monitor to be present on site during the transplanting activities and the monitor will work with construction personnel to insure that no unauthorized take of VELB occurs.
7. A qualified biologist will monitor the compensation sites twice annually for a period of ten consecutive years beginning the first year the transplanting and planting occurs. An annual report will be prepared and sent to the Sacramento Fish and Wildlife Office and will summarize the results of both monitoring visits as outlined in the Guidelines. Copies of the annual monitoring report must be submitted by December 31 of the same year.

Appending to the Programmatic Biological Opinion

The Service has determined that it is appropriate to append the proposed American River Common Features Pocket Area Geotech Project to the Programmatic Consultation. This letter is an agreement by the Service to append the proposed project to the Programmatic Consultation and represents the Service's biological opinion on the effects of the proposed action.

Compensation for projects appended to the Programmatic Consultation involves adhering to the Service's Guidelines, except as approved by the Service. Compensation implemented through the Guidelines should lead to the development of protected habitat areas distributed across the landscape. These protected areas can then be used as foundations for future habitat conservation plans by local communities. A copy of these Guidelines is found as an appendix to the Programmatic Consultation.

The Service is tracking the loss of beetle habitat permitted under the Programmatic Consultation. The Service reevaluates the effectiveness of this Programmatic Consultation at least every six (6) months to ensure continued implementation will not result in unacceptable effects to the beetle or the habitats upon which it depends.

In accordance with the Programmatic Consultation, projects that are appended to that biological opinion will be compensated according to these Guidelines unless otherwise approved by the Service. The compensation identified in the Programmatic Consultation includes the following: planting of additional elderberry seedlings or cuttings and planting associated native species at the compensation area(s).

The proposed project will adversely affect eleven elderberry shrubs with 33 stems one inch in diameter or greater at ground level that are suitable habitat for the beetle. The Corps will compensate for the potential adverse effects of the proposed project to the beetle by transplanting the eleven elderberry shrubs and planting an additional 85 elderberry seedlings and 85 associated

native plants on a total of 0.70 acres (Table 1) and will occur at American RM 0.9 or other Service-approved compensation site.

This concludes the Service's review of the proposed American River Common Features Pocket Area Geotech Project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may

Table 1. Elderberry stems directly affected and the proposed compensation for the American River Common Features Pocket Area Geotech Project Reach 9.

| Stem Size | # of Stems | Location | Exit Holes | Elderberry Seedling Ratio | # Elderberry Seedlings | Associated Native Ratio | # Associated Natives |
|--|------------|----------|------------|---------------------------|------------------------|-------------------------|----------------------|
| 1-3" | 23 | Riparian | No | 2:1 | 46 | 1:1 | 46 |
| 3-5" | 1 | Riparian | No | 3:1 | 3 | 1:1 | 3 |
| 5" + | 9 | Riparian | No | 4:1 | 36 | 1:1 | 36 |
| Total | 33 | | | | 85 | | 85 |
| Total 1,800 square foot basins needed = 17 | | | | | | | |
| Total Acres needed = 0.70 | | | | | | | |

affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or, (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding the biological opinion for the American River Common Features Pocket Area Geotech Project, please contact Stephanie Rickabaugh or the Acting Sacramento Valley Branch Chief at (916) 414-6724.

Sincerely,



Peter Cross
Deputy Assistant Field Supervisor

cc:

John Suazo, Corps, Sacramento District, Sacramento, California

Mr. Brandon C. Muncy

6

**California Department of Fish and Game, Region 2, Rancho Cordova, California
Department of Water Resources, Sacramento, California
Sacramento Area Flood Control Agency, Sacramento, California**



REPLY TO
ATTENTION OF
Environmental Resources Branch

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

JAN 24 2006

Mr. Wayne White, Field Supervisor
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

Dear Mr. White:

This letter is in reference to the American River Common Features Pocket Area Geotech project. We previously sent a letter on November 18, 2005, requesting initiation of formal consultation for the Federally listed valley elderberry longhorn beetle (*Desmocerus californicus*) under Section 7(a) of the Endangered Species Act, as amended. Specifically, the letter requested appending the programmatic Biological Opinion 1-1-96-F-66, Subject: Programmatic Formal Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office, California. A Biological Opinion (1-1-06-F-0017) was provided to us on December 7, 2005.

Rain events over the past month have resulted in prolonged high water levels in the Sacramento River in our project area. These high water levels have caused concern regarding conducting excavations in the levee in order to transplant five large elderberry clumps located in Reach 9 of the project. Specifically, there are engineering concerns about affecting levee stability and increasing hydraulic stress on the levee by excavating the elderberry clumps during these high river levels.

The transplant period for the elderberry clumps as noted in the December Biological Opinion ends on February 15. Due to these engineering concerns, it will be difficult to accomplish these transplants by this date under the current conditions. As a result, we are requesting to extend the transplant period by 30 days to March 15.

Please let us know as soon as possible if you concur with the proposed extension. If you need additional information, please contact Mr. John Suazo at (916) 557-6719 or email: john.suazo@usace.army.mil. Thank you for your attention to this matter.

Sincerely,

E. Scott Clark
Chief Planning Division

Copy furnished:

Ms. Stephanie Rickabaugh, U.S. Fish and Wildlife Service, 2800 Cottage Way,
Sacramento, CA 95825

Mr. Doug Weinrich, U.S. Fish and Wildlife Service, 2800 Cottage Way, Sacramento, CA
95825



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



IN REPLY REFER TO:

1-1-06-F-0050

FEB 9 2006

Mr. E. Scott Clark
Chief Planning Division
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Dear Mr. Clark:

Subject: Amendment to the Biological Opinion for the American River Common Features Pocket Area Geotech Project, Sacramento County, California (Service File Number 1-1-06-F-0017)

This is in response to a January 24, 2006, letter from the U.S. Army Corps of Engineers (Corps) requesting an amendment to the *American River Common Features Pocket Area Geotech Project, Sacramento County, California* project's biological opinion dated, December 7, 2005. Specifically the Corps is requesting an extension to the elderberry shrub (*Sambucus sp.*) transplant window for this project, due to this prolonged high water levels in the Sacramento River. At issue are the affects to the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) whose sole host plant is the elderberry shrub.

This letter revises the project description and the conservation measures for the beetle and amends these changes to the project's biological opinion, as appropriate. This amendment to the biological opinion is made under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The findings and recommendations in this consultation are based on: (1) the January 24, 2006, letter from the Corps requesting the amendment to the project's biological opinion; (2) the biological opinions on this project: 1-1-06-F-0017, dated December 7, 2006; (3) the site visit conducted by the Corps, Sacramento Areas Flood Control Agency (SAFCA), California Department of Water Resources (DWR), and the Service on January 11, 2005; (4) email correspondence and telephone conversations between John Suazo of the Corps, Peter Buck of SAFCA, Deborah Condon of DWR and Stephanie Rickabaugh of the Service; and (5) other information available to the Service.

