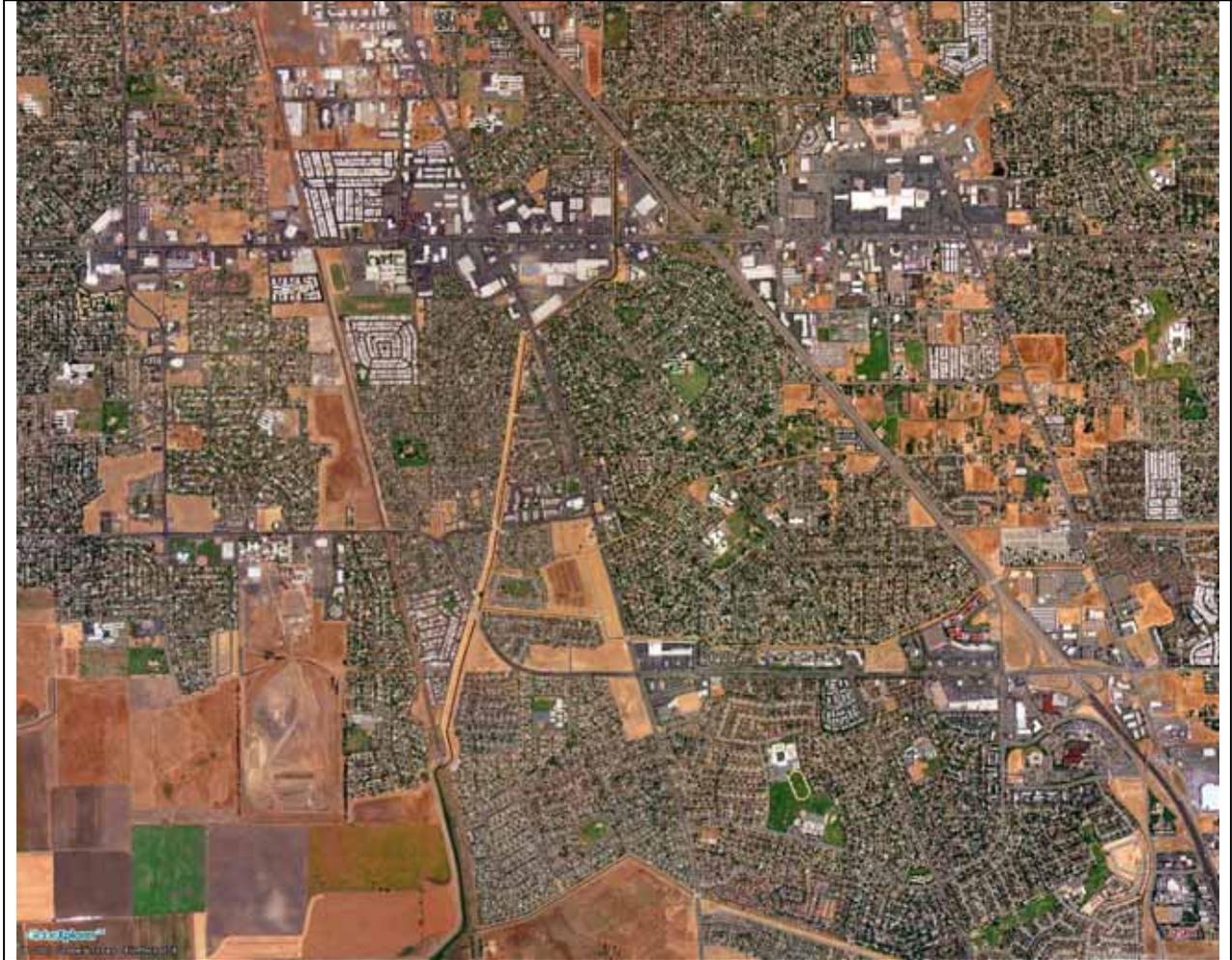


# **ENVIRONMENTAL ASSESSMENT**

## **SOUTH SACRAMENTO COUNTY STREAMS PROJECT DESIGN REFINEMENTS**



**Sacramento County, California**

**December 2004**



**US Army Corps  
of Engineers**  
Sacramento District

**ENVIRONMENTAL ASSESSMENT**

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## **1.0 PURPOSE AND NEED FOR THE ACTION**

### **1.1 Proposed Action**

The U.S. Army Corps of Engineers (Corps), State of California Reclamation Board (Rec Board), and Sacramento Areas Flood Control Agency (SAFCA) propose to make design refinements to the previously authorized South Sacramento County Streams Project in south Sacramento County, California.

### **1.2 Project Location**

The South Sacramento project area is located in the lower elevations of the Morrison Creek watershed. Most of the watershed is in the Sacramento Valley, while the eastern-most parts of the watershed are in the lower foothills of the Sierra Nevada. Generally, the Morrison Creek watershed lies south and east of the city of Sacramento. A small portion of the watershed includes a populated area in the southern portion of the city of Sacramento (see Figure 1). The “Morrison Creek stream group” includes Morrison, Florin, Elder, and Unionhouse Creeks.

For purposes of analysis, the project area was separated into a lower basin and an upper basin. The lower basin includes Morrison Creek downstream from the confluence with Unionhouse Creek, the North Beach Lake levee to the Sacramento River, and the Sacramento Regional Wastewater Treatment Plant. The upper basin includes Morrison Creek from Stockton Boulevard to its confluence with Unionhouse Creek, Elder Creek from Highway 99 to its confluence with Morrison Creek, Florin Creek from Stockton Boulevard to its confluence with Elder Creek, Elder Creek from Center Parkway to its confluence with Morrison Creek, and Unionhouse Creek from Center Parkway to the Union Pacific Railroad (UPRR) (Plate 1).

### **1.3 Background**

There is a long history of flooding and resulting flood damages on Morrison, Elder, Florin, and Unionhouse Creeks in the project area. At the request of the State and local interests in the mid-1990’s, the Corps conducted a feasibility-level study of the flooding problems and potential solutions in the lower Morrison Creek watershed. The Rec Board and SAFCA participated as the non-Federal sponsor and local sponsor, respectively, for the flood damage reduction features of the project.

The results of the study were included in the final South Sacramento Streams Investigation, California, Feasibility Report and Environmental Impact Statement/Environmental Impact Report (EIS/EIR), completed in March 1998. The report recommended a plan that would increase flood protection by raising existing levees in the lower basin and constructing floodwalls/sheetpiling in the upper basin of the project area. The features of the plan included:

- Construct about 12.6 miles of floodwalls.
- Raise about 4.6 miles of existing levee.
- Construct about 1.3 miles of new levees.

- Improve about 7.7 miles of existing levees with sheet-pile cutoff walls.
- Mitigation bank for adverse effects: 0.7-acre seasonal wetland, 0.2-acre riparian scrub-shrub, and 0.22-acre emergent marsh.
- Retrofit 17 bridges and remove one bridge.
- Administrate \$2 million fund by SAFCA to mitigate hydraulic effect at Stone Lakes.
- Restore ecosystem function of about 215 acres on four sites in SRWTP buffer lands.
- Construct about 4.2 miles of recreation trails.

This recommended plan was authorized by Congress in 1999, and the Corps, the Rec Board, and SAFCA proceeded into the preconstruction engineering and design phase (PED) of the project. In 2001, they decided to divide the PED phase of the project process into Phase I and Phase II. Phase I design covered the project features from the Sacramento River east to Franklin Boulevard. Phase II design would cover the remainder of the stream reaches up to Stockton Boulevard (or Highway 99 on Elder Creek and Center Parkway on Unionhouse Creek). Construction on Phase I would then be conducted during development of the Phase II design.

Review of the Phase I designs in August 2002 indicated that the hydraulic and hydrologic information used for the designs warranted updating. Subsequent reanalysis of the hydraulics and hydrology for the project in 2003 showed that the feasibility-level design in the Phase II portion of the project would not provide sufficient channel capacity (level of flood protection) to remove the Phase II area from Federal Emergency Management Agency (FEMA) flood insurance requirements. At the same time, it was determined that the Phase I design was more than adequate to meet FEMA flood protection requirements.

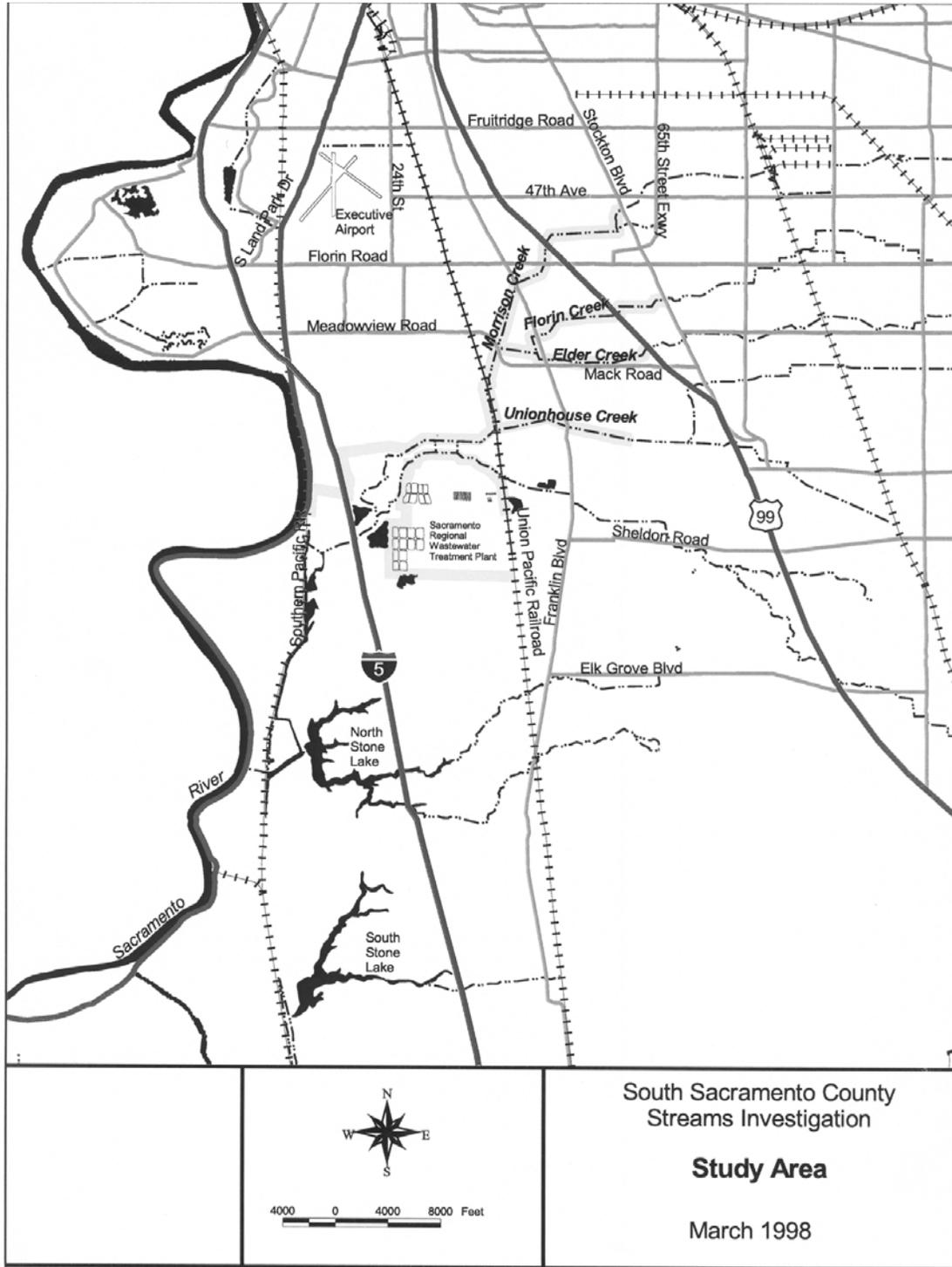
The reanalysis of the hydraulic design for the Phase II portion of the project was completed in December 2003. Based on this reanalysis, design refinements were proposed to the Phase II design in order to meet the minimum FEMA certifiable 100-year level of flood protection. These design refinements are located in the upper basin of the project area. There are no proposed design refinements in the lower basin.

#### **1.4 Project Authority**

The South Sacramento project was authorized in the Water Resources Development Act of 1999 (Public Law 106-53). The Record of Decision for the 1998 EIS/EIR was provided by the Chief of Engineers on June 28, 2000.

#### **1.5 Previous Environmental Documents**

Several previous environmental documents are relevant to the proposed action. These documents provided information about existing environmental, socioeconomic, and cultural conditions in the area; the effects of various actions on the resources in the area; and potential measures to avoid, minimize, or offset any significant effects.



FEIS 1-2

Figure 1-1

**Figure 1. Project Vicinity Map**

The Sacramento County Streams Investigation, California, EIS/EIR, was completed by the Corps in March 1998. This document described the affected environment near the treatment plant and along the creeks in the south Sacramento area; evaluated the direct, indirect, and cumulative environmental effects and evaluated benefits of the selected plan and three alternative plans, and recommended mitigation measures. The 1998 EIS/EIR provides the basis for comparison of the existing conditions and environmental effects of the authorized project without and with the proposed design refinements.

The Franklin and Boyce Detention Basin Project, IS/Mitigated Negative Declaration (Neg Dec), was completed by the City of Sacramento in November 2000. This document evaluated the environmental effects of constructing a new 8-acre stormwater detention basin west of Franklin Boulevard across from Boyce Drive with a 1,000-foot pipe extension along Boyce Drive. Construction of the basin would involve excavating approximately 130,000 cubic yards of soil and hauling it offsite. Some of this soil would be used as borrow material for the South Sacramento project, and part of the basin would be used as a staging area. As a result, construction of the basin (without the pipeline) is considered to be a proposed design refinement.

Construction of the basin was not included in the 1998 EIS/EIR. However, the evaluation in the 2000 IS/Neg Dec satisfies NEPA requirements except for the Federal Endangered Species Act and Section 106 of the National Historic Preservation Act. The Corps has obtained an updated list of species from the USFWS. No Federally listed species occur in the basin although burrowing owls were observed near the confluence of Florin and Elder Creeks outside the proposed staging area. Regarding cultural resources, previous literature searches included the detention basin area. However, the Corps conducted a field visit and has initiated consultation with the California State Historic Officer regarding cultural resources. Results of field visits confirmed that there were no unidentified cultural resources at the detention basin area.

The Supplemental EIR/EA for the South Sacramento County Streams Project, Camray Borrow Site and Additional Aspects of Levee Work on North Beach Lake Levee, was completed by SAFCA and the Corps in October 2001. This document evaluated the environmental effects of using the Camray borrow site and haul road, as well as effects to elderberry shrubs discovered near the North Beach Lake levee since certification of the final EIS/EIR for the project. The borrow site and elderberry shrubs are located in the lower basin.

## **1.6 Purpose of the EA**

This EA (1) describes the existing environmental resources in the project area as compared to the 1998 EIS/EIR, (2) evaluates the environmental effects of the proposed design refinements on those resources, and (3) if the effects are different from the potential effects in the 1998 EIS/EIR, proposes mitigation measures to avoid, minimize, or reduce any adverse environmental effects to less-than-significant levels. This EA fulfills the requirements of the National Environmental Policy Act (NEPA).

## **1.7 Decisions That Must Be Made**

The District Engineer, commander of the Sacramento District Corps of Engineers, must decide whether or not the proposed design refinements qualify for a finding of no significant impact or whether a supplemental environmental impact statement must be prepared.

## **2.0 ALTERNATIVES**

### **2.1 Alternative 1 – No Action**

Under the no action alternative, the Corps would not participate in the construction of the flood damage reduction features included in the previously authorized South Sacramento project. The risk of flooding and resulting flood damages due to limited channel capacity in the lower Morrison Creek watershed would continue as described in the 1998 EIS/EIR. Continued urbanization in the upper basin would likely result in increased flows in the future.

### **2.2 Alternative 2 – Proposed Design Refinements**

The proposed design refinements in this EA are refinements to the feasibility-level plan in the 1998 EIS/EIR, which identified Alternative 4 – Consistent High Protection Plan as the selected plan. The primary difference between the original design and the refined design is the increase in channel capacity through channel excavation, bridge retrofits, and box culverts. Detailed plan and profile drawings of the design refinements are shown on Plate 2, Sheets 1-10.

#### **2.2.1 Design Refinement Measures**

##### **Channel Excavation**

Channel excavation would involve deepening and/or widening the existing channel to increase the volume (channel capacity) of the channel. Equipment and materials would travel or be transported on local roadways to the construction sites. Existing ramps would be used to access the channel, when possible, or temporary ramps would be constructed, if needed. Existing service roads would also be used, if available. The staging areas would be within the channels.

Channel excavation would be conducted using in-channel construction methods. First, the channel would be dewatered by installing temporary cofferdams and diverting streamflow around the section to be excavated. Since most of the creek channels have concrete low-flow channels at the bottom, channel deepening would require removal of the existing concrete low-flow channel. Old concrete would be ripped up and disposed of at an approved waste site authorized to accept concrete waste. The total volume of concrete to be removed is approximately 10,000 cubic yards.

Vegetation on the channel banks and bottom would then be cleared and transported to the nearest dump or landfill for disposal. Excavated soil from Morrison, Elder, and Florin Creeks would be transported to and spread on the Regional Sanitation District area west of Morrison Creek. Excavated material from Unionhouse Creek would be placed on the adjacent vacant area along the creek for use by the Sacramento Regional Transit District (Sacramento Regional Transit District, 2004b). The total volume of cleared vegetation and soil to be excavated and

removed is approximately 250,000 cubic yards. Of that volume, 89,500 cubic yards would come from Unionhouse Creek. Plate 3 shows a cross section of Unionhouse Creek and the proposed light rail track.

The concrete low-flow channel would be reconstructed after excavation, floodwall construction, and other design measures are complete in each section. The concrete lining would be reconstructed at its original width, leaving portions of the channel bottoms unlined. The concrete would be allowed the appropriate amount of time to cure. As construction is completed in a stream section, equipment would be removed from the staging area. The cofferdam would then be removed, and streamflow would be diverted back into the stream channel, as design specifications and water quality restrictions would require.

### **Bridge Retrofitting**

Bridge retrofitting would involve modifying a bridge's structure to ensure unimpeded passage of flows under the bridge. Prior to the refined design, proposed bridge modifications included concrete aprons, new parapet walls, in-fill walls, and plugging of deck drains. In addition, a stop-log structure would be installed at the UPRR bridges. Based on the lowered streambeds in the refined design, foundation modifications to several of the bridges would also be necessary. All the bridges have concrete channels under them. Once the concrete channel is removed, selected foundation piers would be excavated, and the spread footing would be removed. A new spread footing at the correct elevation would be constructed using reinforced concrete. Temporary shoring would be used to support the affected portion of the bridge during this work. This work would be required at 11 bridges.

### **Drop Structures**

Drop structures, or weirs, would be constructed in channels where required to avoid potential erosion due to grade breaks. Grade breaks are anticipated at the upstream end of the project reaches where the excavated channel would merge with the existing channel. Typical construction of drop structures would entail shallow excavation, construction of concrete forms, and placement of reinforced concrete. Where necessary, drop structures would be stepped to allow for fish passage. The drop structures/weirs would include a 15-foot concrete apron upstream of the drop structure to prevent channel scouring and resultant sediment buildup at the drop structure. The refined design calls for 11 drop structures within the project channel reaches. As with channel excavation, drop structures would be constructed while cofferdams are in place and streamflow is diverted around the construction area.

### **Additional Box Culverts at Road Crossings**

Additional box culverts would be constructed across the Florin Creek culvert crossings at Center Parkway, Persimmon Avenue, and Orange Drive to increase the effective flow area and reduce the head loss. The new box culverts would either be constructed by jacking and boring concrete box culverts under the traveled way, or by traditional open cut construction using precast concrete box culverts. The details of construction will be further refined during final design. Construction of box culverts at each site is expected to take 6 to 8 weeks. Because this work would be in three separate locations, the work could be done concurrently.

### **Floodwall/Sheetpile**

Floodwall/sheetpile construction would be the same as described in the 1998 EIS/EIR. In general, floodwall construction would be staged in the channel as described for channel excavation. Cranes would be used to lift material and equipment to wall locations on the tops of the levees or banks.

### **2.2.2 Design Refinements by Stream Reach**

The feasibility study used four index areas as shown in Figure 2. These areas were used in the technical analysis because they had similar hydrologic, hydraulic, and economic characteristics. To facilitate the comparison between the feasibility study and the refined design, the proposed refinements in each index area are summarized by respective creek in Table 1. Design changes by stream reach are discussed in more detail below.

#### **Morrison Creek**

Average floodwall heights along Morrison Creek would be between 1.3 feet and 3.0 feet above the existing levee/bank height as a result of the design refinements. There are several isolated locations where the floodwall heights are as high as 7 feet. However, these short stretches are typically leading into bridge crossings where floodwall heights would match the height of the bridges.

*Channel Excavation.* For Morrison Creek, the channel excavations would be contained within the lateral limits of the existing channel. The depth of the excavation varies from 0 feet to 3.0 feet. Channel side slopes would be excavated to a minimum ratio of 1 vertical:2 horizontal (1V:2H) in earthen sections. Existing side slopes that exceed this ratio would not be excavated.

*Bridge Retrofitting.* Following is a short description of the proposed refinements for each bridge. A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

- UPRR Bridge: install stop logs at both ends of bridge.
- Mack Road Bridge: none required.
- Brookfield Drive Bridge: construct in-fill walls; seal existing parapet joints.
- G Parkway Bridge: construct new, continuous spread footings integral with the seven piles in each pier.
- Franklin Boulevard Bridge: construct new parapets on both sides of bridge; construct in-fill walls; seal parapet joints.