TAKE PRIDE
IN AMERICA 

Therefore, the December 7, 2005, biological opinion is now amended to read:

Page 3 of the December 7, 2005 biological opinion: Conservation Measure Number 1

From: The Corps will adhere to all compensation measures outlined in their November 18, 2005, letter and follow the Services' *July 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines), specifically the trimming and transplant procedures which should occur during the shrubs dormant period from approximately November 1 through February 15, 2006.

To: The Corps will adhere to all compensation measures outlined in their November 18, 2005, letter and follow the Services' *July 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines). Recent safety concerns over the prolonged high water levels in the Sacramento River and the project area have raised concerns about excavating the elderberry clumps at Reach 9, of the project. Specifically the partners of the project (Corps, the Reclamation Board, and SAFCA) have raised engineering concerns about excavation affecting levee stability and increasing hydraulic stress on the levee in the project area. Given these safety concerns the Service is extending the transplant window for these shrubs from February 15, 2006 until March 15, 2006.

The other portions of the project description, species description, baseline, effects analysis, conclusion, incidental take, reasonable and prudent measures, and conservation recommendations in the December 7, 2005, biological opinion remain the same.

This concludes formal consultation with the U.S. Army Corps of Engineers on the American River Common Features Pocket Area Geotech project. As provided in 50 CFR §402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation.

Mr. E. Scott Clark

3

Please contact Stephanie Rickabaugh or the Holly Herod the Sacramento Valley Branch Chief of my staff at (916) 414-6724 if you have questions regarding this amendment to the biological opinion for this project.

Sincerely,

A handwritten signature in black ink that reads "Peter A. Cross". The signature is written in a cursive style with a large, stylized 'P' and 'C'.

Peter A. Cross
Deputy Assistant Field Supervisor

cc:

John Suazo, Corps, Sacramento District, Sacramento, CA
California Department of Fish and Game, Region 2, Rancho Cordova, California
Deborah Condon, Department of Water Resources, Sacramento, California
Peter Buck, Sacramento Area Flood Control Agency, Sacramento, California

Appendix C

Construction Emission Estimates using the Urban Emissions Model 7.5

Road Construction Emissions Model, Version 5.1

| Emission Estimates for -> Pocket Area Reach 2 | | | | | Exhaust | Fugitive Dust |
|---|---------------|--------------|---------------|----------------|----------------|----------------|
| Project Phases (English Units) | ROG (lbs/day) | CO (lbs/day) | NOx (lbs/day) | PM10 (lbs/day) | PM10 (lbs/day) | PM10 (lbs/day) |
| Grubbing/Land Clearing | 2 | 10 | 9 | 3 | 0 | 3 |
| Grading/Excavation | 7 | 36 | 47 | 5 | 2 | 3 |
| Drainage/Utilities/Sub-Grade | 10 | 36 | 51 | 5 | 3 | 3 |
| Paving | 7 | 37 | 49 | 3 | 3 | 0 |
| Maximum (pounds/day) | 10 | 37 | 51 | 5 | 3 | 3 |
| Total (tons/construction project) | 0 | 1 | 2 | 0 | 0 | 0 |

<-tons

Notes: Project Start Year -> 2006
 Project Length (months) -> 4
 Total Project Area (acres) -> 2
 Maximum Area Disturbed/Day (acres) -> 1
 Total Soil Imported/Exported (yd³/day)-> 207

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

| Emission Estimates for -> Pocket Area Reach 2 | | | | | Exhaust | Fugitive Dust |
|---|---------------|--------------|---------------|----------------|----------------|----------------|
| Project Phases (Metric Units) | ROG (kgs/day) | CO (kgs/day) | NOx (kgs/day) | PM10 (kgs/day) | PM10 (kgs/day) | PM10 (kgs/day) |
| Grubbing/Land Clearing | 1 | 5 | 4 | 1 | 0 | 1 |
| Grading/Excavation | 3 | 17 | 21 | 2 | 1 | 1 |
| Drainage/Utilities/Sub-Grade | 5 | 16 | 23 | 2 | 1 | 1 |
| Paving | 3 | 17 | 22 | 1 | 1 | 0 |
| Maximum (kilograms/day) | 5 | 17 | 23 | 2 | 1 | 1 |
| Total (megagrams/construction project) | 0 | | 2 | | 0 | 0 |

<-megagrams

Notes: Project Start Year -> 2006
 Project Length (months) -> 4
 Total Project Area (hectares) -> 1
 Maximum Area Disturbed/Day (hectares) -> 0
 Total Soil Imported/Exported (meters³/day)-> 158

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Road Construction Emissions Model

Version 5.1

Data Entry Worksheet

Note: Required data input sections have a yellow background.
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
 The user is required to enter information in cells C10 through C28.

SACRAMENTO METROPOLITAN



Input Type

| | | |
|--|---------------------|---|
| Project Name | Pocket Area Reach 2 | |
| Construction Start Year | 2006 | Enter a Year between 2000 and 2010 inclusive |
| Project Type | 2 | 1. New Road Construction 2. Road Widening 3. Bridge/Overpass Construction |
| Project Construction Time | 4 | months |
| Predominate Soil/Site Type: Enter 1, 2, or 3 | 2 | 1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock |
| On-Road Emission Factors: Enter 1, 2, or 3 | 2 | 1. Emfac7M1.1 4. Emfac2002 2. Emfac7G 3. Emfac2001 |
| Project Length | 0.3 | miles |
| Total Project Area | 2 | acres |
| Maximum Area Disturbed/Day | 1 | acres |
| Water Trucks Used? | 1 | 1. Yes 2. No |
| Soil Imported | 98 | yd ³ /day |
| Soil Exported | 109 | yd ³ /day |
| Average Truck Capacity | 10 | yd ³ (assume 20 if unknown) |

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C37 through C40.

| Construction Periods | User Override of | | Program |
|------------------------------|---------------------|--------|------------|
| | Construction Months | Months | Calculated |
| Grubbing/Land Clearing | 1 | 0.4 | |
| Grading/Excavation | 1 | 1.8 | |
| Drainage/Utilities/Sub-Grade | 2 | 1.2 | |
| Paving | 1 | 0.6 | |
| Totals | 4 | 4 | |

| 2000 | % | 2001 | % | 2002 |
|------|------|------|------|------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Hauling emission default values can be overridden in cells C48 through C50.

| User Input | User Override of | | | | |
|---|-----------------------|----------------|-----------|-------------|--|
| | Soil Hauling Defaults | Default Values | | | |
| Miles/round trip | 10 | 30 | | | |
| Round trips/day | 21 | 20.7 | | | |
| Vehicle miles traveled/day (calculated) | 207 | 621 | | | |
| Hauling Emissions | ROG | NOx | CO | PM10 | |
| Emission rate (grams/mile) | 1.05 | 7.33 | 8.06 | 0.42 | |
| Pounds per day | 0.5 | 3.3 | 3.7 | 0.2 | |
| Tons per construction period | 0.01 | 0.04 | 0.04 | 0.00 | |

Worker commute default values can be overridden in cells C62 through C67.

| Worker Commute Emissions | User Override of Worker | | | | |
|--|-------------------------|----------------|-----------|-------------|--|
| | Commute Default Values | Default Values | | | |
| Miles/ one-way trip | | 20 | | | |
| One-way trips/day | | 2 | | | |
| No. of employees: Grubbing/Land Clearing | | 3 | | | |
| No. of employees: Grading/Excavation | | 6 | | | |
| No. of employees: Drainage/Utilities/Sub-Grade | | 6 | | | |
| No. of employees: Paving | | 5 | | | |
| | ROG | NOx | CO | PM10 | |
| Emission rate (grams/mile) | 0.16 | 0.43 | 2.57 | 0.02 | |
| Emission rate (grams/trip) | 2.24 | 1.79 | 20.69 | 0.00 | |
| Pounds per day - Grubbing/Land Clearing | 0.0 | 0.1 | 0.7 | 0.0 | |
| Tons per const. Period - Grub/Land Clear | 0.0 | 0.0 | 0.0 | 0.0 | |
| Pounds per day - Grading/Excavation | 0.1 | 0.2 | 1.3 | 0.0 | |
| Tons per const. Period - Grading/Excavation | 0.0 | 0.0 | 0.0 | 0.0 | |
| Pounds per day - Drainage/Utilities/Sub-Grade | 0.1 | 0.2 | 1.3 | 0.0 | |
| Tons per const. Period - Drain/Util/Sub-Grade | 0.0 | 0.0 | 0.0 | 0.0 | |
| Pounds per day - Paving | 0.1 | 0.2 | 1.0 | 0.0 | |
| Tons per const. Period - Paving | 0.0 | 0.0 | 0.0 | 0.0 | |
| tons per construction period | 0.0 | 0.0 | 0.1 | 0.0 | |

Water truck default values can be overridden in cells C87 through C89 and E87 through E89.

| Water Truck Emissions | Program Estimate of | User Override of Water | Default Values |
|-----------------------|---------------------|------------------------|----------------|
|-----------------------|---------------------|------------------------|----------------|

| Water Truck Emissions | Number of Water Trucks | Number of Water Trucks | Truck Miles Traveled | Miles Traveled/Day |
|--|------------------------|------------------------|----------------------|--------------------|
| Grubbing/Land Clearing - Exhaust | | 1 | 5 | 40 |
| Grading/Excavation - Exhaust | | 1 | 5 | 40 |
| Drainage/Utilities/Subgrade | | 1 | 5 | 40 |
| | ROG | NOx | CO | PM10 |
| Emission rate (grams/mile) | 1.01 | 7.33 | 8.06 | 0.30 |
| Pounds per day - Grubbing/Land Clearing | 0.0 | 0.1 | 0.1 | 0.0 |
| Tons per const. Period - Grub/Land Clear | 0.00 | 0.00 | 0.00 | 0.00 |
| Pound per day - Grading/Excavation | 0.0 | 0.1 | 0.1 | 0.0 |
| Tons per const. Period - Grading/Excavation | 0.00 | 0.00 | 0.00 | 0.00 |
| Pound per day - Drainage/Utilities/Subgrade | 0.1 | 0.1 | 0.1 | 0.0 |
| Tons per const. Period - Drainage/Utilities/Subgrade | 0.00 | 0.00 | 0.00 | 0.00 |

Fugitive dust default values can be overridden in cells C104 and C105.

| Fugitive PM10 Dust | User Override of Max | Default | pounds/day | tons/per period |
|---|----------------------|---------------------|------------|-----------------|
| | Acreage/Day | Maximum Acreage/Day | | |
| Fugitive Dust - Grubbing/Land Clearing | | 0.5 | 2.5 | 0.0 |
| Fugitive Dust - Grading/Excavation | | 0.5 | 2.5 | 0.0 |
| Fugitive Dust - Drainage/Utilities/Subgrade | | 1 | 2.5 | 0.1 |

Off road equipment default number of vehicles can be overridden in cells B115 through B224.

| Off-Road Equipment Emissions | | | | | | |
|---|---------------------------|---------------------------|-------------------|-------------------|-------------------|-------------------|
| Grubbing/Land Clearing | Default | | | | | |
| Override of Default Number of Vehicles | Number of Vehicles | Type | ROG | CO | NOx | PM10 |
| | <i>Program-estimate</i> | | <i>pounds/day</i> | <i>pounds/day</i> | <i>pounds/day</i> | <i>pounds/day</i> |
| 0 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Compactor | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Cranes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Dozer | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | | Excavator | 1.84 | 9.44 | 9.04 | 0.47 |
| 0 | | Forklifts, Rough Terrain | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Grader | 0.00 | 0.08 | 0.00 | 0.00 |
| 0 | | Loaders, Rubber Tired | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Other Construction Equip. | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Pavers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Rollers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Scraper | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 |
| | | pounds per day | 1.8 | 9.4 | 9.0 | 0.5 |
| | | tons per period | 0.0 | 0.1 | 0.0 | 0.0 |
| Grading/Excavation | Number of Vehicles | | | | | |
| Override of Default Number of Vehicles | Program-estimate | Type | ROG | CO | NOx | PM10 |
| | | | <i>pounds/day</i> | <i>pounds/day</i> | <i>pounds/day</i> | <i>pounds/day</i> |
| 0 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Compactor | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 0 | Cranes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | |
|--------------------|---|--------------------------|------|-------|-------|------|
| 1 | | Dozer | 3.60 | 17.81 | 25.91 | 1.30 |
| 1 | 1 | Excavator | 1.84 | 9.44 | 9.04 | 0.47 |
| 0 | | Forklifts, Rough Terrain | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Grader | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 1 | Loaders, Rubber Tired | 0.92 | 4.17 | 6.33 | 0.43 |
| 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 0 | Other Construction Equip | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Pavers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Rollers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Scraper | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 |
| max pounds per day | | | 6.4 | 31.4 | 43.3 | 2.2 |
| tons per period | | | 0.1 | 0.3 | 0.5 | 0.0 |