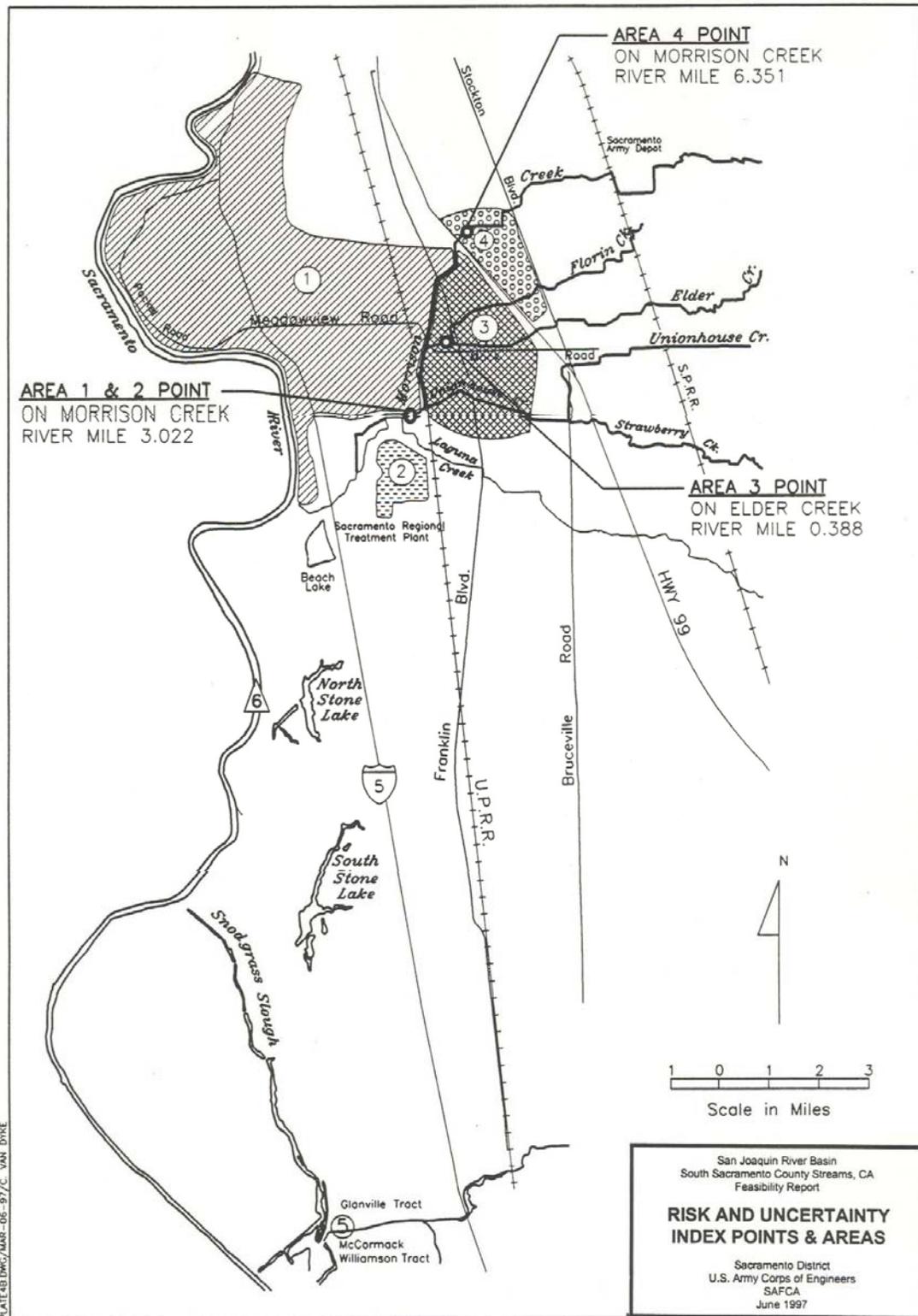


Figure 2. 1998 Feasibility Study Index Areas

**Table 1. Comparison of Design Refinement Features to Original Design Features**

Creek Reach and Feature	Original Design	Refined Design
<b>Index Area 1 – Pocket Area (Morrison Creek right bank)</b>		
<i>Morrison Creek (right/west bank only)</i>		
Sacramento River to UPRR Bridge stream reach	<b>No Refinements</b>	
UPRR Bridge to Highway 99 stream reach <sup>1</sup>		
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	9
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	2	3
Drop Structures (unit)	0	1
Floodwall/Sheetpile height (feet)	0.7 - 4.0	0.2 – 7.7 (Avg. 2.2)
Floodwall lengths on minor tributaries (feet)	0	32,828 (Ht: 0 ft. - 3.41 ft.)
<b>Index Area 2 – Sacramento Regional Wastewater Treatment Plant</b>		
No Refinements		
<b>Index Area 3 – Morrison Creek Stream Group Below Highway 99</b>		
<i>Morrison Creek (left/east bank only)</i>		
Unionhouse Creek to UPRR Bridge stream reach <sup>4</sup>		
Channel Excavation – depth (feet)	0	0 – 1.1
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	0
Floodwall/Sheetpile height (feet)	3.3 - 3.5	0.7 – 1.6 (Avg 1.3)
UPRR Bridge to Franklin Boulevard stream reach		
Channel Excavation – depth (feet)	0	1.1 – 2.0
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	0
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	Included in Area 1	Included in Area 1
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	Included in Area 1
Floodwall/Sheetpile height (feet)	0-3.0	0.1 – 3.0 (Avg 1.5)
Franklin Boulevard to Highway 99 stream reach <sup>6</sup>		
Channel Excavation – depth (feet)	0	2.6 – 3.3
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	0
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	Included in Area 1	Included in Area 1
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	Included in Area 1
Drop Structures (unit)	0	1
Floodwall/Sheetpile height (feet)	2.1-4.0	1.1 – 5.8 (Avg 3.0)
<i>Unionhouse Creek</i>		
Morrison Creek to Franklin Boulevard stream reach <sup>7</sup>		
Channel Excavation – depth (feet)	0	0.1 – 4.8 (Avg 2.5)
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	20 – 135
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	2
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	0
Levee height increase, north levee (feet)	2.2 - 3.5	0 – 2.9 (Avg 1.9)
<i>Elder Creek</i>		
Morrison Creek to Franklin Boulevard stream reach <sup>8</sup>		
Channel Excavation – depth (feet)	0	1.2 – 1.9

<b>Creek Reach and Feature</b>	<b>Original Design</b>	<b>Refined Design</b>
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	0
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	1
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	0
Levee height increase (feet)	1.9 - 2.2	0.1 – 4.8 (Avg 2.2)
<b>Franklin Boulevard to Highway 99 stream reach</b>		
Channel Excavation – depth (feet)	0	1.6 – 1.2
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	0
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	5
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	4
Drop Structures (unit)	0	1
Floodwall/Sheetpile height (feet)	1.6 - 3.8	0.1 – 5.1 (Avg 2.2)
<i>Florin Creek</i>		
<b>Elder Creek to Highway 99 stream reach<sup>9</sup></b>		
Channel Excavation – depth (feet)	0	0.5 – 2.4
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	10 – 60
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	4
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	3
Drop Structures (unit)	0	1
Floodwall/Sheetpile height (feet)	0 - 4.0	0.2 – 5.6 (Avg 2.5)
Additional box culverts (unit)	0	3
<b>Franklin Boulevard to Center Parkway stream reach<sup>10</sup></b>		
Channel Excavation – depth (feet)	0	2.1 – 2.5
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	40 – 50
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	1
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	0
Drop Structures (unit)	0	1
Floodwall/Sheetpile height (feet)	1.0 - 6.7	0.1 – 4.8 (Avg 2.2)
<b>Index Area 4 – Morrison Creek Stream Group between Highway 99 and Stockton Boulevard</b>		
<i>Morrison Creek</i>		
<b>Highway 99 to Stockton Boulevard stream reach<sup>11</sup></b>		
Channel Excavation – depth (feet)	0	2.5 – 3.3
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	0
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	4
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	3
Drop Structures (unit)	0	3
Floodwall/Sheetpile height (feet)	3	0.4 – 6.7 (Avg 2.3)
<i>Florin Creek</i>		
<b>Highway 99 to Stockton Boulevard stream reach<sup>11</sup></b>		
Channel Excavation – depth (feet)	0	0.0 – 2.4
Channel Excavation – increase in top width (feet) <sup>5</sup>	0	30 – 45
Bridge Retrofit-Below Deck (unit) <sup>2</sup>	0	1

<b>Creek Reach and Feature</b>	<b>Original Design</b>	<b>Refined Design</b>
Bridge Retrofit-Above Deck (unit) <sup>3</sup>	0	1
Drop Structures (unit)	0	1
Floodwall/Sheetpile height (feet)	6.5	No walls

<sup>1</sup> Includes the UPRR Bridge and all bridges to Highway 99.

<sup>2</sup> Below deck retrofits include at least one of the following: infill walls between columns, concrete lining, foundation modifications, and/or additional culverts.

<sup>3</sup> Above deck retrofits include at least one of the following: parapet walls, deck drain plugs, and/or stop logs at railroad bridges.

<sup>4</sup> Excludes the UPRR Bridge.

<sup>5</sup> Increase in top width is the added width of the channel between tops-of-bank or tops of levee following implementation of the design refinements.

<sup>6</sup> Excludes Franklin Boulevard and includes all bridges including Highway 99.

<sup>7</sup> Includes all bridges to and including Franklin Boulevard.

<sup>8</sup> Includes Franklin Boulevard.

<sup>9</sup> Includes all bridges including Highway 99.

<sup>10</sup> Excludes Franklin Boulevard and includes all bridges including Center Parkway.

<sup>11</sup> Excludes Highway 99 and includes all bridges including Stockton Boulevard.

- Center Parkway Bridge: construct new, standard height parapets on both sides of bridge; construct in-fill walls; plug deck drains; construct new spread footing at each pile; seal parapet joints.
- Florin Road Bridge: construct new parapets on both sides of bridge; construct in-fill walls; plug deck drains; seal parapet joints.
- State Route 99 Bridges: extend existing pier walls and construct new, lower, continuous spread footings.
- Sky Parkway Pedestrian Bridge: construct new parapets on both sides of bridge; extend concrete pier wall and construct new, lower pier wall footing; seal parapet joints.
- Steiner Drive Bridge: construct new standard height parapet on upstream side of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower spread footing at each pile; seal upstream parapet joints.
- 53rd Street/Riza Avenue Pedestrian Bridge: extend concrete pier wall and construct new, lower pier wall footing.
- Stockton Boulevard Bridge: construct new standard height parapet on both sides of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower, continuous spread footing connecting all 11 columns at each pier; seal parapet joints.

Drop Structures. There are two drop structures designed for the main channel of Morrison Creek: one upstream of Stockton Boulevard and one downstream of Stockton Boulevard. In addition, three drop structures would be constructed in the three unnamed tributaries to Morrison Creek.

Extend Floodwalls Up Tributaries of Morrison Creek. The project improvements could potentially be outflanked by upstream floodflows along three minor tributaries to Morrison Creek. In order to avoid this outflanking, floodwalls would be extended up the tributaries at an elevation equal to that of the potential floodwalls on Morrison Creek at the confluence.

### **Elder Creek**

Floodwall heights along Elder Creek would be constructed up to 5.1 feet above the existing levee/bank height as a result of the design refinements. This maximum wall height is approximately 1 foot higher than the original design. The existing levee between Morrison Creek and Franklin Boulevard would be raised as described in the original design.

Channel Excavation. Channel depth excavation on Elder Creek would lower the channel profile about 1.5 feet. Channel excavation would not exceed the existing top width of the

channel. Side slopes would be excavated at a ratio of at least 1V:2H. Bottom widths of the channel would vary from 15 feet to 25 feet.

*Bridge Retrofitting.* Following is a short description of refinements proposed for each bridge. A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

- Franklin Boulevard Bridge: none required.
- Tangerine Avenue Bridge: construct in-fill walls; plug deck drains; seal existing parapet joints.
- Center Parkway Bridge Southbound: construct in-fill walls; plug deck drains; seal existing parapet joints.
- Center Parkway Bridge Northbound: construct in-fill walls.
- LaMancha Avenue Bridge: construct new standard height parapet on both sides of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns and construct new, lower spread footing at all four columns at each of three piers; seal parapet joints.
- State Route 99 Bridges: construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower, continuous spread footing at 10 columns at each of three piers.

*Drop Structures.* One drop structure downstream of Highway 99 would be constructed in Elder Creek.

### **Florin Creek**

Floodwall heights along Florin Creek would be constructed up to 5.6 feet above the existing levee/bank height as a result of the design refinements. This is approximately 1 foot lower than the original design. Also, whereas the original design specified floodwalls between Highway 99 and Stockton Boulevard, the refined design indicates that floodwalls would not be needed on this stretch of Florin Creek. Hydraulic analysis indicated that while overbank flow could still occur in this reach for the 100-year event, the available information indicates that flood damages would be minimal. The affected area comprises agricultural/fallow land and the open space areas of a park, neither of which would be significantly damaged by flooding. Also, constructing floodwalls upstream of Highway 99 on Florin Creek would affect the existing drainage patterns (local drainage) since this reach does not currently have levees/floodwalls.

The existing levees on Florin Creek between Elder Creek and Franklin Boulevard would be raised as described in the original design.

Channel Excavation. Channel excavation on Florin Creek is proposed from the confluence at Elder Creek to the downstream side of Orange Drive. Sensitivity studies showed that there was little to no benefit to channel excavation upstream of Orange Drive. The reach between Orange Drive and Stockton Boulevard is a fairly short reach, approximately 650 feet. Various channel widening alternatives were modeled in this reach with little or no change in the water-surface elevation. The design on the remaining reaches on Florin Creek would be refined through channel excavation as follows:

- From the confluence at Elder Creek to Franklin Boulevard, the bottom width of the channel would be cut to 10 feet wide. Side slopes would be at 1H:2V ratio. The channel bottom would be excavated approximately 2 feet. Top width of the channel would be extended an additional 15 feet to 20 feet beyond the existing left (south or east) bank.
- From Franklin Boulevard to river station 3479, existing development encroachment on the immediate overbank areas has restricted any bank modifications. Therefore, the current channel top width would remain unchanged. The bottom width would be 5 feet with approximately 0.5 foot excavated from the channel depth. Existing channel side slopes would be maintained.
- From river station 3479 to Persimmon Avenue, the creek right-of-way increases on the right bank. The bottom width of the channel would be increased in this area with ranges from 15 feet to 25 feet. Top width of the channel would be increased approximately 20 feet toward the right (north) bank. Bottom depth excavation would be approximately 1 foot.
- From Persimmon Avenue to Orange Drive, there is a section of existing bike trail on the right bank of the creek. This section of trail, which is paved and extends for approximately 4,000 feet, would be used to increase the top width of the channel an additional 10 feet. The bike trail would be reconstructed as an integral part of the new channel. Bottom depth excavation would be up to 1 foot. Bottom width would be increased to 20 feet up to Highway 99 and to 25 feet from Highway 99 to Orange Drive.

Bridge Retrofitting. Following is a short description of refinements proposed for each bridge. A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

- Franklin Boulevard Bridge: convert existing south abutment to a pier using the existing piles and pile cap; construct a new south abutment approximately 12 feet to the south of the existing abutment on CIDH concrete or driven piles; construct new 12-foot reinforced concrete slab span; seal parapet joints. Alternatively, the addition of a concrete box culvert at the south end of the span is also being considered in lieu of constructing a new 12-foot span on the bridge.
- Brookfield Drive Bridge: construct new standard height parapet on both sides of bridge; plug deck drains; construct in-fill walls; seal parapet joints.

- Center Parkway Culvert: construct new parapet on both sides of bridge; construct two new box culvert cells 5.5 feet wide by 7.0 feet tall on right side of and lower than existing cells; seal parapet joints.
- Persimmon Drive Culvert: construct new parapet on both sides of bridge; construct one new box culvert cell 8.0 feet wide by 6.0 feet tall on right side of and lower than existing cells; seal parapet joints.
- State Route 99 Culvert: none required.
- Orange Avenue Culvert: construct new standard height parapet on both sides of bridge; construct two new box culvert cells 7.8 feet wide by 5.5 feet tall, one on each side of existing cells; seal parapet joints.
- Stockton Boulevard Bridge: none required.

*Additional Box Culverts at Road Crossings.* To increase the effectiveness of hydraulic flow at the culvert crossings at Center Parkway, Persimmon Avenue, and Orange Drive, additional box culverts are proposed. At Center Parkway, two 5.5-foot by 7-foot box culverts would be added to the right of the existing culverts. At Persimmon Avenue, one 8-foot by 6-foot box culvert would be added to the right of the existing culverts. At Orange Drive, two additional 7.8-foot by 5.5-foot box culverts would be added, one on each side of the existing culverts.

*Drop Structures.* Florin Creek design refinements call for four drop structures; that is, one each at Franklin Boulevard, Center Parkway, Highway 99, and Orange Avenue.

### **Unionhouse Creek**

The refined design for Unionhouse Creek in general reflects the original design. No refinements are proposed to increase the floodwalls from the height in the original design. Unionhouse Creek will overflow into the Bufferlands due to the proposed removal of the left bank levee from Morrison Creek to approximately 200 feet downstream of Franklin Boulevard.

*Channel Excavation.* Between Morrison Creek and Franklin Boulevard, the bottom width of the channel would be increased to 14 feet, and the channel depth would be excavated an additional 1 foot to 2 feet. The south levee would be breached allowing for increased channel capacity by restoring the creek's connection to its floodplain within Sacramento Regional Wastewater Treatment Plant's Bufferlands. The Bufferlands, totalling approximately 2,600 acres, buffer the surrounding residences and businesses from the activities of the treatment plant. The land is actively managed for open space, flood plain, agriculture, and wildlife habitat. The Bufferlands are also contiguous with the northern most part of the Stone Lakes National Refuge system.

From Franklin Boulevard to Center Parkway, the channel depth would be excavated approximately 2 feet. The bottom width of the channel would be increased to 14 feet, and the

channel top width would be increased an additional 10 feet to 15 feet toward the left (south) bank to accommodate the bottom width increase.

The new top width of the flow area of Unionhouse Creek would be limited to 78 feet to accommodate proposed improvements for light rail and Cosumnes River Boulevard between Franklin Boulevard and Center Parkway. Conceptual cross sections for this reach were determined with input from all involved agencies.

*Bridge Retrofitting.* There is no bridge retrofitting needed on the UPRR Bridge and Franklin Boulevard Bridge. Center Parkway Bridge would be retrofitted with in-fill walls and new, lower spread footings at each pile.

*Drop Structures.* There would be one drop structure constructed downstream of the Center Parkway Bridge on Unionhouse Creek.

### **2.2.3 Construction Details**

#### **Staging, Borrow, and Disposal Sites**

Staging areas for equipment and materials would be located primarily within the channels. The location of the staging areas would depend on the channel segment being dewatered and excavated. In addition, part of the Franklin and Boyce stormwater detention basin to be constructed by the City would be used for staging and as a borrow site for the Corps project.

Several disposal sites would be used depending on the type of material. Old concrete from the low-flow channels would be disposed at an approved waste site authorized to accept concrete waste. Cleared vegetation from the channels would be transported to the nearest dump or landfill for disposal. Excavated soil from the Morrison, Elder, and Florin Creek channels would be transported to the Regional Sanitation District west of Morrison Creek and spread at Borrow Site #2. Excavated material from Unionhouse Creek would be placed on the vacant area adjacent to the creek between Franklin Boulevard and Center Parkway. This vacant area is approximately 5,700 feet long by 50 feet wide, covering an area of approximately 6.6 acres.

#### **Equipment and Personnel**

Equipment and personnel to be used for the design refinements would be similar to those needed for the original design. Table 2 summarizes equipment that could be used for each measure.

**Table 2. Equipment and Personnel Needs per Construction Task**

<b>Construction Task</b>	<b>Equipment to be used</b>	<b>Number of Personnel</b>
Channel excavation	Backhoe-loader, dump truck, backhoe with vibratory concrete hammer, bulldozer, self-propelled scraper.	25 per stream reach
Bridge retrofit, box culverts, and drop structures	Gas-powered electric generator, gas-powered compressor, concrete chipping gun, concrete drill, concrete vibrator, hydraulic jacks, backhoe-loader, jackhammer, pickup truck (foreman), flatbed truck, dump truck.	11 per retrofit site
Concrete floodwall	Backhoe-loader, trencher, gas-powered electric generator, gas-powered compressor, vibratory compactor, truck mounted concrete pump, concrete vibrator, pickup truck (foreman), flatbed truck, dump truck.	15 per stream reach
Sheetpile floodwall	Backhoe-loader, trencher, gas-powered electric generator, gas-powered compressor, truck crane (one with hole auger), truck-mounted concrete pump, telescoping grade-all, concrete vibrator, pickup truck (foreman), flatbed truck, dump truck, vibratory compactor.	11 per stream reach

### **Access Routes**

Access routes along the main channels would be the same as identified in the 1998 EIS/EIR. Access to the three unnamed Morrison Creek tributaries would be along existing maintenance roads on the top banks of the tributaries.

### **Schedule**

Construction of the entire project is estimated to take approximately 5 years. Construction of the North Beach Lake levee between the Sacramento River and the UPRR is expected to begin in May 2005. Construction of the project features upstream of the UPRR, which include the design refinements, would begin in 2006. It is anticipated that construction would be carried out on one stream reach per year.

#### **2.2.4 Operation and Maintenance**

Operation and maintenance procedures would be the same as described in the 1998 EIS/EIR.

### **3.0 AFFECTED ENVIRONMENT**

As was the case in the 1998 EIS/EIR, there would be little to no effect on climate, topography, geology, soils, seismicity, and environmental justice as a result of the proposed design refinements. In addition, these resources have not changed from what was described in the 1998 EIS/EIR. Therefore, the analysis for these resources in the 1998 EIS/EIR is sufficient.

### **3.1 Resources Not Evaluated in Detail**

#### **3.1.1 Land Use**

Both the County and the City have land use designations and development plans in the upper basin. The primary land use designations in the project area are the same as described in the 1998 EIS/EIR, including residential, commercial, agriculture, and open land. All the creeks in the project area are urban waterways contained within concrete low-flow and earthen channels that are fenced off and are not accessible to the public. There is no prime and unique farmland within the area of the proposed design refinements.

The majority of the project area adjacent to the creek channels was already built out in 1998, and existing land uses have not changed for the most part. Several developments are being constructed or planned near the creek reaches. Residential, commercial, retail, and office developments are being built on much of the developable land in the area. As the area grows, the construction of a light rail system and the expansion of existing roads are being built to meet the demand of traffic that is growing in the area. Utility projects, such as additional water supply and sanitation, are also being developed to meet the needs of the community.

Any change in land use designation by the City or County would be compatible with their development plans for South Sacramento. The design refinements do not propose changes to land use designations and would have no adverse effects to existing or proposed land uses within the project area. Therefore, the design refinements would not require any mitigation for land use.

#### **3.1.2 Esthetics and Visual Resources**

A detailed description of the existing visual environment associated with the project area, including photographic viewpoints, is included in the 1998 EIS/EIR. Morrison, Elder, and Unionhouse Creeks are channelized and urban in nature. The visual character of Morrison Creek offers some rural characteristics. Elder Creek is characterized by urban development, but is less visually confined than most areas of Morrison Creek. Unionhouse Creek is also primarily urban due to channelization, and contains more concrete than vegetation on the banks.

Construction of the proposed design refinements would not significantly change the assessment of visual effects in the 1998 EIS/EIR. The predominant flood control measure along Morrison, Elder, Florin, and Unionhouse Creeks would be floodwalls or sheetpile walls. The height of the walls would be approximately 0.5 to 3.5 feet above the top of the existing embankment. This represents a slight increase over the original project design for portions of Morrison Creek and Florin Creek. However, these heights represent a decrease from the original design for other portions of Morrison, Elder, Unionhouse, and Florin Creeks. Specific locations are shown in Table 1. The new walls may attract graffiti, but the effects are not significantly different than the 1998 EIS/EIR.