| Drainage/Utilities/Subgrade | | Number of Vehicles | ROG | CO | NOx | PM10 |
|--|------------------|--------------------------|------------|------------|------------|------------|
| Override of Default Number of Vehicles | Program-estimate | Type | pounds/day | pounds/day | pounds/day | pounds/day |
| 0 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | | Bore/Drill Rigs | 5.75 | 14.94 | 16.77 | 0.86 |
| 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Compactor | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Cranes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | | Crushing/Proc. Equipment | 1.69 | 7.21 | 17.35 | 0.90 |
| 0 | | Dozer | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | | Excavator | 1.84 | 9.44 | 9.04 | 0.47 |
| 1 | | Forklifts, Rough Terrain | 0.76 | 2.81 | 5.06 | 0.43 |
| 0 | 1 | Grader | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Loaders, Rubber Tired | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Other Construction Equip | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Pavers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Rollers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Scraper | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | |
|---|---|---------------------------|---------------------------|-------------------|-------------------|-------------------|-------------------|
| | 0 | 1 | Trenchers | 0.0 | 0.0 | 0.00 | 0.0 |
| | | | max pounds per day | 0.1 | 34.4 | 50.2 | 2.7 |
| | | | tons per period | 0.2 | 0.8 | 1.1 | 0.1 |
| Faving | | | | ROG | CO | NOx | PM10 |
| Override of Default Number of Vehicles | | Number of Vehicles | Type | pounds/day | pounds/day | pounds/day | pounds/day |
| | 1 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1 | | Compactor | 2.08 | 12.77 | 11.46 | 0.62 |
| | 0 | | Cranes | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1 | | Dozer | 3.80 | 17.81 | 25.91 | 1.30 |
| | 0 | | Excavator | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Fordlfts, Rough Terrain | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1 | | Grader | 1.20 | 5.28 | 11.11 | 0.59 |
| | 0 | | Loaders, Rubber Tired | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Other Construction Equip. | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | 1 | Pavers | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | 1 | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | 1 | Rollers | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Scraper | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0 | | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 |
| | | | pounds per day | 6.9 | 35.9 | 48.5 | 2.5 |
| | | | tons per period | 0.0 | 0.2 | 0.3 | 0.0 |
| Total Emissions (tons per construction period) | | | | 0.3 | 1.4 | 1.9 | 0.1 |

12

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C235 through C256, E235 through E256, and G235 through G256.

| Equipment | Default Values | | Default Values | |
|--------------------------|----------------|--|----------------|-----------|
| | Horsepower | | Load Factor | Hours/day |
| Bore/Drill Rigs | 218 | | 0.75 | 8 |
| Concrete/Industrial Saws | 84 | | 0.73 | 8 |
| Cranes | 190 | | 0.43 | 8 |
| Crawler Tractors | 143 | | 0.575 | 8 |

| | | | |
|------------------------------|-----|-------|---|
| Crushing/Proc. Equipment | 154 | 0.78 | 8 |
| Excavators | 180 | 0.58 | 8 |
| Graders | 174 | 0.575 | 8 |
| Off-Highway Tractors | 255 | 0.41 | 8 |
| Off-Highway Trucks | 417 | 0.49 | 8 |
| Other Construction Equipment | 190 | 0.62 | 8 |
| Pavers | 132 | 0.59 | 8 |
| Paving Equipment | 111 | 0.53 | 8 |
| Rollers | 114 | 0.43 | 8 |
| Rough Terrain Forklifts | 94 | 0.475 | 8 |
| Rubber Tired Dozers | 352 | 0.59 | 8 |
| Rubber Tired Loaders | 166 | 0.465 | 8 |
| Scrapers | 313 | 0.68 | 8 |
| Signal Boards | 25 | 0.82 | 8 |
| Skid Steer Loaders | 62 | 0.515 | 8 |
| Surfacing Equipment | 437 | 0.49 | 8 |
| Tractors/Loaders/Backhoes | 79 | 0.465 | 8 |
| Trenchers | 82 | 0.695 | 8 |

Default load factors from SCAQMD CEQA Handbook, 1993.

Default horsepower values from Appendix B, California Air Resources Board's Offroad Model (see also Appendix B of this spreadsheet).

Signal board horsepower based on: U.S. EPA, 1998. Final Regulatory Impact Analysis: Control of Emissions from Nonroad Diesel Engines (EPA420-R-98-016).

0

47

END OF DATA ENTRY SHEET

Road Construction Emissions Model, Version 5.1

| Emission Estimates for -> Pocket Area Reach 9 | | | | | Exhaust | Fugitive Dust |
|---|---------------|--------------|---------------|----------------|----------------|-----------------|
| Project Phases (English Units) | ROG (lbs/day) | CO (lbs/day) | NOx (lbs/day) | PM10 (lbs/day) | PM10 (lbs/day) | PM10 (lbs/day) |
| Grubbing/Land Clearing | 0 | 1 | 0 | 3 | 0 | 3 |
| Grading/Excavation | 7 | 36 | 47 | 5 | 2 | 3 |
| Drainage/Utilities/Sub-Grade | 6 | 30 | 41 | 5 | 2 | 3 |
| Paving | 7 | 37 | 49 | 3 | 3 | 0 |
| Maximum (pounds/day) | 7 | 37 | 49 | 5 | 3 | 3 |
| Total (tons/construction project) | 0 | 1 | 2 | 0 | 0 | 0 <-tons |

Notes: Project Start Year -> 2006
 Project Length (months) -> 4
 Total Project Area (acres) -> 2
 Maximum Area Disturbed/Day (acres) -> 1
 Total Soil Imported/Exported (yd³/day)-> 103

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

| Emission Estimates for -> Pocket Area Reach 9 | | | | | Exhaust | Fugitive Dust |
|---|---------------|--------------|---------------|----------------|----------------|----------------------|
| Project Phases (Metric Units) | ROG (kgs/day) | CO (kgs/day) | NOx (kgs/day) | PM10 (kgs/day) | PM10 (kgs/day) | PM10 (kgs/day) |
| Grubbing/Land Clearing | 0 | 0 | 0 | 1 | 0 | 1 |
| Grading/Excavation | 3 | 17 | 21 | 2 | 1 | 1 |
| Drainage/Utilities/Sub-Grade | 3 | 14 | 19 | 2 | 1 | 1 |
| Paving | 3 | 17 | 22 | 1 | 1 | 0 |
| Maximum (kilograms/day) | 3 | 17 | 22 | 2 | 1 | 1 |
| Total (megagrams/construction project) | 0 | 1 | 2 | 0 | 0 | 0 <-megagrams |

Notes: Project Start Year -> 2006
 Project Length (months) -> 4
 Total Project Area (hectares) -> 1
 Maximum Area Disturbed/Day (hectares) -> 0
 Total Soil Imported/Exported (meters³/day)-> 79

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Road Construction Emissions Model Data Entry Worksheet

Version 5.1



Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells C10 through C28.

Input Type

| | | |
|--|---------------------|--|
| Project Name | Pocket Area Reach 9 | |
| Construction Start Year | 2006 | Enter a Year between 2000 and 2010 inclusive |
| Project Type | 2 | 1 New Road Construction 2 Road Widening 3 Bridge/Overpass Construction |
| Project Construction Time | 4 | months |
| Predominate Soil/Site Type: Enter 1, 2, or 3 | 2 | 1. Sand Gravel 2. Weathered Rock-Earth 3. Blasted Rock |
| On-Road Emission Factors: Enter 1, 2, or 3 | 2 | 1. Emfac7M1.1 4. Emfac2002 2. Emfac7G 3. Emfac2001 |
| Project Length | 0.3 | miles |
| Total Project Area | 2 | acres |
| Maximum Area Disturbed/Day | 1 | acres |
| Water Trucks Used? | 1 | 1. Yes 2. No |
| Soil Imported | 63 | yd ³ /day |
| Soil Exported | 40 | yd ³ /day |
| Average Truck Capacity | 10 | yd ³ (assume 20 if unknown) |

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells C37 through C40.

| Construction Periods | User Override of | | Program |
|------------------------------|---------------------|----------|------------|
| | Construction Months | | Calculated |
| | | Months | Months |
| Grubbing/Land Clearing | 0 | 0.4 | 0.4 |
| Grading/Excavation | 1 | 1.8 | 1.8 |
| Drainage/Utilities/Sub-Grade | 3 | 1.2 | 1.2 |
| Paving | 1 | 0.6 | 0.6 |
| Totals | 4 | 4 | 4 |

| 2000 | % | 2001 | % | 2002 |
|------|------|------|------|------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Hauling emission default values can be overridden in cells C48 through C50.

| User Input | User Override of | | | | |
|---|-----------------------|----------------|-----------|-------------|--|
| | Soil Hauling Defaults | Default Values | | | |
| Miles/round trip | 10 | 30 | | | |
| Round trips/day | 21 | 10.3 | | | |
| Vehicle miles traveled/day (calculated) | 207 | 309 | | | |
| Hauling Emissions | ROG | NOx | CO | PM10 | |
| Emission rate (grams/mile) | 1.05 | 7.33 | 8.06 | 0.42 | |
| Pounds per day | 0.5 | 3.3 | 3.7 | 0.2 | |
| Tons per construction period | 0.01 | 0.04 | 0.04 | 0.00 | |

Worker commute default values can be overridden in cells C62 through C67.

| Worker Commute Emissions | User Override of Worker | | | | |
|--|-------------------------|----------------|-----------|-------------|--|
| | Commute Default Values | Default Values | | | |
| Miles/ one-way trip | | 20 | | | |
| One-way trips/day | | 2 | | | |
| No. of employees: Grubbing/Land Clearing | | 3 | | | |
| No. of employees: Grading/Excavation | | 6 | | | |
| No. of employees: Drainage/Utilities/Sub-Grade | | 6 | | | |
| No. of employees: Paving | | 5 | | | |
| | ROG | NOx | CO | PM10 | |
| Emission rate (grams/mile) | 0.16 | 0.43 | 2.57 | 0.02 | |
| Emission rate (grams/trip) | 2.24 | 1.79 | 20.69 | 0.00 | |
| Pounds per day - Grubbing/Land Clearing | 0.0 | 0.1 | 0.7 | 0.0 | |
| Tons per const. Period - Grub/Land Clear | 0.0 | 0.0 | 0.0 | 0.0 | |
| Pounds per day - Grading/Excavation | 0.1 | 0.2 | 1.3 | 0.0 | |
| Tons per const. Period - Grading/Excavation | 0.0 | 0.0 | 0.0 | 0.0 | |
| Pounds per day - Drainage/Utilities/Sub-Grade | 0.1 | 0.2 | 1.3 | 0.0 | |
| Tons per const. Period - Drain/Util/Sub-Grade | 0.0 | 0.0 | 0.0 | 0.0 | |
| Pounds per day - Paving | 0.1 | 0.2 | 1.0 | 0.0 | |
| Tons per const. Period - Paving | 0.0 | 0.0 | 0.0 | 0.0 | |
| tons per construction period | 0.0 | 0.0 | 0.1 | 0.0 | |

Water truck default values can be overridden in cells C87 through C89 and E87 through E89.

| Water Truck Emissions | Program Estimate of | | User Override of Water | Default Values |
|-----------------------|------------------------|------------------------|------------------------|--------------------|
| | Number of Water Trucks | Number of Water Trucks | Truck Miles Traveled | Miles Traveled/Day |
| | | | | |

| | | | | |
|--|------------|------------|-----------|-------------|
| Grubbing/Land Clearing - Exhaust | | 1 | 5 | 40 |
| Grading/Excavation - Exhaust | | 1 | 5 | 40 |
| Drainage/Utilities/Subgrade | | 1 | 5 | 40 |
| | ROG | NOx | CO | PM10 |
| Emission rate (grams/mile) | 1.01 | 7.33 | 8.06 | 0.30 |
| Pounds per day - Grubbing/Land Clearing | 0.0 | 0.1 | 0.1 | 0.0 |
| Tons per const. Period - Grub/Land Clear | 0.00 | 0.00 | 0.00 | 0.00 |
| Pound per day - Grading/Excavation | 0.0 | 0.1 | 0.1 | 0.0 |
| Tons per const. Period - Grading/Excavation | 0.00 | 0.00 | 0.00 | 0.00 |
| Pound per day - Drainage/Utilities/Subgrade | 0.1 | 0.1 | 0.1 | 0.0 |
| Tons per const. Period - Drainage/Utilities/Subgrade | 0.00 | 0.00 | 0.00 | 0.00 |

Fugitive dust default values can be overridden in cells C104 and C105.

| Fugitive PM10 Dust | User Override of Max | Default | pounds/day | tons/per period |
|---|----------------------|---------------------|------------|-----------------|
| | Acreage/Day | Maximum Acreage/Day | | |
| Fugitive Dust - Grubbing/Land Clearing | | 0.5 | 2.5 | 0.0 |
| Fugitive Dust - Grading/Excavation | | 0.5 | 2.5 | 0.0 |
| Fugitive Dust - Drainage/Utilities/Subgrade | | 1 | 2.5 | 0.1 |

Off road equipment default number of vehicles can be overridden in cells B115 through B224.