Due to the addition of the three unnamed Morrison Creek tributaries, there would be a slight increase in the visual effects as compared to the 1998 EIS/EIR. The project features for the three tributaries include floodwalls and/or sheetpile walls approximately 1.0 to 3.5 feet in height above the top of the existing embankment. In addition, the proposed design refinements

include channel widening in additional reaches of Florin and Unionhouse Creeks. Specific locations are shown on Table 1.

Since construction activities would be short-term, there would be no significant effects on esthetics or the public view as a result of construction, and no additional mitigation would be required. The visual effects of floodwalls, sheetpile walls, and levees associated with the design refinements would not be significantly different than the 1998 EIS/EIR. Thus, the same mitigation measures would be implemented for the design refinements, including a rough surface finish on proposed floodwalls to discourage graffiti. In addition, floodwalls and sheetpile walls would be coated with paint that facilitates the removal of graffiti. There would also be a routine graffiti removal program, implemented by the non-Federal sponsor, as part of the operation and maintenance manual.

### 3.1.3 Socioeconomics

This section discusses the socioeconomic conditions that have changed significantly since the 1998 EIS/EIR. This discussion is based on the results of the U.S. Census taken in 2000. Due to continued growth and development in Sacramento County, the population, housing units, and public facilities and services have increased throughout the county.

According to the 2000 census, the population of Sacramento County was 1,223,499, an increase from “slightly more than 1 million people” in the 1998 EIS/EIR (U.S. Census Bureau, 2004a). The ethnic composition of Sacramento County in 2000 was about 64 percent white, 10 percent African American, 11 percent Asian, 16 percent Hispanic or Latino, and 2 percent other [exceeds 100 percent because individuals may report more than one race] (Census Bureau 2004a.)

The July 1, 2003, population estimate for the county was 1,330,711 (U.S. Census Bureau, 2004c), and the 2010 estimate is 1,555,848 (California Department of Finance, 2004). Much of this growth is expected in the south Sacramento area because of the availability of land and close proximity to urban Sacramento. Commercial development and public services will continue to expand to support the increased residential population in the area.

The types of employment and occupations are similar to the 1998 EIS/EIR. The rate of unemployment in 2000 was 4.2 percent (U.S. Census Bureau, 2004c) as compared to the California rate of 4.9 percent (California Employment Development Department, 2004). The 2000 median household income was \$43,816, and the per capita income was \$21,142 (U.S. Census Bureau, 2004b).

Construction of the project would not significantly affect the socioeconomic conditions in the area. The residential, commercial, industrial, and agricultural development would continue due to available land in the area. The designated land uses, growth rates, employment opportunities, and housing values would continue to be determined by local government regulations and regional economic conditions.

### **3.1.4 Hazardous, Toxic, and Radiological Waste**

The Corps completed two environmental site assessments to identify any potential hazardous, toxic, and radiological waste (HTRW) sources in the project area for the 1998 EIS/EIR. These site assessments encompassed a 1-mile corridor on each side of the project creek channels. Due to the 1-mile corridor around each creek, the site assessments included all locations of the proposed design refinements. None of the facilities or sources of potential contamination identified in the site assessments are in the vicinity of the design refinements. No further analysis or mitigation is needed for HTRW other than what was described in the 1998 EIS/EIR.

### **3.1.5 Noise**

The sources and types of noise, sensitive land uses, and sensitive receptors in the project area have not changed since the 1998 EIS/EIR. Because of increased development in the South Sacramento area, the overall noise has increased slightly, especially due to increased traffic. The City and County continue to regulate noise levels in the area.

The types of effects on noise resulting from the design refinements remain the same as the 1998 EIS/EIR. The project refinements would not increase the decibel levels (dBA) over the 1998 EIS/EIR, but the length of time for these effects would be slightly increased due to the additional time needed to construct the proposed refinements. Individuals could experience brief periods of intrusive noise. However, the effects would be short-term, and construction activities are normally exempt from local noise standards provided that hours of operation fall within the days and times specified in City and County noise ordinances.

To minimize disruption to sensitive receptors, the best management practices in the 1998 EIS/EIR would be implemented to reduce the effects of construction noise. These practices would include outfitting equipment with noise-reduction devices, notifying residences about construction schedule and type, and restricting construction activities to hours of the day allowed by City and County policies. In addition, a mechanism would be provided for affected individuals to provide input or to seek corrective action if construction noise levels are overly intrusive. No additional mitigation measures for effects on noise would be necessary as a result of the design refinements.

### **3.1.6 Fisheries**

As described in the 1998 EIS/EIR, fish habitat in Unionhouse, Florin, Elder, and Morrison Creeks continues to be minimal. The creeks are channelized with very low flows in the summer and little to no streamside vegetation. This combination leads to high water temperatures and poor water quality and resulting poor fish habitat. Additionally, some of these creeks have concrete low-flow liners with little to no substrate on the creek bottom for fish cover or food. Annual maintenance practices include removing any vegetation in the creeks and on the lower portion of the banks. This annual disruption discourages conditions favorable for fish, such as overhanging streamside vegetation. Occasionally, fish do appear in the creeks, usually as upstream or downstream migrants that travel through when flows are high or become stranded in the creeks after a period of high flows.

The proposed design refinements do not have a significantly different effect on fisheries over that described in the 1998 EIS/EIR. Thus, habitat conditions in the creeks remain poor for fish, and very few fish are residents. The construction of the design refinements would not adversely affect fish habitat in the creeks. The flows in the summer are so low that viable fish populations do not exist. Most fish found in the creeks are upstream or downstream migrants or have become stranded during periods of high flow. Since there is no viable fish population in the project area, significant adverse effects are not expected. The proposed design refinements would have no additional effects on fish habitat within the project area. However, the proposed drop structures could limit upstream migration of fish during high flows. This would be alleviated by installation of stepped drop structures, where appropriate.

### **3.2 Affected Environment**

#### **3.2.1 Recreation**

The design refinements are located within the upper basin. This portion of the project falls within the Southgate Recreation and Park District and the City of Sacramento Department of Parks and Recreation.

A summary of Southgate Recreation and Park District facilities and operations was included in the 1998 EIS/EIR. Existing recreational facilities within one-half mile from any of the study reaches include Florin Creek Park, Sheldon Park, and the Florin Creek Bike Trail, all of which are located along Florin Creek. Florin Creek Park is located immediately adjacent to the north bank of Florin Creek, just west of SR 99, while Sheldon Park is located just east of this freeway. The bike trail is about 6 feet wide, paved, and extends from Palmer House Drive on the east to Persimmon Drive on the west (Sacramento LAFCo, 2004).

The City of Sacramento Department of Parks and Recreation facilities include community centers and various types of parks including regional parks, neighborhood parks, and community parks. Existing recreational facilities within one-half mile from any of the project reaches include five neighborhood parks and five community parks. No community centers within one-half mile of any of the project creeks have been constructed since the 1998 EIS/EIR.

#### **3.2.2 Transportation**

The transportation network serving the South Sacramento area described in the 1998 EIS/EIR has not changed significantly. In general, the transportation network in the project area includes roadways, transit service, rail lines, and bicycle routes.

The review of traffic and transportation conditions focused on (1) roadways that cross project creeks and could therefore be affected by construction and (2) roadways that are a potential route that workers and trucks could use to access construction sites. Specific roadways are described in detail in the 1998 EIS/EIR. Figure 3, taken from the 1998 EIS/EIR, shows project roadways in relation to the project streams. Figure 4 indicates project stream crossing/access point locations.

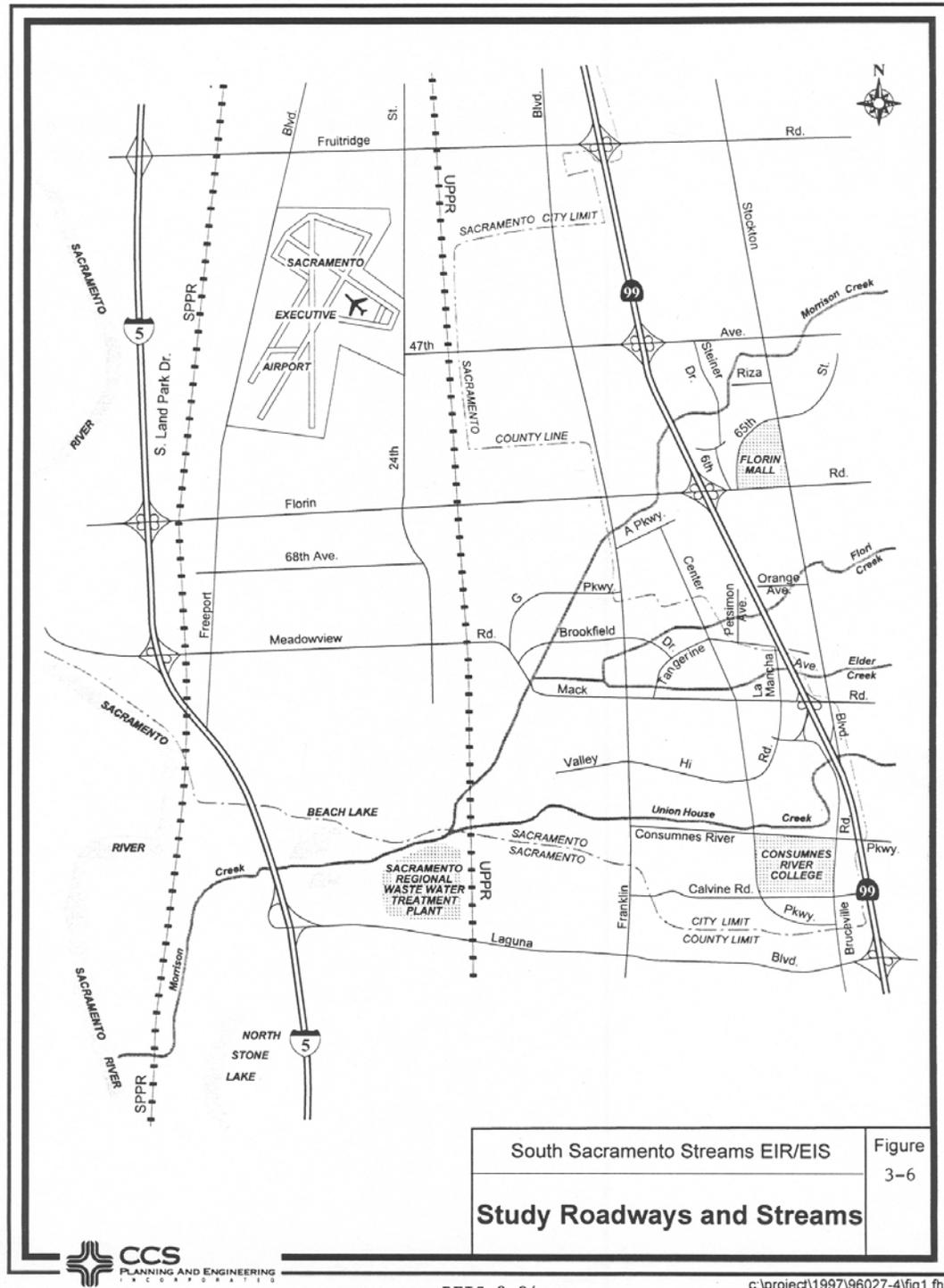


Figure 3. Project Roadways and Streams

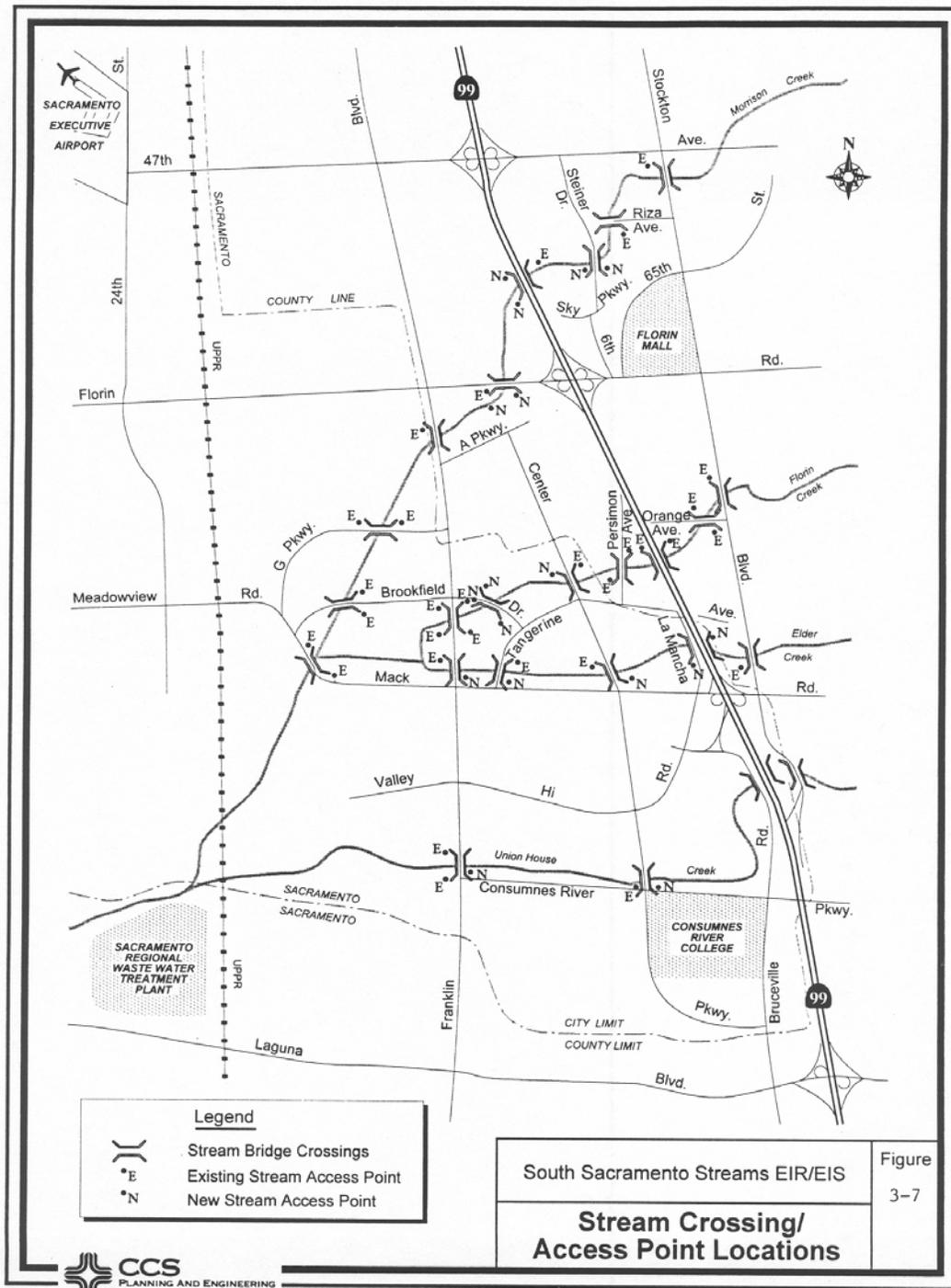


Figure 4. Stream Crossing/Access Point Locations

The current average daily traffic (ADT) volumes along the project roadways are not significantly greater than those stated in the 1998 EIS/EIR. The existing roadway level of service (LOS) data are not significantly different than those outlined in the 1998 EIS/EIR. Current ADT volumes and LOS data for the major project roadways are summarized in Table 3.

### 3.2.3 Air Quality

The Federal and State ambient air quality standards have had some changes since 1998. These changes include the establishment of standards for fine particulate matter (PM<sub>2.5</sub>), ground-level ozone (8-hour ozone standard replaces 1-hour ozone standard in 2004), and visibility reducing particles. The new standards are identified in Table 4. In 1998, Sacramento County was in violation of three Federal and State standards for criteria pollutants: ozone, carbon monoxide (CO), and respirable particulate matter (PM<sub>10</sub>).

In 2003, the Sacramento region's air quality had attained the Federal ambient air quality standards for CO and PM<sub>10</sub>, but exceeded the Federal and State ambient standards for ozone (SMAQMD, 2004). The State standards for PM<sub>10</sub> were also exceeded. The U.S. Environmental Protection Agency plans to finalize PM<sub>2.5</sub> designations by December 15, 2004, using data for 2001 through 2003. The California Air Resources Board (CARB) has recommended an unclassified designation on PM<sub>2.5</sub> for Sacramento County due to insufficient air quality monitoring data (CARB, 2003). The Sacramento Valley Air Basin is designated as in attainment or unclassified for all other criteria pollutants. Consequently, the nonattainment criteria air pollutants for the Sacramento Valley Air Basin are the two ozone precursors – volatile organic compounds (VOC's) and oxides of nitrogen (NO<sub>x</sub>) – and PM<sub>10</sub>.

Ground-level ozone, a primary ingredient in smog, is formed when VOC's and NO<sub>x</sub> react chemically in the presence of sunlight. Vehicles, power plants, and industrial facilities are primary sources of these emissions. Ozone pollution is a concern during the summer months when the weather conditions needed to form ground-level ozone – lots of sun and hot temperatures – normally occur. Ozone is unhealthy to breathe, especially for people with respiratory diseases and for children and adults who are active outdoors.

Particulate matter is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are defined as "respirable particulate matter" or "PM<sub>10</sub>." Fine particles are 2.5 microns or less in diameter (PM<sub>2.5</sub>) and can contribute significantly to regional haze and reduction of visibility in California.

**Table 3. 2004 Average Daily Traffic Volumes and Levels of Service on Project Roadways**

<b>Roadway</b>	<b>Lanes</b>	<b>Capacity</b>	<b>ADT<sup>1</sup></b>	<b>LOS</b>
<b>Franklin Boulevard</b>				
North of Florin Rd.	4	36,000	30,999	B
Florin Rd. to Meadowgate Dr.	4	36,000	31,619	E
G Pkwy. to Goya Pkwy.	4	36,000	23,590	B
Brookfield Dr. to Boyce Dr.	4	36,000	22,654	B
Mack Rd. to Armadale Way	4	36,000	22,985	B
Valley Hi Dr. to Becket Way	4	36,000	22,565	B
Ehrhardt Ave. to Idaho Dr.	4	36,000	22,387	B
<b>Stockton Boulevard</b>				
North of Elsie Ave.	4	36,000	41,245	C
South of Florin Road	4	36,000	30,597	D
48 <sup>th</sup> Ave. to Jimolene Dr.	4	36,000	28,014	C
<b>Center Parkway</b>				
South of Forest Parkway	2	15,000	5,984	C
Tangerine Ave.	2	15,000	7,565	A
Mack Rd. to Seyferth Way	2	15,000	8,643	A
Cosumnes River Blvd.	4	36,000	11,615	A
<b>Florin Road</b>				
East of Franklin Blvd.	6	54,000	46,330	C
<b>47<sup>th</sup> Avenue</b>				
West of 47 <sup>th</sup> Street	4	36,000	37,014	A
East of SR 99	4	36,000	43,041	E
<b>Mack Road</b>				
Brooke Meadow Dr. to Archean Way	4	36,000	29,326	D
Center Pkwy. to Tangerine Ave.	4	36,000	33,718	D
<b>Cosumnes River Blvd.</b>				
Franklin Blvd. to Center Pkwy.	4	36,000	12,120	A
<b>Brookfield Drive</b>				
Beechnut Way to Barbee Way	2	15,000	3,379	A
Teak Ct. to Meadowstone Dr.	2	15,000	10,534	B

Roadway	Lanes	Capacity	ADT <sup>1</sup>	LOS
<b>Orange Ave.</b>				
East of Florin Mall Dr.	2	15,000	4,101	A
<b>Pomegranate Ave.</b>				
West of Florin Crk. Ct.	2	15,000	807	A
<b>SR 99</b>				
Stockton Boulevard Crossing	4	---	236,000	E
Mack Rd. crossing	4 + HOV	---	275,000	E
Florin Rd. crossing	6 + HOV	---	332,000	E
47 <sup>th</sup> Ave. crossing	6 + HOV	---	353,000	E

<sup>1</sup>All values for ADT include both directions of traffic flow at a given location.

ADT = Average Daily Traffic

LOS = Level of Service

HOV = High Occupancy Vehicle lane (“carpool lane”)

--- = current data not available

Sources: SacDOT, 2004; City PWD, 2004

**Table 4. Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
<b>Ozone (O<sub>3</sub>)</b>	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	Ultraviolet Photometry	0.12 ppm (235 µg/m <sup>3</sup> )	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	—		0.08 ppm (157 µg/m <sup>3</sup> )		
<b>Respirable Particulate Matter (PM<sub>10</sub>)</b>	24 Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		50 µg/m <sup>3</sup>		
<b>Fine Particulate Matter (PM<sub>2.5</sub>)</b>	24 Hour	No Separate State Standard		65 µg/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	15 µg/m <sup>3</sup>		
<b>Carbon Monoxide (CO)</b>	8 Hour	9.0 ppm (10mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—	—	
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m <sup>3</sup> )		—		
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m <sup>3</sup> )	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm (365 µg/m <sup>3</sup> )	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m <sup>3</sup> )	—
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )		—	—	—
<b>Lead</b>	30 Day Average	1.5 µg/m <sup>3</sup>	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m <sup>3</sup>	Same as Primary Standard	High Volume Sampler and Atomic Absorption
<b>Visibility Reducing Particles</b>	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07 - 30 miles or more for Lake Tahoe) – due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		<b>No Federal Standards</b>		
<b>Sulfates</b>	24 Hour	25 µg/m <sup>3</sup>	Ion Chromatography			
<b>Hydrogen Sulfide</b>	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	Ultraviolet Fluorescence			
<b>Vinyl Chloride</b>	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )	Gas Chromatography			

Source: California Air Resources Board, 2003.

Extensive research indicates that exposure to outdoor PM<sub>10</sub> and PM<sub>2.5</sub> levels exceeding current air quality standards is associated with increased risk of hospitalization for lung and heart-related respiratory illness, including emergency room visits for asthma. PM exposure is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown associations between PM exposure and impaired lung function and increased respiratory symptoms and illnesses. Besides reducing visibility, the acidic portion of PM (nitrates and sulfates) can harm crops, forests, aquatic and other ecosystems.

### **3.2.4 Water Resources and Quality**

#### **Regulatory Setting**

The Clean Water Act is the Federal law regulating the quality of the Nation's waters and wetlands. Provisions of the Clean Water Act provide for delegation by the U.S. Environmental Protection Agency (U.S. EPA) of many permitting, administrative, and enforcement aspects of the law to state governments. In California, the State Regional Water Control Board and its associated nine regional water quality control boards implement various Clean Water Act programs, including the promulgation of Water Quality Control Plans containing California's water quality standards. Water quality standards are enforceable pollution limits in the bodies of water for which they have been established. Under the California Water Code, Federal water quality criteria are defined as State water quality objectives, but have the same legal status as Section 303(c) criteria.

The regional water quality control boards establish water quality control plans for the hydrological basin within their jurisdiction. These water quality control plans are referred to as basin plans and contain the State's designated beneficial uses for each water way and the State's water quality objectives. The Central Valley Regional Water Quality Control Board (RWQCB) administers the hydrological basin containing the Sacramento and San Joaquin Rivers. The 1998 Water Quality Control Plan for the Sacramento and San Joaquin River Basin (Basin Plan) is the current basin plan that covers the project area.