| Off-Road Equipment Emissions | | | | | | | |
|---|---------------------------|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Grubbing/Land Clearing | | Default | ROG | CO | NOx | PM10 | |
| Override of Default Number of Vehicles | Number of Vehicles | Type | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| | <i>Program-estimate</i> | | | | | | |
| 0 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Compactor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Cranes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Dozer | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Excavator | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Forklifts, Rough Terrain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Grader | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Loaders, Rubber Tired | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Other Construction Equip. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Pavers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Rollers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Scraper | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | pounds per day | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | tons per period | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Grading/Excavation | | | | | | | |
| Override of Default Number of Vehicles | Number of Vehicles | Type | ROG | CO | NOx | PM10 | |
| | <i>Program-estimate</i> | | pounds/day | pounds/day | pounds/day | pounds/day | pounds/day |
| 0 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Compactor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 0 | Cranes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | |
|---------------------------|---|---------------------------|------------|-------------|-------------|------------|
| 1 | | Dozer | 3.60 | 7.81 | 25.91 | 1.30 |
| 1 | 1 | Excavator | 1.84 | 9.44 | 9.04 | 0.47 |
| 0 | | Forklifts, Rough Terrain | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Grader | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 1 | Loaders, Rubber Tired | 0.92 | 4.17 | 8.33 | 0.43 |
| 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 0 | Other Construction Equip. | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Pavers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Rollers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Scraper | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 |
| max pounds per day | | | 6.4 | 31.4 | 43.3 | 2.2 |
| tons per period | | | 0.1 | 0.3 | 0.5 | 0.0 |

| Drainage/Utilities/Subgrade | | Number of Vehicles | ROG | CO | NOx | PM10 |
|--|------------------|---------------------------|------------|------------|------------|------------|
| Override of Default Number of Vehicles | Program-estimate | Type | pounds/day | pounds/day | pounds/day | pounds/day |
| 0 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Compactor | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Cranes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | | Crushing/Proc. Equipment | 1.69 | 7.21 | 17.35 | 0.90 |
| 0 | | Dozer | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | | Excavator | 3.68 | 18.88 | 18.09 | 0.95 |
| 1 | | Forklifts, Rough Terrain | 0.78 | 2.81 | 5.08 | 0.43 |
| 0 | 1 | Grader | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Loaders, Rubber Tired | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Other Construction Equip. | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Pavers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Rollers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Scraper | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | |
|---|---|--------------------|------|------|------|------|
| 0 | 1 | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 |
| | | max pounds per day | 6.1 | 28.9 | 40.5 | 2.3 |
| | | tons per period | 0.2 | 0.8 | 1.1 | 0.1 |

| Paving | | Number of Vehicles | ROG | CO | NOx | PM10 |
|---|------------------|---------------------------|------------|------------|------------|------------|
| Override of Default Number of Vehicles | Program-estimate | Type | pounds/day | pounds/day | pounds/day | pounds/day |
| 0 | | Backhoes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Bore/Drill Rigs | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Concrete/Industrial Saws | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | | Compactor | 2.08 | 12.77 | 11.48 | 0.82 |
| 0 | | Cranes | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crawler Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Crushing/Proc. Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | | Dozer | 3.60 | 17.81 | 25.91 | 1.30 |
| 0 | | Excavator | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Forklifts, Rough Terrain | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | | Grader | 1.20 | 5.29 | 11.11 | 0.59 |
| 0 | | Loaders, Rubber Tired | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Off-Highway Trucks | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Other Construction Equip. | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Pavers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Paving Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Rollers | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Scraper | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | 1 | Signal Boards | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Skid Steer Loaders | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Surfacing Equipment | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Tractors | 0.00 | 0.00 | 0.00 | 0.00 |
| 0 | | Trenchers | 0.00 | 0.00 | 0.00 | 0.00 |
| | | pounds per day | 6.9 | 35.9 | 48.5 | 2.5 |
| | | tons per period | 0.0 | 0.2 | 0.3 | 0.0 |
| Total Emissions (tons per construction period) | | | 0.3 | 1.3 | 1.9 | 0.1 |

10

Equipment default values for horsepower, load factor, and hours/day can be overridden in cells C235 through C256, E235 through E256, and G235 through G256.

| Equipment | Default Values | | Default Values | |
|--------------------------|----------------|-------------|----------------|--|
| | Horsepower | Load Factor | Hours/day | |
| Bore/Drill Rigs | 218 | 0.75 | 8 | |
| Concrete/Industrial Saws | 84 | 0.73 | 8 | |
| Cranes | 190 | 0.43 | 8 | |
| Crawler Tractors | 143 | 0.575 | 8 | |

| | | | | | |
|------------------------------|-----|--|-------|--|---|
| Crushing/Proc. Equipment | 154 | | 0.78 | | 8 |
| Excavators | 180 | | 0.58 | | 8 |
| Graders | 174 | | 0.575 | | 8 |
| Off-Highway Tractors | 255 | | 0.41 | | 8 |
| Off-Highway Trucks | 417 | | 0.49 | | 8 |
| Other Construction Equipment | 190 | | 0.62 | | 8 |
| Pavers | 132 | | 0.59 | | 8 |
| Paving Equipment | 111 | | 0.53 | | 8 |
| Rollers | 114 | | 0.43 | | 8 |
| Rough Terrain Forklifts | 94 | | 0.475 | | 8 |
| Rubber Tired Dozers | 352 | | 0.59 | | 8 |
| Rubber Tired Loaders | 185 | | 0.465 | | 8 |
| Scrapers | 313 | | 0.66 | | 8 |
| Signal Boards | 26 | | 0.92 | | 8 |
| Skid Steer Loaders | 62 | | 0.515 | | 8 |
| Surfacing Equipment | 437 | | 0.49 | | 8 |
| Tractors/Loaders/Backhoes | 79 | | 0.465 | | 8 |
| Trenchers | 82 | | 0.695 | | 8 |

Default load factors from SCAQMD CEQA Handbook, 1993.

Default horsepower values from Appendix B, California Air Resources Board's Offroad Model (see also Appendix B of this spreadsheet).

Signal board horsepower based on: U.S. EPA, 1998. Final Regulatory Impact Analysis: Control of Emissions from Nonroad Diesel Engines (EPA420-R-98-016).

0 45

END OF DATA ENTRY SHEET

Appendix D

Correspondence Regarding Cultural Resources

210 2005

Environmental Resources Branch

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

Dear Mr. Donaldson:

The U.S. Army Corps of Engineers, Sacramento District, is writing in regard to the American River Common Features, Pocket Geotechnical Project, Sacramento County, California. The purpose of the project is to repair two levee reaches on the left bank levee adjacent to the Sacramento River. We are writing pursuant to 36 CFR 800.4(a)(1) to request your comments on our determination of the area of potential effects (APE), our determinations of eligibility for the National Register of Historic Places (NRHP), and our finding of no adverse effect in accordance with 36 CFR 800.4(c)(2) for the proposed project. Because of the accelerated schedule, we are also requesting an expedited review pursuant to 36 CFR 800.3(g). All supporting documentation for our determinations and finding are found in the enclosed memorandum (enclosure 1).

The APE for the Pocket Geotechnical Project includes river miles (RM) 51.8 to 52.7 at Reach 2 and RM 45.5 to 45.7 at Reach 9 along the left bank of the Sacramento River. Access routes and two staging areas, that is, 1/3-acre and 5-acre staging areas located at Reach 2 and 9, respectively, are located in these reaches. The APE is located on the Florin, Sacramento East, Sacramento West, and Clarksburg, California, U.S.G.S. 7.5-minute topographic maps (enclosure 1, attachments 1 and 2).