In addition to the basin plans, the regional water quality control boards administer the U.S. EPA's National Pollutant Discharge Elimination System (NPDES) permits required by the Clean Water Act. California regulations require that discharges of stormwater associated with construction activity disturbing more than 5 acres must be permitted under a General Permit for Discharges of Storm Water Associated with Construction Activity, known as a Construction General Permit. This permit requires the development and implementation of a Storm Water Pollution Prevention Plan. The Pollution Prevention Plan must list best management practices the contractor will use to control storm water runoff and reduce erosion and sedimentation. A sediment monitoring plan is also required if the site discharges to a water body with impaired or limited water quality (State Water Resources Control Board, 2004a).

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into wetlands and waters of the U.S. The Corps and the U.S. EPA both have responsibilities in administering this program and typically issue permits for these regulated activities. All of the

creeks in the project area fall under the jurisdiction of the Clean Water Act. Although the Corps does not issue itself permits for its own Civil Works projects, Corps regulations require the Corps to apply the guidelines and substantive requirements of Section 404 to its activities. A 404(b)(1) analysis for the design refinements is included in Appendix A.

Section 401 of the Clean Water Act also regulates the discharge of dredged or fill material into waters of the U.S. and wetlands. However, regional water quality control boards implement the Section 401 water quality certification program instead of the Corps. The Section 401 program is intended to complement Section 404 goals and to encourage basin-level analysis and protection of wetlands and riparian areas.

### **Surface Water**

All of the creeks experience low summer flows from urban wastewater and agricultural runoff. The stream reaches in the project area are straightened, channelized, and maintained by the City of Sacramento or Sacramento County on an annual basis. Maintenance consists of debris and vegetation removal. The stream reaches in the project area have a nearly flat gradient.

There is limited published surface water quality data for the upper and lower basins. From 1982 to 1984, the Corps conducted limited water quality analyses of Morrison Creek at Mack Road (Corps, 1994). The County's Water Resources Division also collected water quality data in Morrison Creek at Franklin Boulevard from August 1994 to September 1994 (WRD, 1994). Both sample points were located in reaches in Morrison Creek planned for flood control improvements by the Corps and SAFCA. Laboratory analyses of the samples indicated that all constituents exceeded water quality objectives for the area.

The streams in south Sacramento County drain a large urban and agricultural watershed with many potential commercial and industrial sources of pollutants. The water quality of the streams is heavily influenced by land uses and their respective stormwater runoff, which dilutes and transports pollutants and sediments. Morrison Creek water is of relatively poor quality and is polluted with coliform bacteria, trace metals, and toxic organics.

Morrison Creek and one of its tributaries, Elder Creek, are listed on the 2002 Clean Water Act Section 303(d) list of water quality limited segments. These creeks have impaired water quality and do not meet the State's water quality standards. Neither creek satisfies water quality objectives for pesticides, particularly the pesticide diazinon detected in excessive concentrations in Morrison Creek, and the pesticides chlorpyrifos and diazinon detected in Elder Creek. The potential sources for these pollutants are agriculture, urban runoff, and storm sewers. (State Water Resources Control Board, 2004b).

Because Morrison Creek and its tributaries are primary water sources for the Beach and Stone Lakes area, the relative water quality of the creeks can directly affect water resources in Beach and Stone Lakes. Operations of the City's pump number 90 helps to reduce water quality effects on the lakes. Summer flows and low stormwater flows are diverted from Morrison Creek into the Sacramento River by the pump structure. However, the pump's limited capacity

prevents diversion of all runoff from moderate to high stormwater events, resulting in some polluted runoff flowing into the Beach and Stone lakes area.

### **Ground-Water Quality**

Ground water is present in two saturated water-bearing zones. The first zone is referred to as the “shallow saturated zone” and is located about 20 to 50 feet below the ground surface. The second zone is referred to as the “first aquifer” and is located about 50 to 80 feet below the ground surface. Ground-water elevations in wells at the treatment plant show seasonal changes of about 5 feet. The ground-water system in the project area has very little exchange with the Sacramento River and is considered hydrologically independent. The aquifers are predominantly recharged by infiltration from streams in the watershed.

Existing data on ground-water comes from monitoring wells in and around the sewer treatment plant. Since the same ground-water basin underlies the entire study area, it is assumed that groundwater in the project area has similar characteristics to the ground-water below the treatment plant. Ground-water monitoring has been conducted at the treatment plant site since 1982 although some 1990 monitoring was conducted at a limited number of wells. The purpose of the monitoring is to identify potential releases from the treatment plant’s solids disposal facility and any associated effects on underlying ground-water.

More extensive monitoring began in 1990 to comply with waste discharge requirements issued by the Regional Water Quality Control Board in accordance with Chapter 15 of the California Code of Regulations. Chapter 15 pertains to water quality aspects of waste discharge to land. Numerous ground-water studies were conducted at the treatment plant to comply with Chapter 15. As a part of these studies, upgradient ground-water conditions were established for the two water-bearing zones.

Between 1990 and 1994, quarterly monitoring was performed for specific conductance, pH, nitrate as elemental nitrogen, chloride, total dissolved solids, arsenic, and chromium. Results from monitoring indicate that (1) the concentrations of these constituents varied from one monitoring well to another, and (2) the concentrations in the upper and lower saturated zones varied dramatically (SRCSD, 1994). Cadmium, copper, nickel, and zinc were analyzed annually, and pesticides and biphenyls were tested every other year. Testing results for these constituents were below detection limits.

### **3.2.5 Vegetation and Wildlife**

This section describes the existing vegetation and wildlife resources for study areas not included in the 1998 EIS/EIR. These areas include the added tributaries to Morrison Creek and areas adjacent to both Unionhouse Creek from the confluence with Morrison Creek to Center Parkway, and Florin Creek from the confluence with Elder Creek to Orange Drive. These resources are also discussed in the USFWS’s Draft Supplemental Coordination Act Report (Appendix B).

The tributaries to Morrison Creek that have been added to the project area are mostly lined, both on the bottom and the sides. The right-of-way adjacent to the lined ditches is

occupied by either a maintenance access road or nonnative grassland. The tributary that ends at Stockton Boulevard includes a buried section extending from Stockton Boulevard downstream for about 100 yards. This buried section is overlain with soil and a nonnative grassland vegetation. The areas adjacent to Unionhouse and Florin Creeks are also mostly occupied by nonnative grassland. The exceptions include a bike path that lies adjacent to Florin Creek in the reach above and below (for a short distance) Highway 99, and urban landscapes in parts of the area from the bike path downstream to Franklin Boulevard.

Wildlife species associated with the annual grasslands adjacent to the creeks are generally those species that can tolerate human disturbance. These species include some common birds, such as western meadowlark, house sparrow, house finch, scrub jay, mockingbird, yellow-billed magpie, and mourning dove. In addition, some small mammals, such as house mouse, striped skunk, opossum, raccoon, and vole travel along the channel corridors.

Wetland delineations for the entire project were completed in 1995 and 1997. Although it is not anticipated that the wetland information has changed appreciably since then, the Corps is in the process of updating these delineations and will complete these delineation updates prior to construction. According to the 1997 wetland delineation, no wetlands were delineated in the Unionhouse Creek project area. Delineated wetlands within the design refinement reaches are freshwater marsh communities within the creek channels and are also waters of the U.S. One area within Morrison Creek channel is a seasonal wetland. Although there are not expected to be any significant changes from the original delineations, appropriate action to avoid or mitigate for effects to any new wetlands will be implemented during the design phase of the project.

### 3.2.6 Special Status Species

The USFWS concluded formal Section 7 consultation for the South Sacramento County Streams Project with their Biological Opinion dated April 15, 2002. This document concluded that the project is not likely to jeopardize the continued existence of the vernal pool tadpole shrimp, the vernal pool fairy shrimp, the valley elderberry longhorn beetle, and the giant garter snake. An amendment to the 2002 Biological Opinion was received by the Corps on November 15, 2004, reconfirming the non-jeopardy findings of the 2002 Biological Opinion, although there would be a slight additional loss of giant garter snake upland habitat caused by the design refinements. The 2004 amendment is located in Appendix C.

The website of the Sacramento Fish and Wildlife Office of the USFWS was accessed on February 2, 2004, to obtain updated lists of Federally listed endangered and threatened species that may be affected by proposed design refinements in the Florin and Sacramento East U.S.G.S. 7½-minute quads (Appendix C). The updated lists showed that the listed species had not changed from the 1998 EIS/EIR although the listing status of the Central Valley steelhead (*Oncorhynchus mykiss*), riparian woodrat (*Neotoma fuscipes riparia*), riparian brush rabbit (*Sylvilagus bachmani riparius*), and California tiger salamander (*Ambystoma californiense*) had changed. These species were evaluated in the 1998 EIS/EIR, and there were no documented occurrences or suitable habitat for these species.

The only listed species that may be found within the areas of the proposed design refinements are the Federally threatened giant garter snake (*Thamnophis gigas*) and the State threatened Swainson's hawk (*Buteo swainsonii*). These species were addressed in the 1998 EIS/EIR. Areas along Unionhouse Creek are potential foraging habitat for hawks using known nesting territories in the vicinity of the project area. The giant garter snake may move into creeks and the added associated uplands in the project area east of the UPRR during downstream flooding or during other dispersal activities.

In addition to the listed species, there are two additional Federal species of concern, the burrowing owl (*Athene cunicularia*) and Sanford's arrowhead (*Sagittaria sanfordii*), which could be affected by the refinements of the proposed project. These species were also addressed in the 1998 EIS/EIR. The burrowing owl has historically been found along Unionhouse and Morrison Creek. Burrowing owls were observed along levees near the confluence of Florin Creek with Elder Creek, and along Unionhouse Creek between Franklin Boulevard and the UPRR during a field visit by a Corps biologist on August 12, 2004. Sanford's arrowhead is found within the stream channels in the upper basin.

### **3.2.7 Cultural Resources**

#### **Prehistoric Setting**

The prehistoric cultural pattern for the Sacramento area follows that established by research in the Delta which indicates occupation of the area began about 12,000 years ago (Moratto 1984). Most of the present-day Sacramento County is within territory claimed by the Plains Miwok. The Plains Miwok were Penutian speakers and lived in the Sacramento Valley and Delta. They relied on the rich resources of the Delta and surrounding area for both dietary needs and material culture. Permanent settlements were located on high ridges or knolls near watercourses or on sandy islands in the Delta. Social structure was centered around the tribelet, with small satellite villages radiating from a main tribelet center (Kroeber 1925). The APE was probably the most densely populated area in California before contact with Europeans.

The native way of life changed after 1790 as Spanish soldiers traveled into the Sacramento Valley in search of potential mission inhabitants. The main river groups were forced into the Spanish mission system, and many of those that remained succumbed to European-introduced diseases that spread through the area in the late 1700's and early 1800's (Levy 1978).

#### **Historic Setting**

The first Europeans to reach northern California were the early Spanish explorers and subsequent Franciscan and Jesuit missionaries. Fur trappers were active along area rivers, beginning with Jedediah Smith in 1827 (Hoover, et al. 1990). The Sacramento area began to be settled by the late 1830's and early 1840's, as early settlers such as John Sutter obtained large land grants from the Mexican government. With the discovery of gold in 1848 came an influx of nonnative people to the area. As gold mining declined, many of these people turned to other livelihoods, especially agriculture. By the 1850's many of the large land grants in Sacramento had been sold in smaller parcels to various individuals who established farms, ranches, and dairies. Transportation routes such as Auburn Road, Jackson Road, Stockton Road, and railroad

lines were established at this time, and small communities and homesteads developed along these routes.

During the first half of the twentieth century, local families built houses and farm structures that they later remodeled, destroyed, or relocated. The most noticeable changes were improved and upgraded farming and dairying methods and increased size of operations. By the 1950's and 1960's, however, increased urban development in the APE made many land-intensive dairy and farming operations impractical (Corps 1998).

### **Previous Studies**

The lower and upper basins along Morrison, Elder, Florin, and Unionhouse Creeks were surveyed for cultural resources sites in and adjacent to the project area for the 1994 reconnaissance study. Subsequently, an intensive archeological survey was conducted by PAR Environmental in 1995 to further investigate for unknown cultural resources sites. The area of potential effects (APE) in the upper basin and lower basin was investigated for cultural resources in the 1998 EIS/EIR to include other areas of the project previously not examined in the 1994 reconnaissance study or the 1995 study conducted by PAR Environmental. However, the proposed design refinements in the upper basin expand the APE to include the three unnamed tributaries of Morrison Creek and the City's proposed detention basin. These tributaries and detention basin were not included in the 1998 EIS/EIR and therefore must be examined.

### **Records and Literature Search**

Based on the results of an updated records and literature search conducted on January 22, 2004, at the North Central Information Center at California State University, Sacramento, there are no recorded prehistoric or historic archeological sites or historic structures within the expanded APE. No properties are listed on, or eligible for, the National Register of Historic Places. No known cultural resources would be affected by the proposed design refinements. The updated records and literature search of the expanded APE was negative for cultural resources.

A field survey of the three unnamed tributaries was conducted by the Corps on March 10 and 29, 2004. No cultural resources were identified during the survey. The Corps conducted a field survey of the City's proposed Franklin-Boyce detention basin area on October 12, 2004. No cultural resources were identified during the survey. The proposed design refinements would likely have no effects on cultural resources within the expanded APE of the upper basin.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

### **4.1 Effects on Recreation**

This section describes the effects of the proposed alternatives on existing and planned recreation facilities and opportunities in the project area. The effects of the alternatives are considered to be significant if they permanently reduce the quality, quantity, or use of recreational facilities in the project area.

#### **4.1.1 Alternative 1 – No Action**

Under the no-action alternative, the Federal Government would not participate in the construction of levee improvements in the project area. The existing parks, community centers, and bike trails along the creeks would continue to be at risk of flooding from high flows. Planned development of new recreational facilities would continue according to City and County General Plans and available economic resources. Since this alternative would involve no construction, there would be no significant effects on existing or planned recreational facilities or use in the project area.

#### **4.1.2 Alternative 2 – Proposed Design Refinements**

Most of the construction activity would be limited to the existing stream channels and levees although there would be some movement of construction vehicles between levees. None of the existing or planned parks and community centers are located immediately adjacent to the creeks or levees along Morrison, Elder, and Unionhouse Creeks; therefore, use of these recreation facilities would not be disrupted by the proposed work. However, Sheldon Park and Florin Creek Park are located immediately adjacent to Florin Creek and could be temporarily affected by construction.

Although use of Florin Creek and Sheldon Parks would not be disrupted during construction, the quality of the recreation experience could be reduced by the construction equipment, activity, and noise. In addition, use of the nearby park areas would be controlled to ensure public safety if necessary.

Construction activities would include removing approximately 4,000 feet of bike trail along Florin Creek, between Persimmon Avenue and Orange Drive, portions of which are adjacent to Florin Creek Park and Sheldon Park, in order to complete the proposed channel widening. Removal of this segment of the bike trail would be compensated for by reconstructing the bike route, probably adjacent to the low-flow channel.

Construction would have temporary effects on the use of the trail and quality of the recreational experience. Users would have to use detours and alternative routes, which would likely involve local streets. However, construction would be scheduled to minimize disruption as much as possible, and detours would be selected to ensure public safety.

#### **4.1.3 Mitigation**

In order to compensate for the recreational loss of bike trail along Florin Creek, approximately 4,000 feet of bike trail would be reconstructed. The traffic management plan discussed in Section 4.2.3 would also include measures to minimize the temporary effects and ensure the safety of the users of the bike trail.

#### **4.2 Effects on Transportation**

The effects of construction on traffic and circulation are considered to be significant, requiring mitigation, if the work would result in any of the following:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- Cause a substantial deterioration of the roadway surface due to construction activities.
- Substantially increase the traffic delay experienced by drivers.
- Substantially alter present patterns of circulation or movement.
- Cause traffic hazards to pedestrians or operators of motor vehicles or bicycles.

In addition, the City further defines effects to traffic as significant if:

- The project will generate more than 100 new trips during the peak traffic hours of the adjacent roadways (a.m., p.m., or midday). New trips are defined as trips expected for proposed use - trips already going to the site.
- The project will generate more than 50 new peak hour trips on a main access route to the site that is currently operating at an unacceptable Level of Service.
- The project could substantially change the offsite transportation system (including facilities for vehicles, buses, light rail, pedestrians, and bikes) or connections to it.

The City and County apply different criteria to determine the significance of effects on traffic. The City defines an effect as being significant when project traffic volumes change a roadway's operation from an acceptable LOS to an unacceptable LOS, or if the roadway is already operating at an unacceptable LOS, when the project increases the volume-to-capacity (V/C) ratio by 0.02 or greater. The County defines an effect as being significant when project traffic volumes change a roadway's operation from an acceptable LOS to an unacceptable LOS, or increases the V/C ratio by 0.05 or greater. These roadway LOS criteria are defined in the City of Sacramento Traffic Impact Guidelines (February 1996), Sacramento County Traffic Guidelines (July 1996), and Sacramento County General Plan Update, Technical Appendix (February 1992). The City has established LOS C as its acceptable LOS for roadways. The County uses LOS D for rural roads and LOS E for urban streets.

#### **4.2.1 Alternative 1 – No Action**

The no-action alternative assumes that there would be no Federal participation in flood protection improvements in the project area. The roadways, transit service, rail lines, and bicycle routes described in the 1998 EIS/EIR would continue to connect and/or service the project area. However, traffic volumes are expected to increase as projected in the City and County General Plans. The increased traffic would be due to continued urbanization and population growth in the Sacramento area.

#### **4.2.2 Alternative 2 – Proposed Design Refinements**

Under Alternative 2, construction workers, equipment, and material deliveries needed to construct the proposed refinements would increase traffic on local roadways. Although the estimate of average daily trips generated per day of 208 in the 1998 EIS/EIR appears high, the same estimate is applied to the project with the design refinements incorporated. This effect would be short term and during construction activities only.

Construction of three additional box culverts may have a short-term effect on traffic on roadways. The box culverts are proposed for construction under three road crossings along Florin Creek: Orange Avenue, Persimmon Avenue, and Center Parkway. Because Orange Avenue and Persimmon Avenue are not major corridors, the likely method for constructing the box culverts at these locations would be open trenching. This would have a temporary effect on traffic at these road crossings. Traffic flow could be disrupted, but would be re-routed via detours to other nearby roads. The detour for Orange Avenue would likely be 66<sup>th</sup> Avenue to Stockton Boulevard. The detour for Persimmon Avenue would likely be Orange Avenue where it becomes La Mancha Way, running parallel to SR 99. These construction affects would be short term and temporary, not lasting more than 5 months.

Because Center Parkway is a major traffic corridor, the likely method for constructing the box culvert at this location would be jack and bore. Although this method is more expensive and requires more time as compared to open trenching, it is the most feasible option for such a major roadway. With this method, no detour would be necessary because all work would be within and adjacent to the stream channel so as to not disturb traffic. This construction may have a temporary effect on traffic on this roadway.

The proposed addition of a 12-foot span to increase the length of Florin Creek Bridge would likely have significant effects on traffic on Franklin Boulevard during construction of the additional span. Construction of the additional span would necessitate either partial or total closure of the roadway for extended periods of time, causing congestion and lengthy delays in traffic flow. However, the existing width of the roadway at this location would be able to accommodate a temporary shift of all four lanes to one-half of the bridge, allowing the new 12-foot span to be constructed one-half at a time. This would minimize any of the short-term, temporary effects this bridge construction may have to traffic along Franklin Boulevard. An alternative design of installing a box culvert similar to the installation of the box culvert at Center Parkway is also being considered for this bridge and would be further pursued if the 12-foot span alternative would cause unacceptable traffic effects. Effects to traffic resulting from construction of the 12-foot span would be short term and temporary, lasting up to 6 months.

Above-deck bridge retrofit construction, such as parapet wall installation, may require temporary lane closures on some roadways. These lane closures would have short-term effects on traffic flows and would last 2 to 4 weeks at each location.

### **4.2.3 Mitigation**

The Corps and non-Federal sponsor would implement the mitigation measures proposed in the 1998 EIS/EIR to reduce effects to traffic caused by trip generation resulting from project construction to less than significant. In general, these mitigation measures include restrictions on delivery of materials and movement of construction equipment during the morning and afternoon peak hours of roadway travel. Also, flaggers would be stationed to slow or stop approaching vehicles to avoid conflicts with construction vehicles or equipment. Finally, on-street parking would be limited for construction workers, and adequate off-street parking would be provided for construction workers.

As part of encroachment permit requirements, the Corps and the non-Federal sponsor would coordinate with the City, County, and Caltrans to develop a traffic management plan that would recommend measures to minimize the temporary effect to traffic flows on city, county, and State roadways caused by any project construction traffic, as well as any temporary lane and road closures. The traffic management plan would include specific plans for retrofitting activities at individual bridges, minimizing the amount of time lanes would be closed and providing appropriate detours as needed to reduce the level of effect to traffic to less than significant. All traffic effects would be short term and temporary.

#### 4.3 Effects on Air Quality

The Federal *de minimis* thresholds for the nonattainment criteria pollutants in the Sacramento region are identified in Table 5.

**Table 5. Federal General Conformity *de minimis* Thresholds<sup>1</sup>**

Pollutant	Tons/year
VOC's	25
NO <sub>x</sub>	25
PM <sub>10</sub>	100

<sup>1</sup>Based on Sacramento County's current "severe" nonattainment Federal designation for ozone and "moderate" nonattainment designation for PM<sub>10</sub>.  
Sources: SMAQMD, 2004; 40 CRF 93.152

In addition, the Sacramento Metropolitan Air Quality Management District (SMAQMD) revised their standards in 2002. Mass emission thresholds representing State thresholds are indicated in Table 6.

**Table 6. SMAQMD Mass Emission Thresholds**

Project Type	Ozone Precursor Emissions			
	ROG		NO <sub>x</sub>	
	Pounds/day	Tons/year	Pounds/day	Tons/year
Short-Term Effects (Construction)	None	None	85	13.85
Long-Term Effects (Operation)	65	10.59	65	10.59

Source: SMAQMD, 2002

The Substantial Contribution Threshold has also been revised by SMAQMD, as follows: "A project is considered to contribute substantially to an existing or projected violation of a CAAQS (California Ambient Air Quality Standard) if it emits pollutants at a level equal to or greater than five (5) percent of the CAAQS (refer to Table 4: Ambient Air Quality Standards)."

#### 4.3.1 Alternative 1 – No Action

The no action alternative would have 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, industry, and agricultural activities.

#### 4.3.2 Alternative 2 – Proposed Design Refinements

Alternative 2 is not expected to have any long-term effects on air quality. Operation of this alternative is expected to be similar to operation of the existing flood control works. Construction would result in direct, short-term effects on VOC's, NO<sub>x</sub>, and PM<sub>10</sub>; however, these effects do not exceed the Federal or State significance thresholds as described below.

A Record of Non-applicability for Clean Air Act General Conformity was prepared in August 2002 for the South Sacramento County Streams Project. The report is included in Appendix D. The evaluation done in this report indicated that the estimated “worst case” annual emissions for this project (corresponding to the construction year for the North Beach Lake levee along Morrison Creek) would not exceed the *de minimis* thresholds of 25 tons per year for each of the ozone precursor pollutants (VOC's and NO<sub>x</sub>) or 100 tons per year for PM<sub>10</sub>. Results of this emission analysis are shown in Table 7. Because construction activities scheduled during subsequent years (stream reaches that include the design refinements) would be substantially less intensive than those during the first year of construction (construction of North Beach Lake levee), emissions generated during subsequent years would not be anticipated to exceed the *de minimis* thresholds. Even with the potential for increased construction activity related to the design refinements in the upper basin, activities are still anticipated to be less intensive than the construction year for the North Beach Lake levee. Therefore, the conclusions in the 2002 assessment are still applicable to the design refinements.

**Table 7. Summary of “Worst Case” Annual Emissions**

Source	Estimated Annual Emissions (tons/year)		
	VOC's	NO <sub>x</sub>	PM <sub>10</sub>
Off-Highway Equipment	1.87	12.29	0.37
On-Highway Equipment	0.03	0.23	0.02
Personnel Trips	0.03	0.07	0.00
Fugitive Dust	0.00	0.00	65.89
<b>Total Net Increase</b>	<b>1.93</b>	<b>12.59</b>	<b>66.28</b>
<b>Federal Conformity Determination Threshold (each pollutant)</b>	<b>25</b>	<b>25</b>	<b>100</b>
<b>SMAQMD Mass Emission Thresholds (construction)</b>	<b>None</b>	<b>13.85</b>	<b>–</b>

Sources: U.S. Army Corps of Engineers, 2002; Sacramento Metropolitan Air Quality Management District, 2002.

In addition, as compared to Sacramento County's emissions inventory, the predicted net increases in annual emissions attributable to the proposed action constitute less than one-half of 1

percent of the area's total emissions inventory for each nonattainment pollutant. Based on this analysis, the net increase of direct and indirect emissions attributable to the proposed action would not exceed the *de minimis* thresholds, and Federal General Conformity requirements would not be applicable to the proposed action.

The 2002 analysis also indicates that the mass emission thresholds for construction established by SMAQMD would also not be exceeded.

#### **4.3.3 Mitigation**

The 2002 analysis factored in control measures that would be implemented during construction to lower project emission levels, as follows:

##### **Reducing NOx Emissions from Off-Road Diesel Powered Equipment**

- The project would provide a plan for approval by SMAQMD demonstrating that the heavy-duty (greater than 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, would achieve a project-wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction as compared to the most recent CARB fleet average at time of construction.
- The project representative would submit to SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that would be used an aggregate of 40 or more hours during any portion of the construction project. The inventory would include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory would be updated and submitted monthly throughout the duration of the project, except that an inventory would not be required for any 30-day period in which there is no construction activity. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative would provide SMAQMD with the anticipated construction timeline, including start date, and name and phone number of the project manager and onsite foreman.

##### **Controlling Visible Emissions from Off-Road Diesel Powered Equipment**

- The project would ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) would be repaired immediately, and SMAQMD would be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment would be made at least weekly, and a monthly summary of the visual survey results would be submitted throughout the duration of the project, except that the monthly summary would not be required for any 30-day period in which no construction activity occurs. The monthly summary would include the quantity and type of vehicles surveyed, as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section would supercede other SMAQMD or State rules or regulations.

**Controlling PM<sub>10</sub> Emissions**

- Apply non-toxic chemical soil stabilizers to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Replace ground cover in disturbed areas as quickly as possible.
- Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stock piles with 5 percent or greater silt content.
- Water active sites at least twice daily.
- Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.
- Monitor for particulate emissions according to District-specified procedures.
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered, or should maintain at least 2 feet of freeboard.
- Sweep streets once a day if visible soil materials are carried to adjacent streets.
- Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- Apply water three times daily, or apply non-toxic soil stabilizers to all unpaved parking or staging areas or unpaved road surfaces.
- Traffic speeds on all unpaved roads to be reduced to 15 miles per hour or less.

**4.4 Effects on Water Resources and Quality**

This section identifies and evaluates potential effects of the proposed design refinements on water resources and quality in the project area. An effect would be considered significant if it would result in the permanent loss of a surface or groundwater source, or interfere with existing beneficial uses or water rights. In addition, an effect on water quality would be considered to be significant if it would substantially degrade water quality, contaminate a public water supply, or substantially degrade or deplete ground-water resources or interfere with ground-water recharge.

**4.4.1 Alternative 1 – No Action**

Under the No Action alternative, no construction would take place. As a result, the existing water quality in the study area would continue to be affected by local conditions such as stormwater and urban runoff.

#### **4.4.2 Alternative 2 – Proposed Design Refinements**

The proposed design refinements would be constructed between May and October when flows in Morrison Creek and its tributaries are low. Under this alternative, water quality in the project area could be degraded both during and immediately after construction. In-channel staging and construction activities would disturb soils, which could be carried downstream by creek flows. In addition, accidental fuel spills could contaminate creek waters.

Channel excavation, bridge retrofitting, and construction of drop structures and box culverts would require the diversion and dewatering of creek channels. Diversion of water around channel sections in Morrison Creek and its tributaries could temporarily increase turbidity below the affected channel sections. Stormwater flows in excavated channel sections or other channel construction sites could also increase turbidity downstream of the construction area.

Contamination of surface water and/or channel soils could result from construction activities within Morrison Creek and tributaries. Spills of oil, grease, fuels, hydraulic fluids, or related pollutants could occur during vehicle refueling, parking, and maintenance. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery close to or within the waterways could cause surface water quality degradation if these fuels are washed into Morrison Creek or tributaries. Because the construction work would take place during low-flow summer months with very little precipitation, it is less likely that the tributaries would affect these nearby larger waterways. With the best management practices proposed in Section 4.4.3, the potential for a spill to affect surface water quality would be minimized.

Operations of the City's pump number 90 helps to reduce water quality effects on the Beach and Stone Lakes. Summer flows and low stormwater flows are diverted from Morrison Creek into the Sacramento River by the pump. Summer flows from Morrison Creek would be low in volume and would be diluted by the relatively large volume of flow in the Sacramento River. As a result of dilution, effects on water quality in the Sacramento River from contaminants in Morrison Creek would likely be minimal.

There is a low potential for ground-water quality and levels to be affected by the proposed action. However, contaminants such as petroleum products could be spilled and seep into local ground-water sources. With the best management practices proposed in Section 4.4.3, the potential for a spill to affect ground-water quality would be minimized. The proposed construction activities would not substantially change existing channel conditions in terms of soil permeability. As a result, there would be little or no change in ground-water recharge or depletion of ground water sources used for other beneficial uses.

#### **4.4.3 Mitigation**

In Morrison Creek and its tributaries, channel excavation, bridge retrofitting, and construction of drop structures and box culverts would be regulated under the Clean Water Act Section 404 and 401 programs. Under the Section 404 program, the construction activities would be regulated under the terms and conditions of a Nationwide Permit 25 for Structural Discharges and a Nationwide Permit 33 for Temporary Construction, Access, and Dewatering.

Use of Nationwide Permits 25 and 33 requires application to the Central Valley Regional Water Quality Control Board for a Water Quality Certification to comply with Section 401 of the Clean Water Act.

To comply with Section 402 of the Clean Water Act, a National Pollutant Discharge Elimination System (NPDES) permit must be obtained from the Central Valley Regional Water Quality Control Board. Because the proposed construction activities would disturb more than 5 acres, the applicable permit is the General Permit for Discharges of Storm Water Associated with Construction Activity, known as a Construction General Permit. This permit requires the development and implementation of a Storm Water Pollution Prevention Plan, which must list best management practices that the contractor would use to control storm water runoff and reduce erosion and sedimentation. A Sediment Monitoring Plan is also required because the construction activities would discharge into Morrison Creek, a water body with impaired or limited water quality as listed under Clean Water Act Section 303(d).

Although the project alternatives are not anticipated to have a significant effect on water resources and quality in the project area, the best management practices and measures discussed below would be implemented to ensure that effects to water quality are minimal. The following best management practices would be implemented:

- Properly dispose of oil or liquid wastes.
- Fuel and maintain vehicles in specified areas outside of creek channels that are designed to capture any spills.
- Inspect and maintain vehicles and equipment daily to prevent dripping of oil and other fluids.
- If rains are forecast during the construction period, implement temporary erosion control measures such as berms, silt fences, stacked hay bales, and other erosion prevention measures.
- Train construction personnel in stormwater pollution prevention practices.
- Prior to the start of the rainy season, stabilize and revegetate all areas disturbed by construction activity. Areas of soil compaction would be loosened and seeded with annual grasses.

In addition, channel sections under construction would be dewatered by installing temporary cofferdams and by diverting streamflow through a culvert and around the channel section to be excavated. Most of the project channels have a concrete-lined low-flow channel. When construction is completed, the cofferdam would be removed, and flow would enter the new low-flow channel. The concrete lining the low-flow channel would be allowed the appropriate time to cure before flow is returned to the creek channel.

#### 4.5 Effects on Vegetation and Wildlife

An effect on vegetation wildlife would be considered to be significant if it would result in the permanent loss or degradation of native vegetation, or loss of resident or migratory wildlife species and/or their habitat.

##### 4.5.1 **Alternative 1 – No Action**

The no action alternative would have no effects on existing vegetation and wildlife in the project area. Types of natural plant communities and associated wildlife would be expected to remain the same.

##### 4.5.2 **Alternative 2 – Proposed Design Refinements**

One of the main differences between the original design and the proposed design refinements is that the channel bottoms of all creeks would be excavated under the new design. However, in the effect assessment conducted for the 1998 EIS/EIR, it was assumed that the entire channel bottom would be affected by construction activities. Therefore, this change in design does not increase the area of vegetation affected within the channel. The degree of effect may be increased by the new design since vegetation would actually be removed instead of just covered. Since the effect is temporary and the cover type affected is easily replaced, this difference is not significant.

The proposed design refinements associated with widening channels, modifying additional tributaries, and disposing of excavated material would affect additional nonnative annual grasslands, urban landscapes, and associated wildlife within the project area. The amount of habitat affected is summarized by reach in Table 8.

**Table 8. Additional Areas Affected by Design Refinements**

<b>Creek/Reach</b>	<b>Reach Length (feet)</b>	<b>Area Affected (acres)</b>
Florin Creek Elder Creek to Franklin Boulevard	1,600	0.7
River station 3479 to Persimmon Avenue	2,521	1.2
Unionhouse Creek Morrison Creek to Franklin Boulevard.	4,764	10.9
Franklin Boulevard to Center Parkway	5,406	8.1
Morrison Creek Tributary Just downstream from Stockton Boulevard	300	0.3
<b>TOTAL</b>		<b>21.2</b>

The areas identified as affected in Table 8 are primarily areas with nonnative annual grassland vegetation. The exception is the area on Florin Creek from river station 3479 upstream to Persimmon Avenue. In this area, many of the residents adjacent to the creek have expanded their backyards into the right-of-way that would be used for widening the channel. In these areas

urban landscape rather than annual grassland would be affected by the proposed project refinements. The consequence of how this 1.2 acres is subdivided into urban landscape and annual grassland is not significant. Therefore, no attempt was made to do so.

The areas affected on Florin and Unionhouse Creeks are primarily affected by the widening of the channels. The exception is that on Unionhouse Creek from Franklin Boulevard to Center Parkway, the area includes a 50-foot-wide disposal area adjacent to the widened channel.

Adding a floodwall to the top of the existing lined tributaries to Morrison Creek would have little effect on vegetation and wildlife. The exception is for the tributary reach that ends at Stockton Boulevard. This tributary is underground for a distance of about 300 feet just downstream from Stockton Boulevard. Opening this covered ditch and adding a floodwall would affect about 0.3 acre of annual grassland.

While the degree of the effect to emergent wetlands and seasonal wetlands in the design refinement reaches would be greater due to channel excavation, the effects would still be considered temporary and mitigation for these effects were included in the 1998 EIS/EIR.

#### **4.5.3 Mitigation**

The effects of the proposed design refinements on annual grassland would be temporary. All areas affected would be reseeded and allowed to revert to an annual grassland vegetation. Since some of the effects are associated with widening the channel, including the bottom of the channel, habitat in the bottom of the channel would be increased because portions of the widened channel would not have a concrete lining. Since there would be no net loss of acreage, there would be a rapid replacement of cover, and habitat value would be increased, no additional mitigation would be required to compensate for the temporary loss of annual grassland habitat.

#### **4.6 Effects on Special Status Species**

Endangered and threatened species and other special status species may be adversely affected by the loss of habitat and disturbances associated with the design refinements. In addition, several habitats of potential value to endangered and threatened species would be affected by the design refinements. These habitats include riparian scrub and emergent marsh. Any project action that would affect the continued existence of an endangered or threatened species or a species of special concern is considered to be a significant adverse affect.

##### **4.6.1 Alternative 1 – No Action**

The no action alternative assumes that the Federal Government would not participate in a flood control project in the project area. Without the project, the habitats in the creek channels of the upper basin are not likely to change significantly from existing conditions. The urban nature of the creeks and development adjacent to the creeks would not change. Habitat for the Sanford's arrowhead would continue to be affected by the ongoing annual maintenance practices.

#### 4.6.2 Alternative 2 – Proposed Design Refinements

Project effects of the proposed design refinements would result from widening channels, modifying additional tributaries, and disposing excavated materials in new disposal areas. Project effects could also result from excavation work in the creek channels. However, in the assessment conducted for the 1998 EIS/EIR, it was assumed that the entire channel bottom would be affected by construction activities. Therefore, this change in design requiring excavation does not increase the area of vegetation affected within the channel. The degree of effect may be increased by the new design since vegetation would actually be removed instead of just temporarily covered. However, since the effect is still temporary and the cover type affected is easily replaced, this difference is not significant. This section contains information on potential effects to special status species resulting from these design refinements.

Giant Garter Snake. Potential giant garter snake upland habitat in the project area would be affected by proposed design refinements. Much of the effect is expected to be minimal due to the following:

- The effect would be temporary.
- Adjacent aquatic habitat is limited to lined channels for most of the snake's active period.
- Use of the area is expected only during downstream flooding or during other dispersal activities.

However, construction of concrete aprons upstream of 8 of the 11 drop structures would be considered a permanent loss to giant garter snake habitat. The 15-foot-wide aprons would extend up both slopes of the trapezoidal channel to prevent channel scouring. The drop structures would be installed in locations where there is currently a concrete low-flow channel; therefore, only the areas newly concreted outside of the low-flow channel are considered permanent loss of habitat. The three drop structures in the unnamed tributaries to Morrison Creek would not have permanent habitat loss associated with them because these channels are currently concrete lined. The area affected at each structure is indicated in Table 9.

Although the quality of giant garter snake habitat in the project streams' upper reaches has been characterized as marginal and the resultant loss of giant garter snake upland acreage (0.06 acre) is relatively small, a finding of likely to adversely affect the giant garter snake is applicable. The Corps has reinitiated consultation with USFWS under Section 7 of the Endangered Species Act. The Corps' proposed compensation and mitigation measures identified in Section 4.6.3 below and implementation of the terms and conditions found in the amended Biological Opinion would minimize the project's effects to the snake.

**Table 9. Area of Permanent Loss of Giant Garter Snake Habitat**

Creek	Drop Structure	Concrete Apron (square feet)	Less Existing Low-Flow channel (square feet)	Area of Permanent Snake Habitat Loss (square feet)
Morrison	Stockton Blvd.	718	180	538
Morrison	Upstream of Stockton Blvd.	497	180	317
Florin	Franklin Blvd.	302	180	122
Florin	Center Pkwy.	572	180	392
Florin	State Rte. 99	497	180	317
Florin	Orange Ave.	448	180	268
Elder	State Rte. 99	718	180	538
Unionhouse	Center Pkwy.	329	180	149
<b>Total (square feet)</b>				2,641

Swainson's Hawk. The proposed design refinements would not have any additional effects to known nest sites for the Swainson's hawk, but would affect potential foraging habitat in the project area. These effects would be temporary and would be minimized by the disturbed nature and proximity of existing habitat to developed areas. Furthermore, a large amount of foraging habitat currently exists for the hawk within a 1- to 5-mile radius of known nest sites. As a result, the hawk would have significant alternative foraging habitat during project construction. Therefore, the temporary loss of foraging habitat would not be considered a significant effect.

Burrowing Owl. Potential burrowing owl habitat in the project area would be affected by widening channels and by disposing excavated material along Unionhouse Creek. Construction activities could affect foraging habitat and burrows, which are usually located in rodent holes in the levees. These effects would be temporary and would add to the effects in areas already significantly affected by the previous design.

Sanford's Arrowhead. The potential for short-term effects to Sanford's arrowhead would be increased by the new design since vegetation within the channels would actually be removed instead of just covered. However, since a mitigation measure identified in the 1998 EIS/EIR involved the removal and replanting of plant populations, there would really be no additional effects to the species. Due to channel widening, the area of potential habitat would actually be increased over the long term.

### 4.6.3 Mitigation

To minimize incidental take of the Federally listed giant garter snake, the Corps and the non-Federal sponsor would ensure implementation of the respective terms and conditions and reasonable and prudent measures identified in the amended Biological Opinion (Appendix C). The Corps also recommends compensation for the permanent loss of 0.06 acre upland giant

garter snake habitat through the purchase of credits at a USFWS-approved mitigation bank at a ratio of 3 to 1.

Mitigation measures identified in the 1998 EIS/EIR would be sufficient to address any potential new effects to the Swainson's hawk and Sanford's arrowhead. In addition the 1998 mitigation proposed for burrowing owl, strategic breaching of the south Unionhouse Creek levee between UPRR and Franklin Boulevard to avoid existing burrowing owl burrows would also minimize potential for affecting owls.

#### **4.7 Effects on Cultural Resources**

An effect on cultural resources would be considered to be significant if it diminishes the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association.

##### **4.7.1 Alternative 1 – No Action**

Even under the no action alternative, any cultural resources in the project area may remain at risk. Additional development could affect cultural resources by destroying or damaging them. Natural processes such as erosion, root and rodent intrusion, and flooding could destroy prehistoric sites. Vandalism, through deliberate looting and collecting, is a national problem and is expected to continue.

##### **4.7.2 Alternative 2 – Proposed Design Refinements**

No known cultural resources would be affected by the proposed design refinements. The updated records and literature search of the expanded APE was negative for cultural resources. Field surveys of the expanded APE were conducted to determine whether there are cultural resources within the APE. Since no prehistoric or historic archeological sites or historic structures have been identified within the APE, the proposed design refinements would likely have no effects on cultural resources within the expanded APE of the upper basin.

##### **4.7.3 Mitigation**

Since the proposed design refinements are not expected to affect any cultural resources in the expanded APE, no mitigation measures would be required. In the event previously unidentified cultural resources are discovered, work would be halted and a Corps archaeologist would be notified for further assessment. The State Historic Preservation Officer (SHPO) would then be notified, as appropriate.

## **5.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS**

### **5.1 Cumulative Effects**

NEPA requires that an environmental evaluation discuss project effects which, when combined with the effects of other projects, could result in significant cumulative effects. The existing and planned projects in the study area were identified or discussed by general types in the 1998 EIS/EIR.

Since completion of the 1998 EIS/EIR, local residential and business development has continued in the South Sacramento area. Example residential developments include Steamboat Bend, Village Meadows, and Sunnyside Meadows. Associated recreational and transportation facilities include new parks, community centers, bike trails, and roadway work. Specific projects tentatively planned for completion by 2010 by the State and local entities include the following:

- Construct major connector road between Interstate 5 and Highway 99 near Cosumnes River Boulevard (Anderson, 2004).
- Extend the light rail system from Meadowview Road to Cosumnes River College (Sacramento Regional Transit District, 2004a).
- Upgrade tower and water intake on the Sacramento River at Freeport Boulevard (Anderson, 2004; Freeport Regional Water Authority, 2004).
- Construct Freeport Bypass Project to connect sewage pipelines in North Natomas and West Sacramento to the existing sanitary facilities in the South Sacramento area (SRCSD 2004).

Cumulative effects of the South Sacramento project were discussed in general in the 1998 EIS/EIR. The proposed design refinements would have no additional cumulative effects on the environment. Construction and operation of these other projects would have been, or will be, in compliance with environmental laws and regulations, including any required mitigation measures.

## **5.2 Growth-Inducing Effects**

The growth-inducing effects as discussed in the 1998 EIS/EIR has not changed. The proposed design refinements would not induce growth in or near the project area. The design level of flood protection would remain the same as the original design, and local population growth and development would be consistent with City and County General Plans.

## **6.0 COMPLIANCE WITH APPLICABLE LAWS, POLICIES, AND PLANS**

The relationship of the project to applicable Federal, State, and local environmental requirements is summarized below. The project is in compliance with all laws, regulations, and Executive orders.

### **6.1 Federal Requirements**

#### **National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.).**

*Compliance.* In accordance with Section 106 of this Act (36 CFR 800), letters dated February 12, 2004, and November 3, 2004, were sent to the California State Office of Historic Preservation informing them of the project and asking for comments on the expanded APE (Appendix E). The Native American Heritage Commission provided a list of potential Native Americans who were contacted via letter to inquire if they have knowledge of locations of

archeological sites, or areas of traditional cultural interest or concern. To date, no responses have been received from the Native Americans.

Field surveys of the areas of the expanded APE not previously surveyed or included in the 1998 EIS/EIR were conducted. No new cultural resources were located. The letter dated November 3, 2004, to the California State Historic Preservation Officer also provided additional information and requested concurrence with the Corps' determination that the project as planned would have no effect on National Register eligible or listed properties. Concurrence from SHPO was received on December 1, 2004 (Appendix E).

**Clean Air Act (42 U.S.C. 1857 et seq. (1990), as amended and recodified, 42 U.S.C. 7401 et seq. (SUPP II 1978)).** *Compliance.* Section 8.3 of this EA discusses the project's effects on local and regional air quality. The section discusses the issues relative to the project's compliance with SMAQMD significance criteria and EPA's adopted *de minimis* thresholds in its general conformity rule. Construction of the project would not have a significant adverse effect on air quality due to the implementation of proposed mitigation. No mitigation for indirect effects is needed.

**Clean Water Act (33 U.S.C. 1251 et seq. (1976 & SUPP II 1978)).** *Compliance.* Compliance with the Federal Clean Water Act including Section 404 is discussed in Section 4.4. A 404(b)(1) analysis was completed (Appendix A). The project would be regulated under the terms and conditions of a Nationwide Permit 25 for Structural Discharges and a Nationwide Permit 33 for Temporary Construction, Access, and Dewatering. All conditions of the permits would be followed during construction. Updated water quality certification for work in the design refinement reaches to comply with Section 401 of the Clean Water Act would also be obtained prior to construction in the design refinements area.