At Reach 2, the cutoff wall will be 1,750 feet in length and will use a deep soil mix method to address under-seepage and reinforce the levee. The depth of the cutoff wall will be a maximum of 110 feet. The batch plant to create the deep soil mix will be located in the 1/3-acre staging area on the berm on the waterside of the levee. An access road and third staging area approximately one-half acre in size have been identified south of Reach 2. The full width of the levee is approximately 100 feet in this area and will be used for transportation of vehicles, materials, and construction of the cutoff wall.

At Reach 9, the cutoff wall will be 1,500 feet in length and will use a conventional slurry wall method to address under-seepage at this location on the levee. The depth of the cutoff wall will be a maximum of 40 feet. Access to the site will be via Highway 5 and Freeport Boulevard. Two staging areas have been identified at this location. The parking lot at Cliff's Marina will be used for an equipment staging area. Additionally, an agricultural field on the east side of Freeport Boulevard may also be used for staging. The full width of the levee is approximately 75 feet in this area and will be used for transportation of vehicles, materials, and construction of the cutoff wall.

We checked the NRHP and the California Historic Bridge Inventory. We also contacted potentially interested Native Americans from a list provided by the California Native American

Heritage Commission in late 2005. To date, no responses have been received from the individuals on the list.

The records of the North Central Information Center at California State University, Sacramento, were checked for previous surveys and known historic properties within a 1-mile radius of the Pocket Geotechnical Project reaches. The search revealed that several cultural resource surveys have been conducted near the study area, largely due to its close proximity to downtown Sacramento, an area that has had a large number of building and development surveys. The search indicated that parts of the study area have been surveyed for cultural resources and that there is one known historic property located within the study area.

During field investigations in August, November, and December 2005, the Corps surveyed and examined all of the APE, including sections of the Pocket Geotechnical Project area where construction of the cutoff walls will take place, as well as the various access routes and staging areas. Three new cultural resources were found, and one previously known cultural resource was confirmed to be located within the APE. Copies of the enclosed memo and site records have been submitted to the North Central Information Center for assignment of primary numbers and/or trinomials and will be incorporated into their database.

The Corps has determined that the three newly discovered historic-era sites are not eligible for listing in the NRHP as discussed below:

Freeport Pump House – Currently owned and operated by the Sacramento Regional Sanitation District, this pump house was likely built in the 1920's. It is used as a river diversion from the Sacramento River to agricultural fields east of the levee and across Freeport Boulevard. The pump house remains in operation today, providing agricultural water May 1 through October 1 annually. The pump house may be temporarily removed, and sections of pipe will be replaced during project construction in order to construct the slurry wall at Reach 9. Since it is over 50 years old, we have recorded the resource (enclosure 1, attachment 6).

Based on NRHP evaluation criteria, we have determined that the Freeport pump house is not eligible for listing in the NRHP. Although the pump house has played a role in providing water to local agriculture, it has not made a significant contribution to any broad patterns of agriculture, farming, or history in the Freeport or surrounding areas. Dairy farming was most common in Freeport at the turn of the century, and the pump house could only be associated with that activity in a peripheral way. The pump house is not known to be associated with any significant persons and does not embody any distinct architectural characteristics of design, artistry, or materials. The pump house is also not likely to yield any information important to prehistory or history.

- **Davis and Roberts Property Trash Scatter** – Located adjacent to a residential home, this approximately 5-acre agricultural field was a part of an approximately 100-acre parcel owned by Davis and Roberts in 1885. This field is currently owned by a revocable trust established in 1950 under the name of Bellmeda L. Correa. Topographic maps dating back to 1909 indicate that there has never been a known structure on this portion of the

parcel. Sacramento County Assessor's records dating back to 1950 show that the property has been owned by the same family for more than 50 years. The precise origin of the trash scatter is unknown. Dumping is common in this area, and the field is open. The Walnut Grove Branch Line Railroad tracks are within 200 feet of the field, and debris next to railroad tracks is common. The area around the trash scatter will be used for staging and stockpiling of materials. No ground-disturbing activities will take place on the site. Since it is likely over 50 years old, we have recorded the resource (enclosure 1, attachment 7).

Based on the NRHP evaluation criteria, we have found that the Davis and Roberts property trash scatter is not eligible for listing in the NRHP. Overall, the trash scatter is not known to be associated with any events that have made a significant contribution to broad patterns in history, and it is not known to be associated with any significant person. The collection of less than a dozen fragments of glass does not represent any particular distinct architectural characteristics of design, artistry, or materials. The fragments may be from separate dumping events, and based on how they are scattered over a large area, they are not even likely to be related to each other. The trash scatter is also unlikely to yield any information important to the understanding of prehistory or history.

Sacramento River Levee RM 51.8 to 52.7 and RM 45.5 to 45.7 – The left bank levee at these river miles was likely built around 1905, as were many of the levees surrounding Sacramento. The levee has undergone many alterations since its original construction, including the addition of the Walnut Grove Branch Line Railroad tracks on top of the levee crown at RM 45.5 to 45.7. The Sacramento River levee RM 51.8 to 52.7 and RM 45.5 to 45.7 likely date to approximately 1905 when many of the levees around Sacramento were constructed. This date would coincide with increased dairy farming activities in this area, and would predate the construction of the Walnut Grove Branch Line Railroad by 4 years, making the date more likely to be accurate since the railroad tracks are built on top of the levee. At both locations, the levee will have a cutoff wall constructed down the middle of the levee crown to depths up to 110 feet. At Reach 9, grading of the levee crown will occur, and at Reach 2, several temporary access ramps will be constructed. Both sections of levee will be reconstructed to approximately their pre-construction state. Since the resource is over 50 years old, we have recorded the two levee sections separately (enclosure 1, attachments 8 and 9).

Based on the NRHP evaluation criteria, we have found that the Sacramento River levee RM 51.8 to 52.7 and RM 45.5 to 45.7 sections are not eligible for listing in the NRHP. Although the overall Sacramento levee system may be eligible for listing in the NRHP due to its association with flood management and agriculture in the Sacramento Valley, the system is not associated with any significant person, nor does it embody any particular distinct architectural characteristics of design, artistry, or materials. It is also not likely to yield any information important in prehistory or history. Although the overall Sacramento levee system may be eligible for listing in the NRHP under Criteria A, it does not meet the standards of integrity for eligibility or listing. The Sacramento levee system is in a constant state of alteration. Since its construction, numerous repairs and maintenance have been completed on various sections of the levee.

Many of these alterations were completed to strengthen the levee, provide annual maintenance, and provide flood protection to Sacramento. Therefore, due to its lack of integrity, we have determined that the segments of the Sacramento River levee RM 51.8 to 52.7 and RM 45.5 to 45.7 are not eligible for inclusion in the NRHP.