**Endangered Species Act (16 U.S.C. 1531 et seq.).** *Compliance.* Section 7 of the Endangered Species Act requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. Section 7 consultation was reinitiated with USFWS. An amended biological opinion was provided by the USFWS and is included in Appendix C.

**Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.).** *Partial Compliance.* This act requires Federal agencies to consult with the USFWS and State fish and game agencies before undertaking projects that control or modify surface water (water projects). The USFWS and CDFG are authorized to conduct necessary surveys and investigations to determine the possible damage to resources and to determine measures to prevent such losses. Representatives of the Corps participated in these studies as part of the 1998 EIS/EIR. The reports and recommendations of USFWS and CDFG must be integrated into any report that seeks permission or authority to construct a project. This act requires the Corps to incorporate into the project plan "such justifiable means and measures for wildlife purposes as the Corps finds should be adopted to obtain maximum overall project benefits." The draft supplemental CAR prepared by USFWS is included in Appendix B. The final supplemental CAR will be received from the USFWS following a 30-day coordination period with CDFG and NOAA Fisheries. Findings of the draft

are not expected to change following this coordination. The project will be in full compliance upon receipt of the final CAR.

**National Environmental Policy Act (42 U.S.C. 4321 et seq.).** *Compliance.* This act requires the full disclosure of the environmental effects, alternatives, potential mitigation, and environmental compliance procedures of the selected project. The final EA provides responses to public comments on the draft EA. A signed Finding of No Significant Impact completes the environmental documentation required by the act.

**Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.), President's Environmental Message of August 1979, and CEQ Memorandum of August 10, 1980, for Heads of Agencies.** *Compliance.* There are no rivers designated as Wild and Scenic Rivers in the project area.

**Executive Order 11988, Flood Plain Management.** *Compliance.* This Executive Order requires the Corps to provide leadership and take action to (1) avoid development in the base (100-year) flood plain (unless such development is the only practicable alternative); (2) reduce the hazards and risk associated with floods; (3) minimize the effect of floods on human safety, health, and welfare; and (4) restore and preserve the natural and beneficial values of the base flood plain. To comply with this Executive Order, the policy of the Corps is to formulate projects which, to the extent possible, avoid or minimize adverse effects associated with use of the base flood plain and avoid inducing development in the base flood plain unless there is no practicable alternative.

The project provides various levels of flood protection to the project area. The proposed levee and channel improvements would be consistent with existing City and County policies regarding land use and flood protection. The proposed levee and channel improvements would also support the County's General Plan Safety Element Policy 14 and the Floodplain Management and Interim Floodplain Development Policies. Although the proposed improvements would remove some areas from the 100-year flood plain of Morrison Creek, these properties would still be in the 100-year flood plain of the American and Sacramento Rivers.

The project area is expected to be developed in accordance with existing adopted land use designations. Current growth projections for the project area were determined to be the same for with- and without-project conditions. Therefore, the project would not induce any development in the base flood plain. Local entities with oversight of development activities must comply with State-mandated resource protection including the California Endangered Species Act. Accordingly, the natural and beneficial values of the flood plains would be protected as further urban development continues.

**Executive Order 11990, Protection of Wetlands.** *Compliance.* This order directs the Corps to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in implementing civil works projects.

Construction of any of the project alternatives will be performed under Nationwide Permit #33 and/or Nationwide Permit #25. These permits allow for temporary fill in jurisdictional wetlands or waters of the U.S. during construction. No permanent loss of jurisdictional wetlands acreage or value is expected with the project alternatives.

**Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.** *Compliance.* 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. Construction of the proposed design refinements would benefit all current and future residents by ensuring that the South Sacramento project would meet the minimum FEMA certifiable 100-year level of flood protection. In addition, all residents have the opportunity to participate in public meetings and comment on the proposed design refinements.

**Farmland Protection Policy Act (7 U.S.C. 4201 et seq.).** *Compliance.* This act requires a Federal agency to consider the effects of this action and programs on the Nation's farmlands. A discussion of the analysis and effects of this project on prime and unique farmlands is included in Section 3.1.1.

## **6.2 State Laws, Regulations, and Policies**

**California Environmental Quality Act (CEQA), California Public Resources Code, Section 21000, et. seq.** CEQA requires the non-Federal lead agency to identify potential significant adverse effects of the project on the environment through preparation of an IS or EIR. SAFCA has primary responsibility for the CEQA review process and project review.

**California Endangered Species Act.** This act requires the non-Federal lead agency to prepare a biological assessment if a project may adversely affect one or more State-listed species. While the 1998 EIS/EIR identified adverse effects to the State-listed burrowing owl and Swainson's hawk, the design refinements would not cause any additional adverse effects to these species. As stated in the 1998 EIS/EIR, the non-Federal sponsor will continue to coordinate with CDFG concerning these species.

**Porter-Cologne Water Quality Control Act, California Water Code, Secs. 13000-13-13999.18; California Code of Regulations, Title 23, Chapter 23.** The State Water Resources Control Board and nine regional water quality control boards are responsible for exercising the powers of the State in the field of water quality. The regional boards also issue waste discharge requirements and water quality certification on behalf of the Federal Government. Specifically, the State Water Resources Control Board and the California Regional Water Quality Control Board for the Central Valley Region review activities that affect water quality in the Central Valley. The Boards administer the requirements mandated by State and Federal law (Clean Water Act). The Regional Water Quality Control Board establishes water quality standards and reviews individual projects for compliance with the standards.

A National Pollutant Discharge Elimination Systems (NPDES) general permit for construction activities will be acquired from the Central Valley Regional Water Quality Control

Board, and a stormwater pollution prevention plan will be developed per the guidelines of the general permit. This permit is for discharging high quality or relatively pollutant-free water that poses little or no threat to water quality and the environment, and only covers discharges to surface water. The NPDES permit will be acquired before construction activities begin. Appropriate water quality certification from the Central Valley Regional Water Quality Control Board will be acquired as stated in the Nationwide Permit #33 and/or Nationwide Permit 25. Finally, a Sediment Monitoring Plan will also be prepared because of discharge into Morrison Creek, a water body with impaired or limited water quality as listed under Clean Water Act Section 303(d). All permits and plans will be received and completed prior to construction.

**Streambed Alteration Agreement.** The CDFG requires a streambed alteration agreement for any activity that would “divert or obstruct the natural flow of water, or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed.” Based on the applicant’s information and a possible field inspection, the CDFG may require and negotiate a streambed alteration agreement designed to protect and conserve the fish and wildlife resources of the State. The Corps and SAFCA will ensure that the stream alteration agreement will be negotiated before the project is constructed.

**Surface Mining and Reclamation Act of 1975 (Public Resources Code, Section 2710, et seq.).** The State Mining and Geology Board oversees the implementation of this act, which requires that an entity seeking to conduct a surface-mining operation obtain a permit from, and submit a reclamation plan to, the lead agency overseeing that operation. This project involves obtaining borrow material for the project, which may be classified as surface mining. SAFCA will coordinate any need for a permit with the State Mining and Geology Board.

#### **State Lands Commission Leases**

The State Lands Commission has jurisdiction over all ungranted tidelands and submerged lands owned by the State and the beds of navigable rivers, sloughs, and lakes (Public Resources Code, Section 6301). State ownership extends to lands lying below the low-water mark of nontidal waterways (Civil Code, Section 830). A project cannot use these State lands unless a lease is first obtained from the State Lands Commission. Projects such as bridges, transmission lines, and pipelines fall into this category. SAFCA will coordinate with the State Lands Commission for any necessary leases.

### **6.3 Local Plans, Policies, and Permits**

The project area is located within the jurisdictions of the Sacramento City and County General Plans. The proposed design refinements are expected to comply with all of the relevant local plans. All proposed activity involving the placement of encroachments within, under, or over county or city road rights-of-way must be covered by an encroachment permit. The non-Federal sponsor will consult with appropriate local agencies, as necessary, to obtain encroachment permits. The non-Federal sponsor will ensure that all relevant city and county ordinances, such as tree ordinances, will be complied with.

## **7.0 COORDINATION AND REVIEW OF THE DRAFT EA**

The draft EA and draft FONSI were circulated for a period of 30 days to agencies, organizations, and individuals known to have a special interest in the project. Copies of the draft document were made available for public review and comment at the Corps' Sacramento District Office and at public libraries in the city of Sacramento. All comments received during the comment period were considered and incorporated into the final EA, as appropriate. The comments and Corps responses are included in Appendix F.

## **8.0 FINDINGS**

This final EA evaluates the environmental effects of no action and the proposed action of making design refinements to the previously authorized South Sacramento County Streams Project. Results of the evaluation indicate that the proposed action would not result in any significant effects on the environment or that mitigation would reduce environmental effects to less than significant.

The project meets the requirements for actions permitted following completion 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**

The following team members participated in the preparation, review, and editing of this EA.

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3.5 years cultural resources studies  
Cultural resources evaluation

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

## **10.0 REFERENCES**

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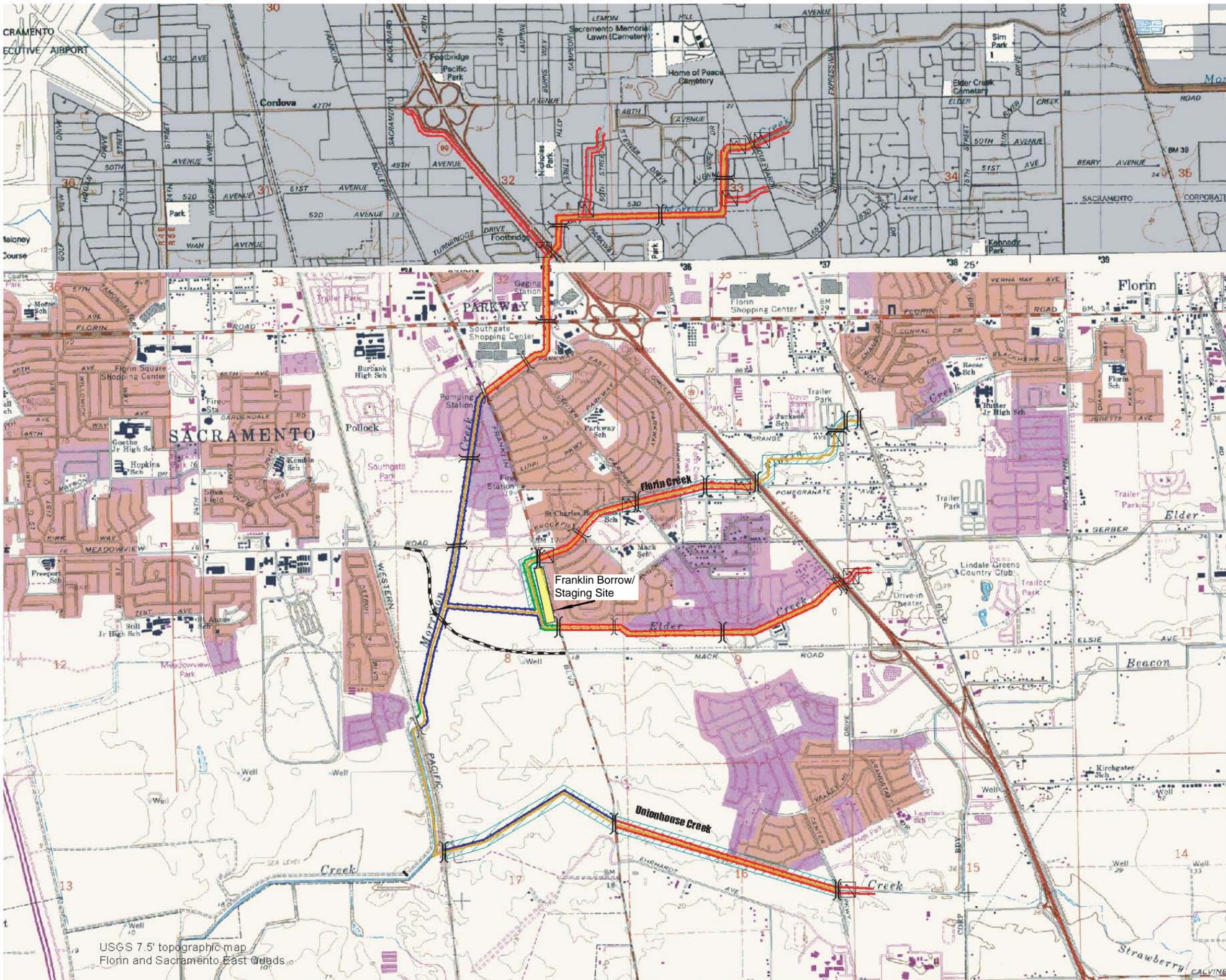
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## **PLATES**





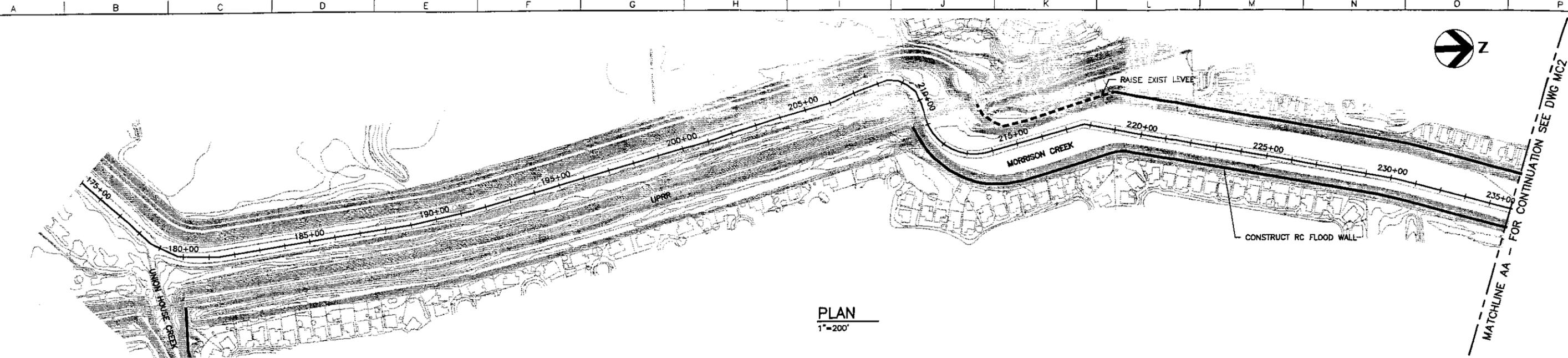
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-  Drop Structure
  -  Sheetpile Floodwall
  -  Concrete Floodwall
  -  Channel Excavation
  -  Raise Levee
  -  Channel Widening
  -  Bridge Retrofit
  -  Mack Road  
(approximate location -  
constructed after latest  
USGS quad map revision -  
not a project feature)



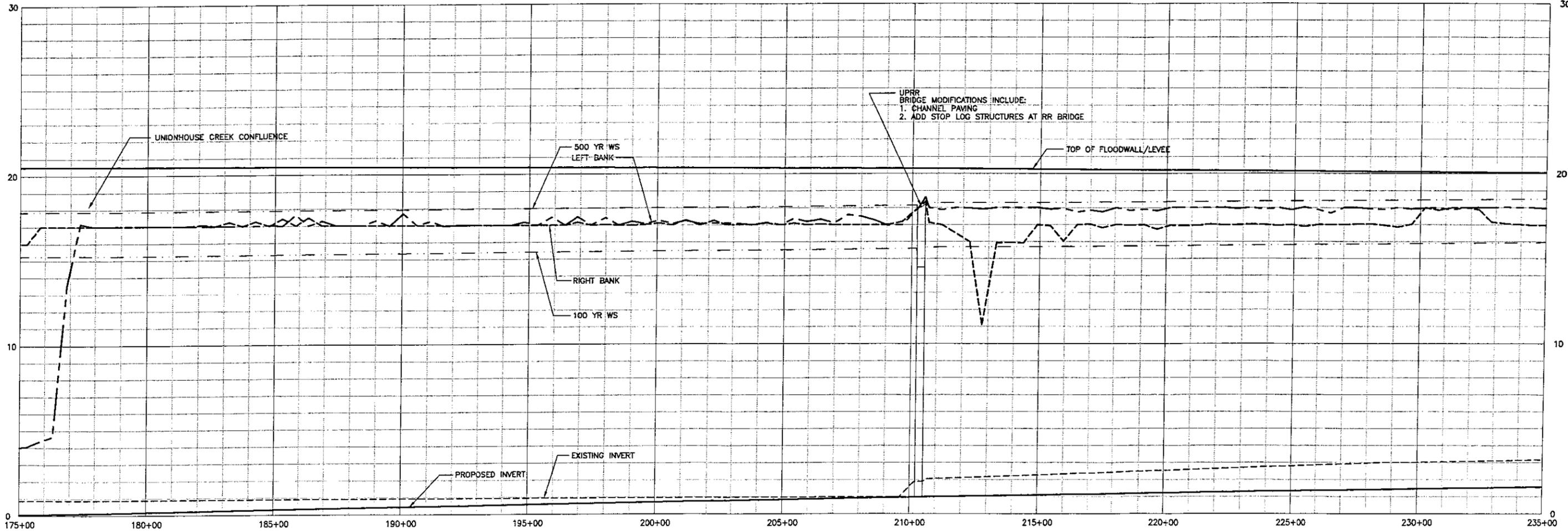
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**Plate 1. Project Area and Features Map**

USGS 7.5' topographic map  
Florin and Sacramento East Quads.



**PLAN**  
1"=200'



**PROFILE**  
HORIZ: 1" = 200'  
VERT: 1" = 3'

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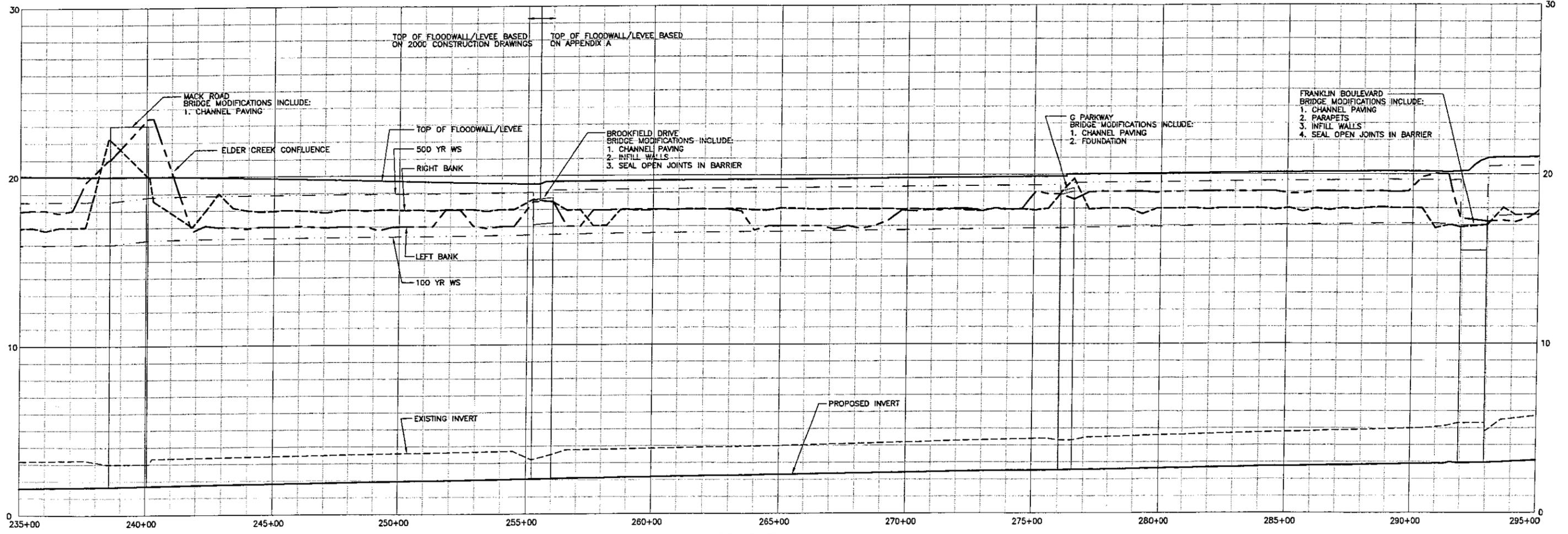
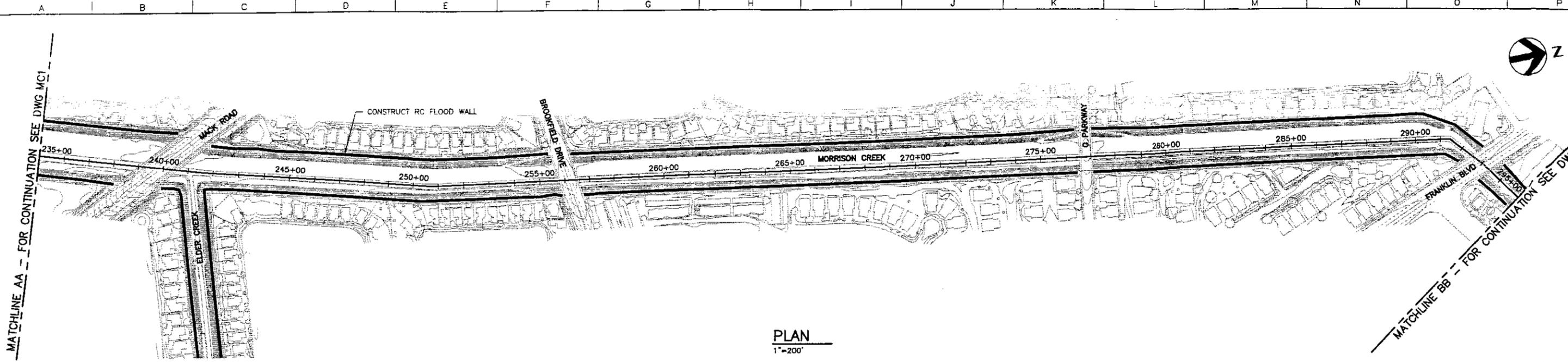
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Project Manager	L. FREDERIKSEN
Designed	A. PETERSON
Designed	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI

**SOUTH SACRAMENTO STREAMS  
TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

**MORRISON CREEK  
STA 175+00 TO 235+00**

Date	JUNE, 2004	Project No.	10355-12808-141	Drawing No.	MC1	Issue	0
Scale	AS NOTED	File Name	12808-MC-1.DWG				



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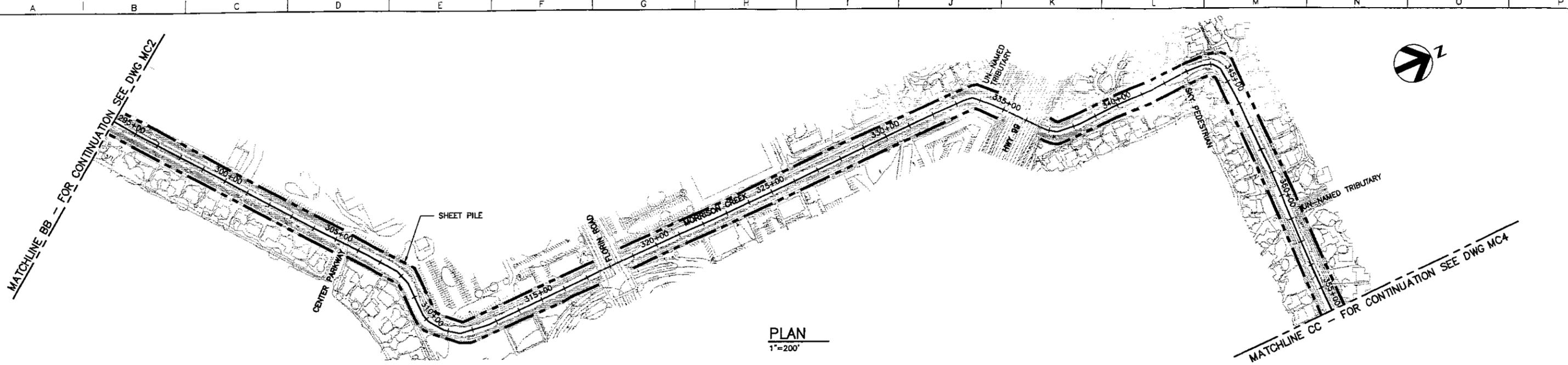
**HDR**  
HDR Engineering, Inc.

Project Manager: L. FREDERIKSEN  
 Designed: A. PETERSON  
 Designed: C. TADOKORO  
 Checked: [Blank]  
 Drawn: T. GARSHASEBI

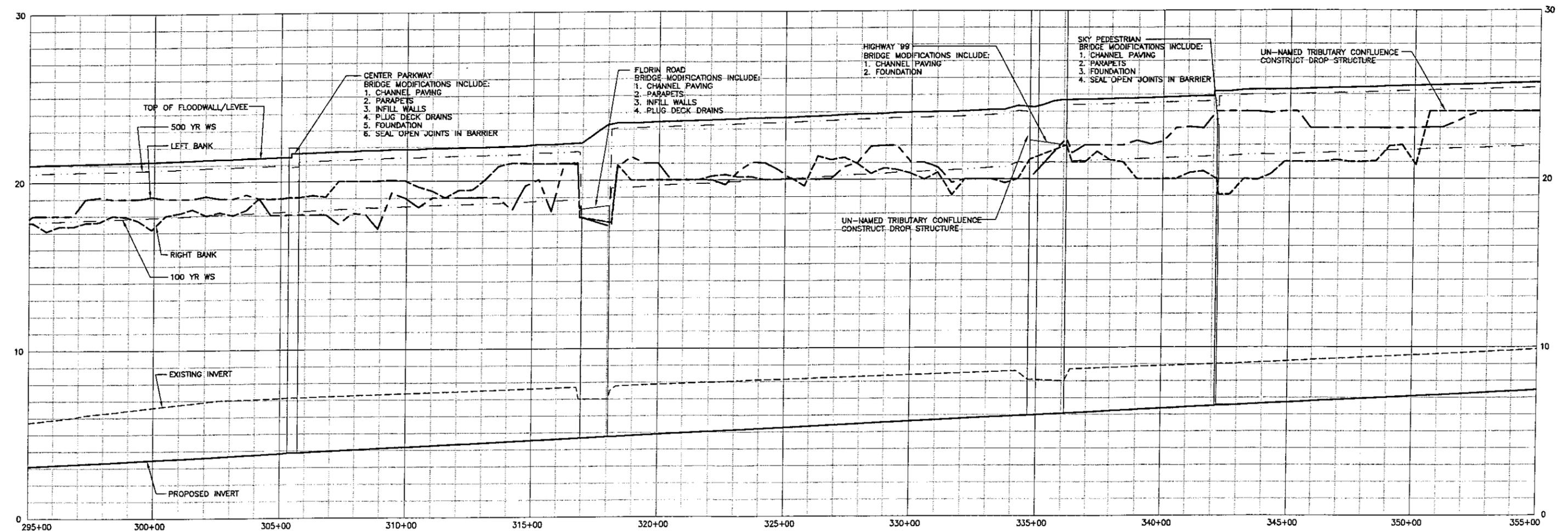
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TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

**MORRISON CREEK  
STA 235+00 TO 295+00**

Date: JUNE, 2004	Project No.: 10355-12808-141	Drawing No.: MC2	Issue: 0
Scale: AS NOTED	File Name: 12808-MC-2.DWG		



**PLAN**  
1" = 200'



**PROFILE**  
HORIZ: 1" = 200'  
VERT: 1" = 3'

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**HDR**  
HDR Engineering, Inc.

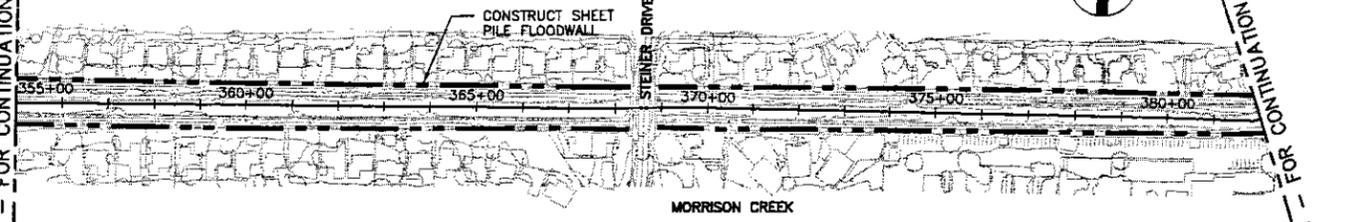
Project Manager	L. FREDERIKSEN
Designed	
Designed	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI

**SOUTH SACRAMENTO STREAMS  
TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

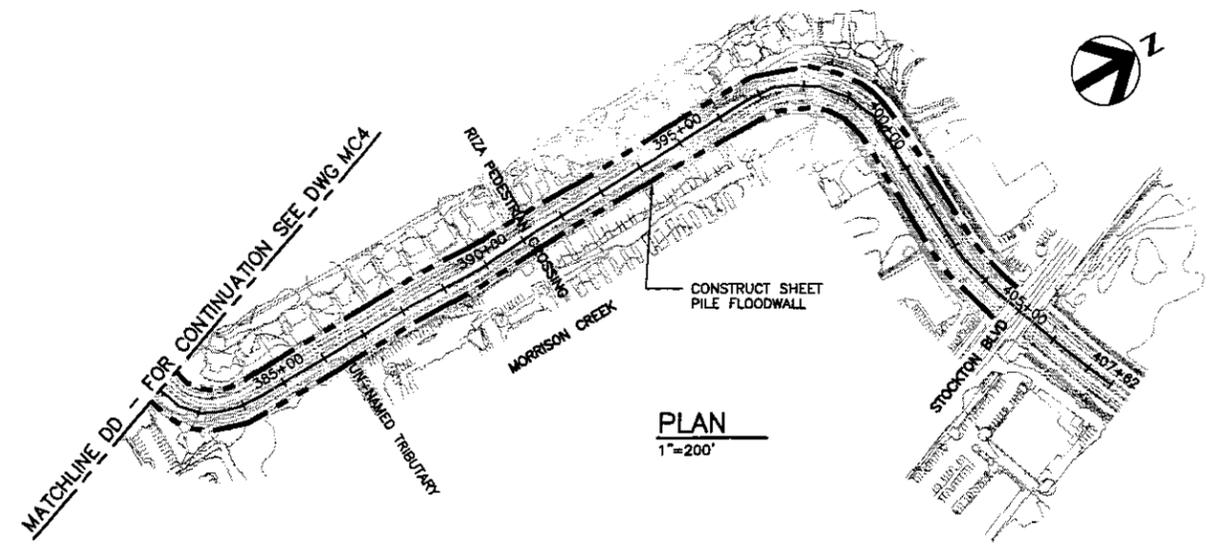
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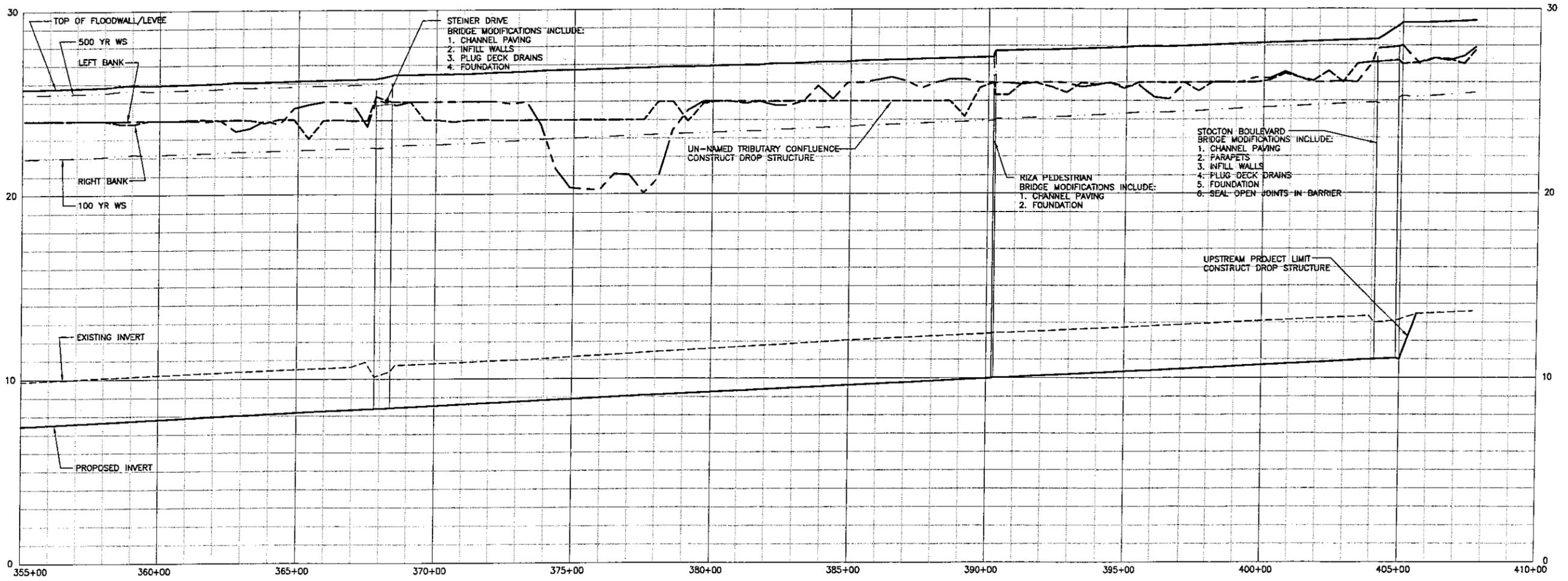
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**PLAN**  
1"=200'



**PLAN**  
1"=200'



**PROFILE**  
HORIZ: 1" = 200'  
VERT: 1" = 3'

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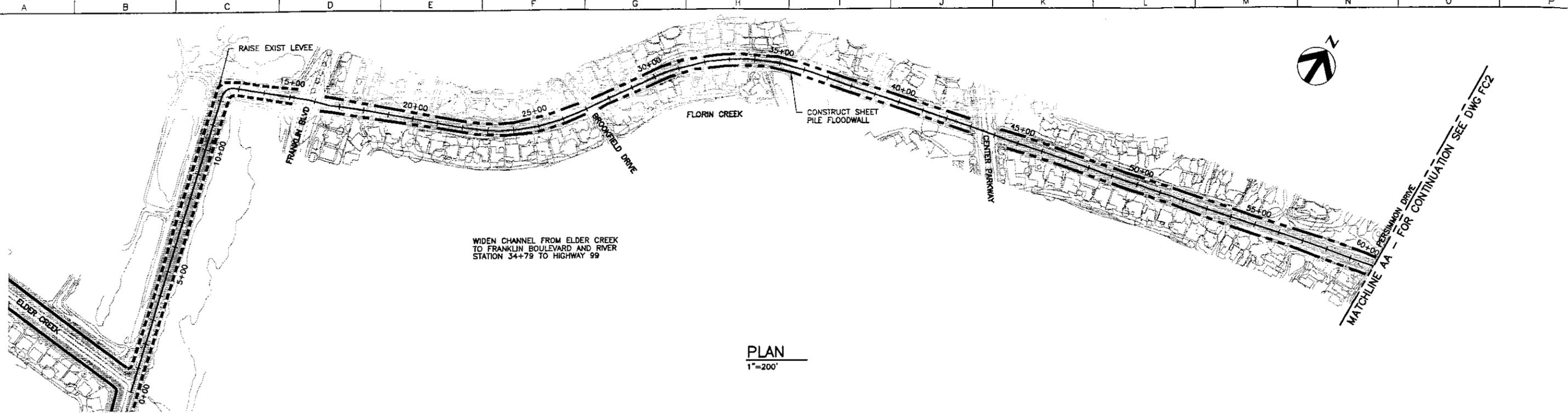


Project Manager	L. FREDERIKSEN
Designed	A. PETERSON
Designed	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI

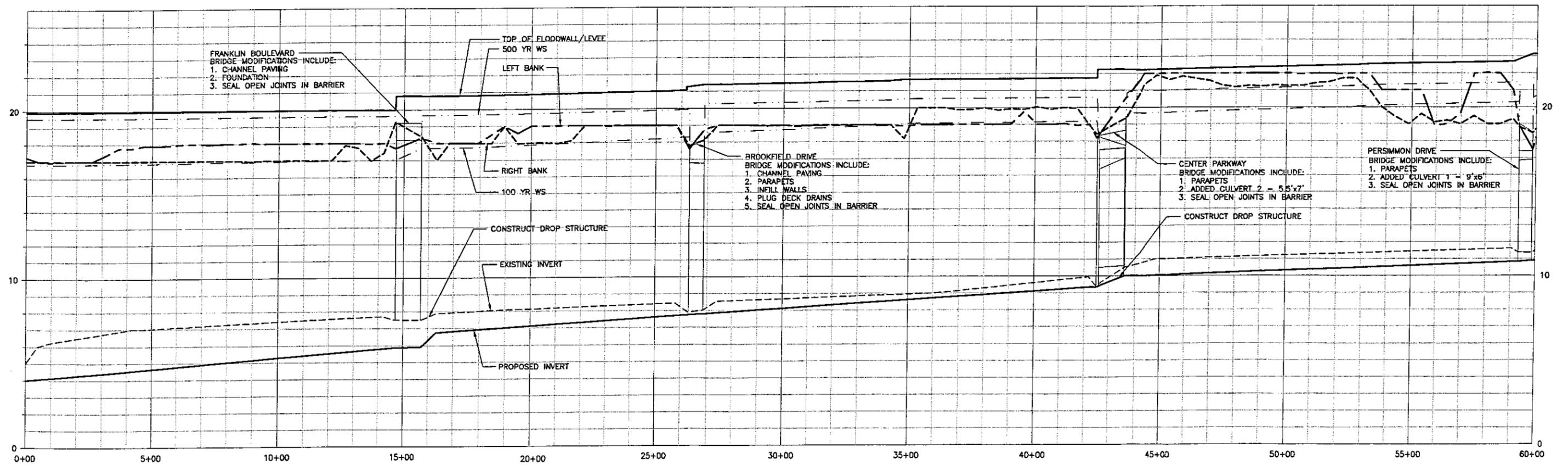
**SOUTH SACRAMENTO STREAMS  
TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

**MORRISON CREEK  
STA 355+00 TO 407+62**

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Scale	AS NOTED	File Name	12808-MC-4.DWG				



**PLAN**  
1"=200'



**PROFILE**  
HORIZ: 1" = 200'  
VERT: 1" = 3'

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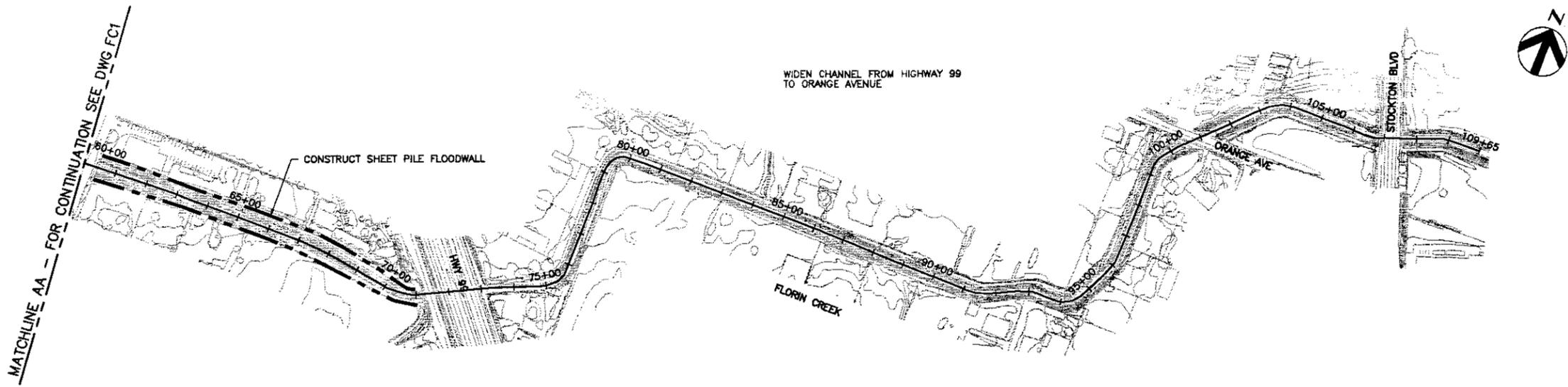
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HDR Engineering, Inc.

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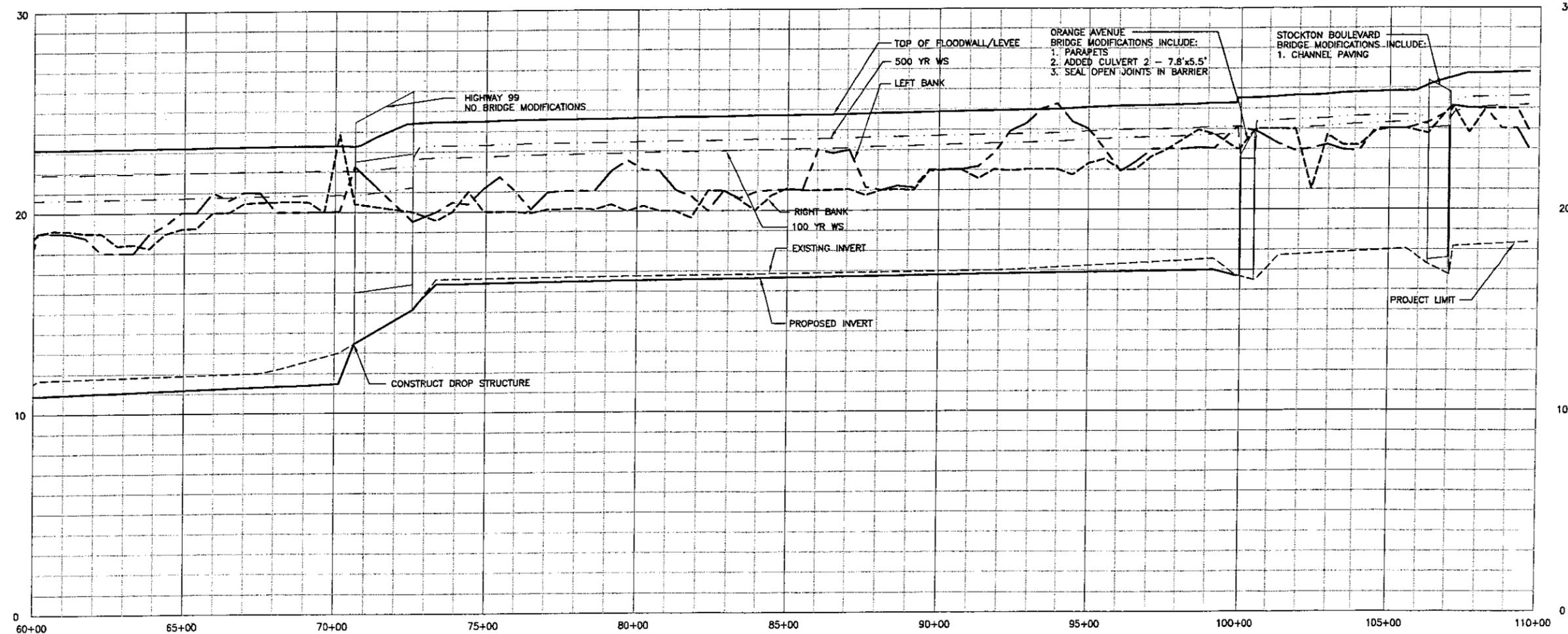
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Designed	A. PETERSON
Designed	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI

**SOUTH SACRAMENTO STREAMS  
TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

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**PLAN**  
1" = 200'



**PROFILE**  
HORIZ: 1" = 200'  
VERT: 1" = 3'

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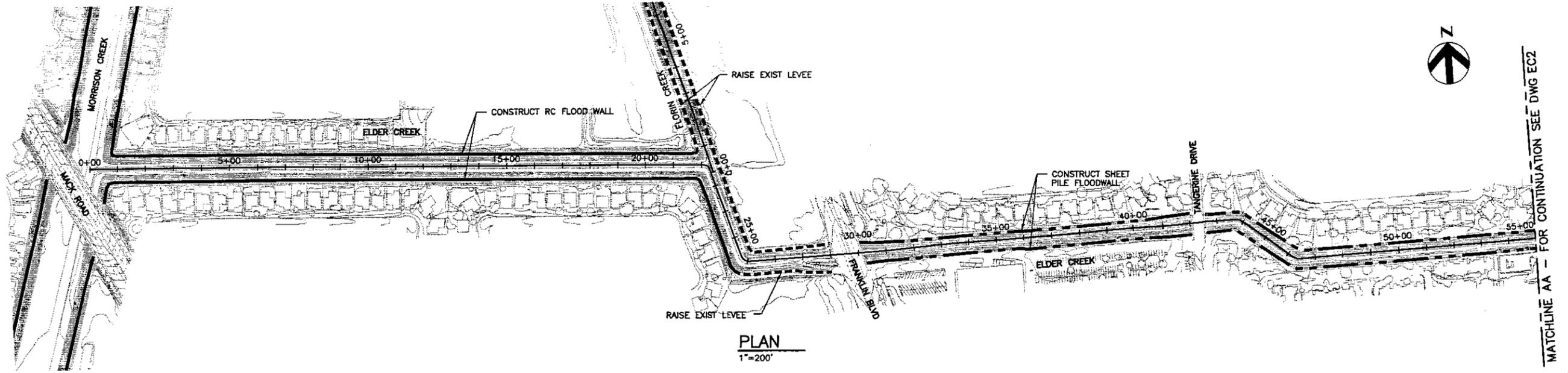
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HDR Engineering, Inc.