One previously recorded historic structure within the APE has previously been determined to be eligible for listing in the NRHP as discussed below:

- **Walnut Grove Branch Line Railroad** – Constructed in 1908, the railroad was constructed in order to compete with agricultural shipping and river traffic between Isleton and Sacramento. The railroad is considered unique because most of the line is elevated on top of the levees. Originally serving freight trains, passenger service was soon added to the railroad, and today the California State Railroad Museum (CSRM) uses a portion of the tracks for interpretive purposes.

The Walnut Grove Branch Line Railroad was evaluated to be eligible for listing in the NRHP by PAR Environmental Services, Inc., in 1991. The railroad was found to be eligible for its association with significant events as well as its embodiment of a unique engineering design and construction. It meets criteria for listing for possessing integrity of location, setting, design, workmanship, and feeling. The railroad was associated with both transportation of agriculture as well as people between 1909 and 1934. It connected communities in the upper Delta to markets and allowed farming to flourish more than if the railroad had not been constructed. Enclosure 1, attachment 10, is a copy of the NRHP Registration Form for the Walnut Grove Branch Line Railroad.

The Corps has determined that the project will affect the Walnut Grove Branch Line Railroad, but finds that pursuant to 36 CFR 800.5(b), the effects will not be adverse. The railroad will be affected by project construction. The ties, tracks, ballast, and all associated materials will be removed so that the slurry wall could be constructed in the levee. Additionally, the levee crown will be graded in order to support the construction easement needed for equipment. In accordance with 36 CFR 800.5(b), a mitigation plan has been developed in consultation with the California State Railroad Museum (enclosure 1, attachment 11). The mitigation plan has previously been used for mitigating adverse effects to the railroad in 1991 for the Sacramento Urban Area Flood Control Project and in August 2005 for the Sacramento River Bank Protection Project at RM 56.7 Left. The principle element of the mitigation plan is to restore the Walnut Grove Branch Line Railroad to a pristine working condition that will allow the railroad to regain its operational status.

The Corps will follow the mitigation plan for the Pocket Geotechnical Project at Reach 9. The levee will be rebuilt, and the railroad alignment will be reconstructed so that the integrity of location, setting, design, workmanship, and feeling will be retained. Since the railroad has undergone annual and regular maintenance by the California State Railroad Museum, the integrity of materials does not affect the property's eligibility. In other words, the replacement of the railroad and associated materials will not have an adverse effect. In fact, this mitigation plan will have a beneficial effect by restoring the

structure to its originally intended purpose, regular operations, maintenance, and public appreciation of its significance. Overall, the mitigation plan will allow the Corps to fully mitigate any effects to a level of no adverse effect.

The Corps requests that you concur with our determinations that the newly discovered historic resources are not eligible for the NRHP. We also request your concurrence with our determination that by implementing the approved mitigation plan, the levee repair work will have no adverse effects on the Walnut Grove Branch Line Railroad. The Corps further requests that you concur with our finding that the project as planned will not have an adverse effect on any historic properties eligible for the NRHP.

If you have any questions or comments, please contact Ms. Melissa Montag, Historian/Archeological Technician, at the above address, by phone at (916) 557-7907, or email: Melissa.L.Montag@usace.army.mil. You may also contact Mr. Daniel A. Bell, Archeologist, at (916) 557-6818 or by email: Daniel.A.Bell@usace.army.mil. Please contact Mr. Michael Mitchener, Project Manager, at (916) 557-7366 with any specific project questions.

Sincerely,

Brandon C. Muncy
Chief, Planning Division

Enclosure

cc:
SPK-PD
PD-R
EAS (Montag)
SPK-PM (Mitchener)

STEVENSON
CESPK-PD-RA

BELL/cc
CESPK-PD-RA

RINCK
CESPK-PD-RA

MITCHENER
CESPK-PM

CLARK
CESPK-PD-R

MUNCY
CESPK-PD



REPLY TO
ATTENTION OF

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

Environmental Resources Branch

Ms. Jeri Scambler
El Dorado Miwok Tribe
P.O. Box 1284
El Dorado, California 95623

NOV 23 2005

Dear Ms. Scambler:

The U.S. Army Corps of Engineers, Sacramento District, is writing you in accordance with 36 CFR 800.3(f)(2) to inform you of the proposed American River Common Features Pocket Geotech Project located on the east side of the Sacramento River, south of downtown Sacramento. The level of effort to identify traditional resources within the study area will be consistent with 36 CFR 800.4(b)(1). The area of potential effects (APE) is located on the Sacramento West, Clarksburg, and Florin, California, 7.5-minute U.S.G.S. topographic maps, T8N R4E, T7N R4E, on non-sectioned parcels of land (enclosure).

The purpose of the proposed project is to ensure that the levees on the Sacramento River are certified by the Federal Emergency Management Agency for a base flood event (100-year event). Geotechnical evaluation based on a review of explorations, laboratory test results, performance data, data evaluation, stability analyses, settlement, and seepage analyses revealed that two locations along the Sacramento River are not considered reliable to withstand the base flood event. Based on the geotechnical evaluations, it was recommended that a cutoff wall be constructed to a depth of 110 feet at both locations.

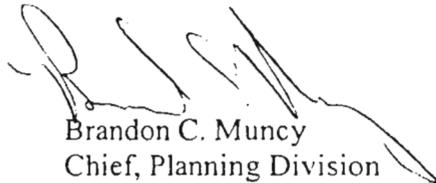
The APE includes these two locations, which are referred to as Geotech 2 and 9. Geotech 2 extends approximately 2,200 feet from river mile (RM) 51.8 to RM 52.2. Geotech 9 extends approximately 1,600 feet from RM 44.4 to RM 44.7. In addition to the 3,800 feet of construction, two staging areas are located near the geotechnical locations, as shown on the enclosure. The cutoff walls will be constructed from the levee crown at both geotechnical locations and will be connected to existing cutoff walls already in place from previous construction.

We have contacted the Native American Heritage Commission, who provided your name as being potentially interested in our proposed project. We are sensitive to traditional cultural properties and sacred sites, and make every effort to avoid them. We are aware of several sites located near the APE, including CA-SAC-43, which was mitigated for by the Corps in 1995 because of adverse effects from the Sacramento Urban Area Levee Reconstruction Project. No

known cultural properties or significant sites will be affected by the American River Common Features Pocket Geotech Project. Please let us know if you have knowledge of locations of archeological sites, or areas of traditional cultural interest or concern. Correspondence may be sent to: Ms. Melissa Montag (CESPK-PD-R), U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814-2922.

We also request that you reply within 30 days of receipt of this letter. If you have any questions or comments, please contact Ms. Montag, Historian, at (916) 557-7907. Please contact Mr. Michael Mitchener, Project Manager, at (916) 557-7366 with any specific project questions.

Sincerely,



Brandon C. Muncy
Chief, Planning Division

Enclosure