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Designed	A. PETERSON
Designated	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI

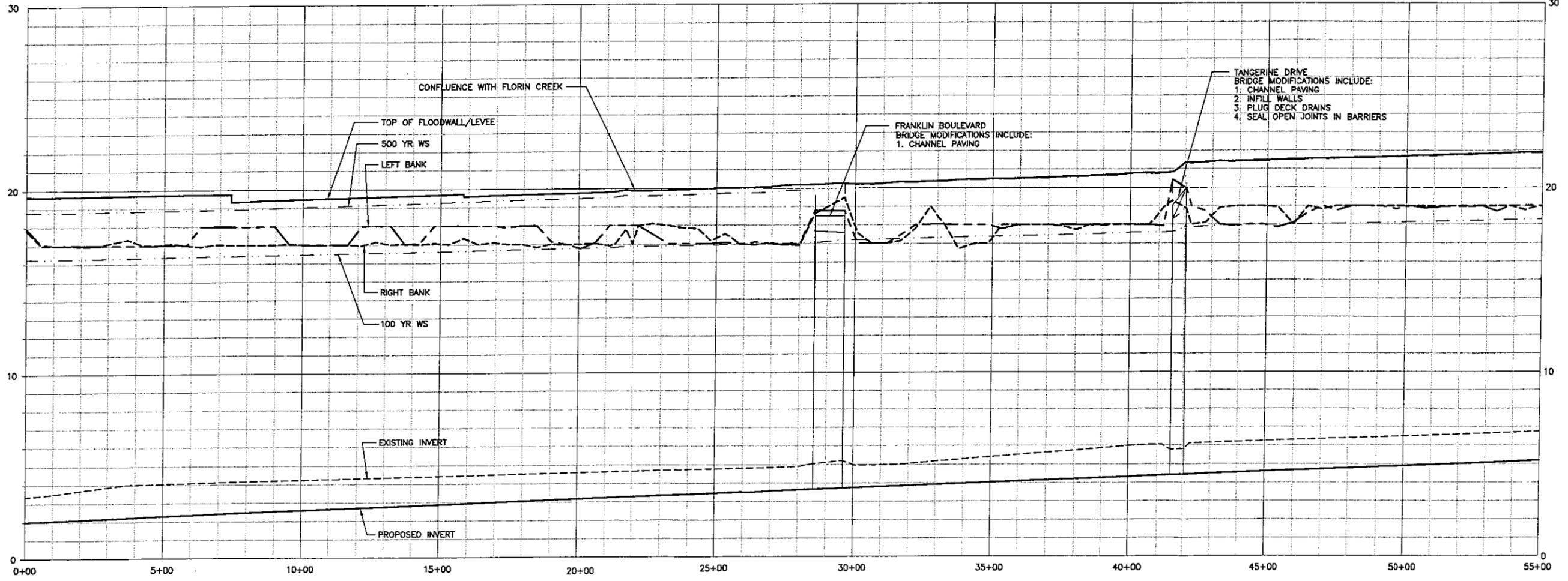
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TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

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Project No.	10355-12808-141
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**PLAN**  
1"=200'

MATCHLINE AA - FOR CONTINUATION SEE DWG EC2



**PROFILE**  
HORIZ: 1" = 200'  
VERT: 1" = 3'

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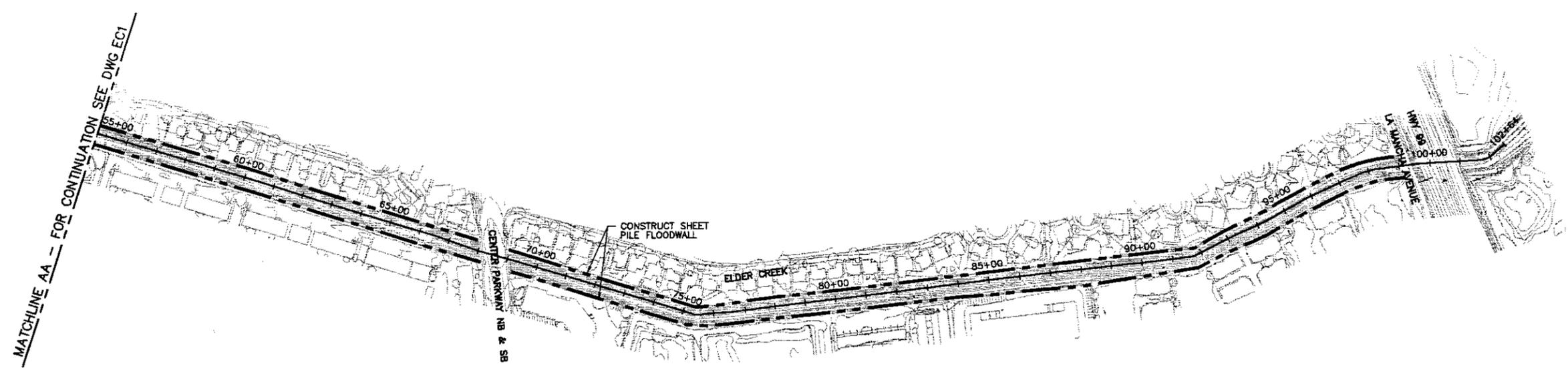
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Designed	A. PETERSON
Designed	C. TADKORO
Checked	
Drawn	T. GARSHASEBI

**SOUTH SACRAMENTO STREAMS  
TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

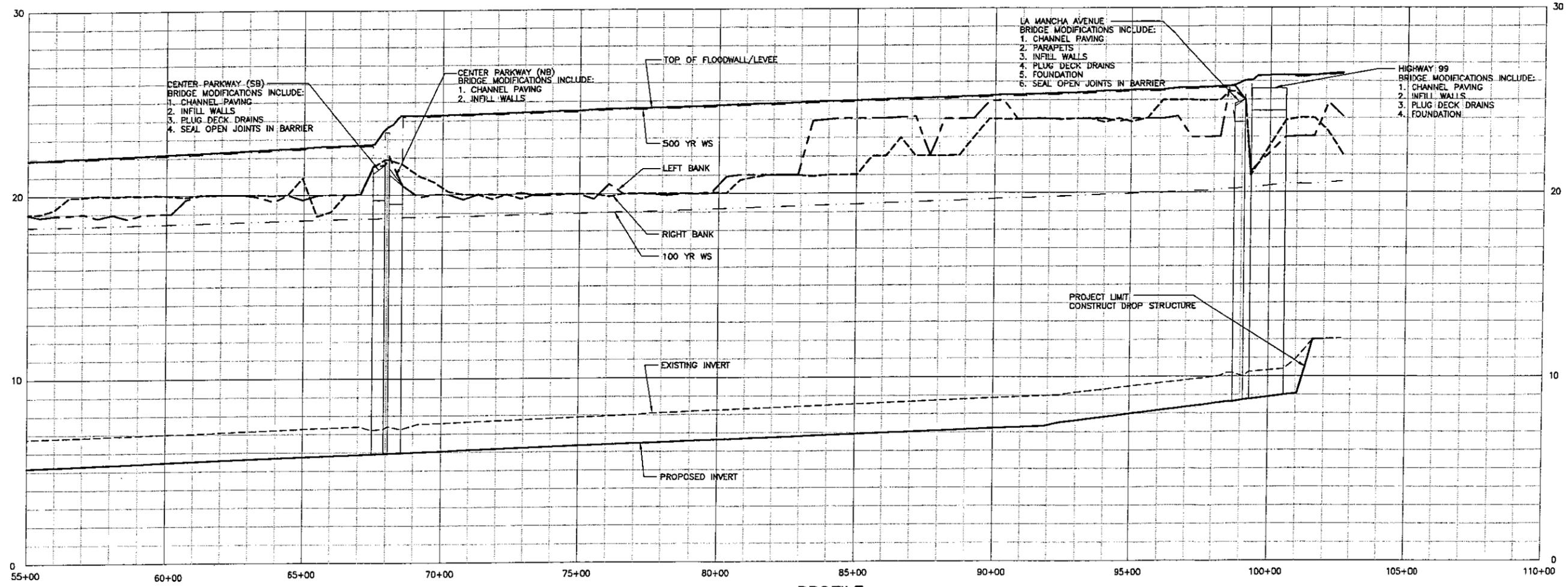
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STA 0+00 TO 55+00**

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Scale	AS NOTED	File Name	12808-EC-1.DWG				

MATCHLINE AA - FOR CONTINUATION SEE DWG EC1



PLAN  
1"=200'



CENTER PARKWAY (SB)  
BRIDGE MODIFICATIONS INCLUDE:  
1. CHANNEL PAVING  
2. INFILL WALLS  
3. PLUG DECK DRAINS  
4. SEAL OPEN JOINTS IN BARRIER

CENTER PARKWAY (NB)  
BRIDGE MODIFICATIONS INCLUDE:  
1. CHANNEL PAVING  
2. INFILL WALLS

LA MANCHA AVENUE  
BRIDGE MODIFICATIONS INCLUDE:  
1. CHANNEL PAVING  
2. PARAPETS  
3. INFILL WALLS  
4. PLUG DECK DRAINS  
5. FOUNDATION  
6. SEAL OPEN JOINTS IN BARRIER

HIGHWAY 99  
BRIDGE MODIFICATIONS INCLUDE:  
1. CHANNEL PAVING  
2. INFILL WALLS  
3. PLUG DECK DRAINS  
4. FOUNDATION

PROFILE

HORIZ: 1" = 200'  
VERT: 1" = 3'

Project Manager	L. FREDERIKSEN
Designed	A. PETERSON
Designed	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI



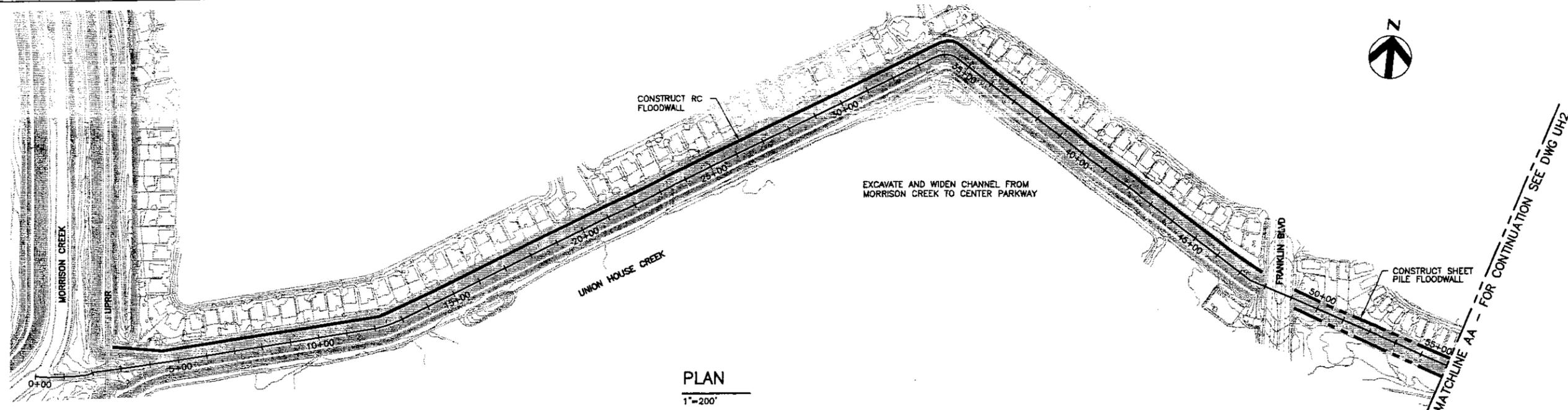
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TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

**ELDER CREEK  
STA 55+00 TO 102+64**

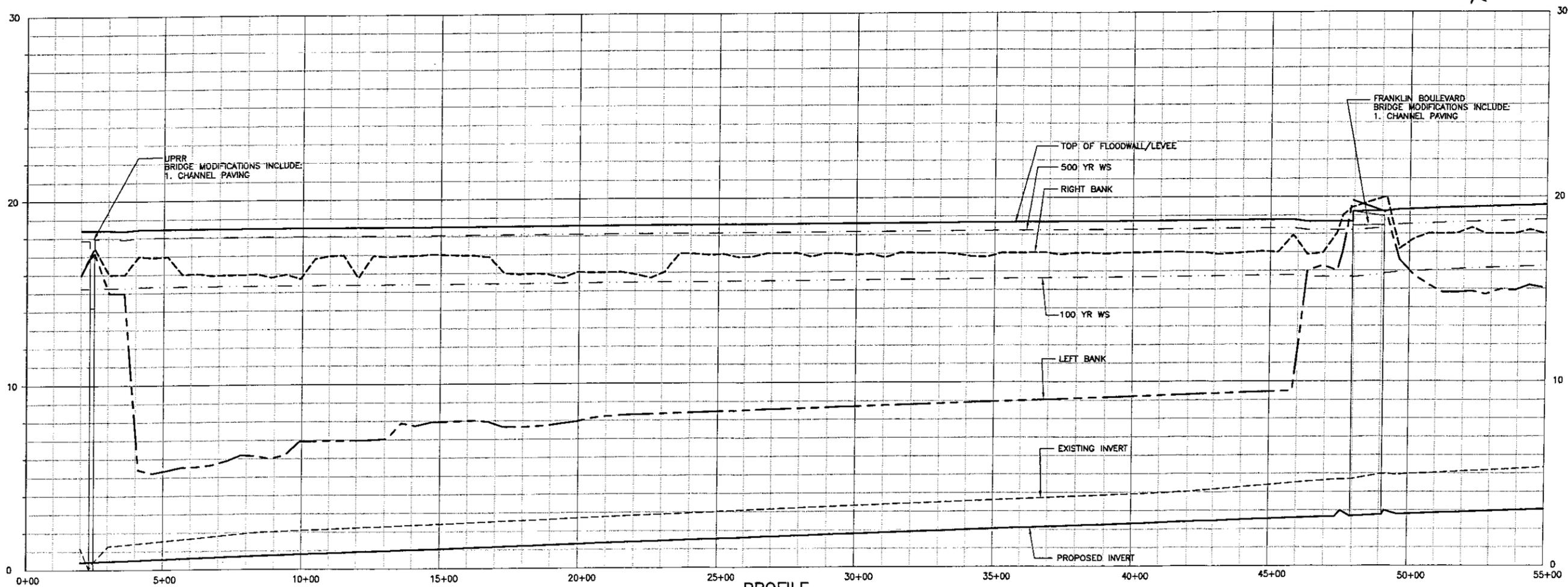
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Issue No.	Description	Date	Drawn	Checked	Responsible Eng.	Proj. Mgr.



PLAN  
1"=200'



PROFILE  
HORIZ: 1" = 200'  
VERT: 1" = 3'

/SAC-PROJ/PROJECTS/12808/12808-UH-1.DWG  
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Issue No.	Description	Date	Drawn	Checkd.	Resp. Engr.	Proj. Mgr.

**HDR**  
HDR Engineering, Inc.

Project Manager  
L. FREDERIKSEN

Designated  
A. PETERSON

Designated  
C. TADOKORO

Checked

Drawn  
T. GARSHASEBI

**SOUTH SACRAMENTO STREAMS  
TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

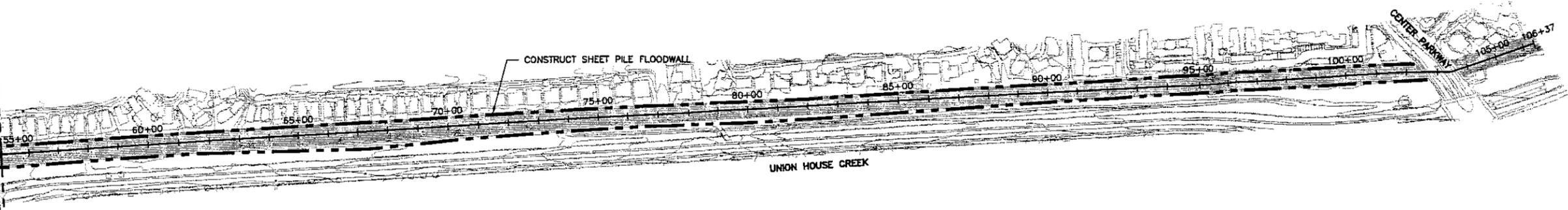
**UNION HOUSE  
STA 0+00 TO 55+00**

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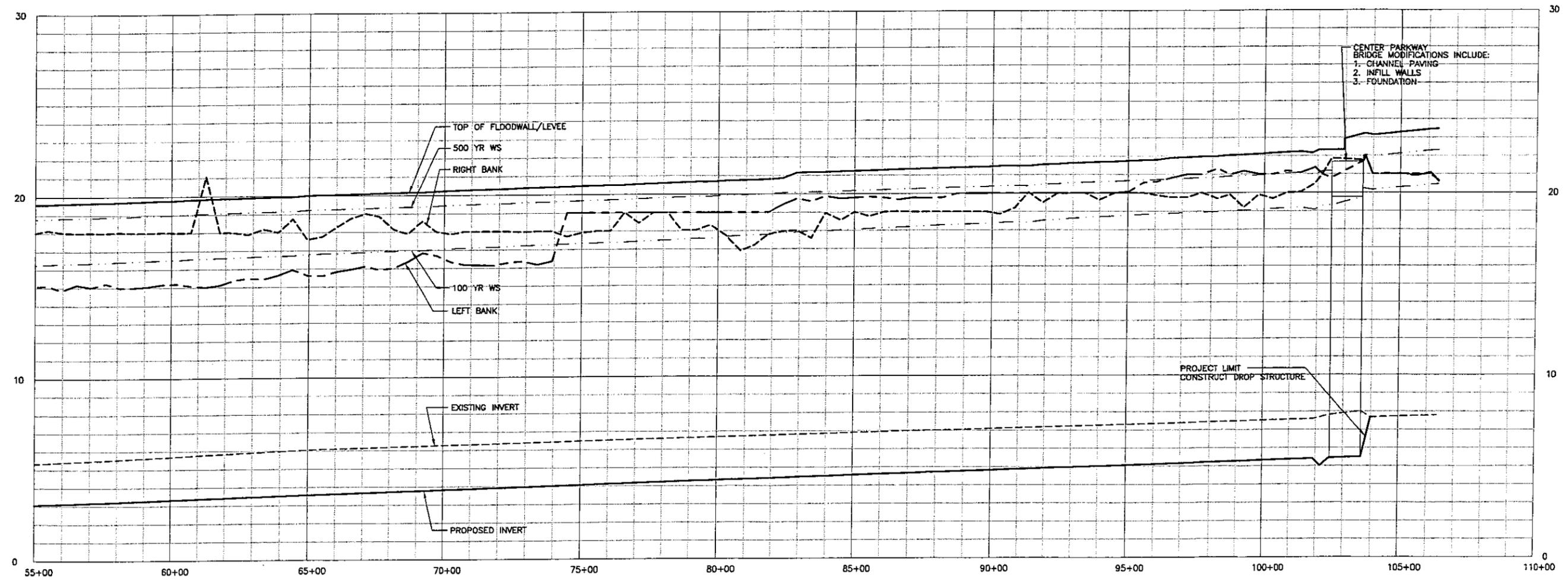


MATCHLINE AA - FOR CONTINUATION SEE DWG UH1

EXCAVATE AND WIDEN THE CHANNEL FROM MORRISON CREEK TO CENTER PARKWAY



**PLAN**  
1"=200'



**PROFILE**  
HORIZ: 1" = 200'  
VERT: 1" = 3'

//SAC-0601/PROJECTS/CLASS/2000/PLANONLY/12808-UH-2.DWG  
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Issue No.	Description	Date	Drawn	Cred.	Resp. Engr.	Proj. Mgr.

**HDR**  
HDR Engineering, Inc.

BE LENGTH OF ORIGINAL DRAWING. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

Project Manager	L. FREDERIKSEN
Designed	A. PETERSON
Designed	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI

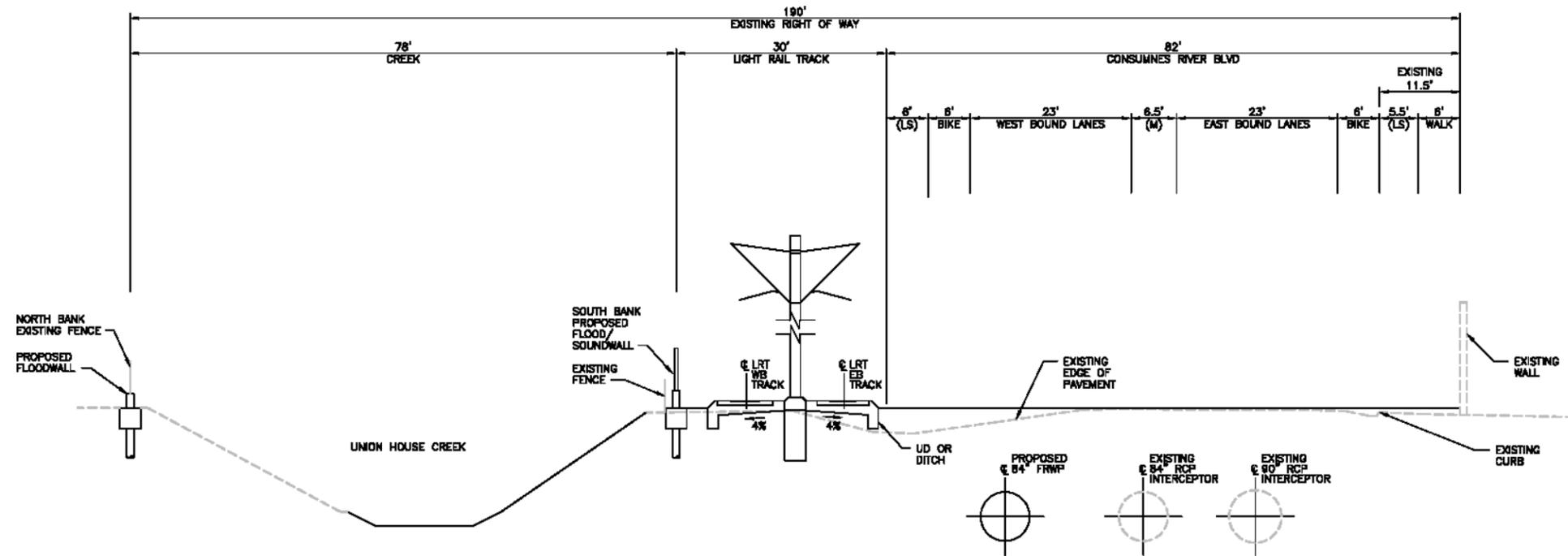
**SOUTH SACRAMENTO STREAMS  
TECHNICAL MEMO  
CITY OF SACRAMENTO  
SACRAMENTO COUNTY, CA**

<b>UNION HOUSE</b>	
<b>STA 55+00 TO 106+37</b>	
Date	JUNE, 2004
Project No.	10355-12808-141
Scale	AS NOTED
File Name	12808-UH-2.DWG
Drawing No.	<b>UH2</b>
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**Alternative 1**

**Tradeoffs :**

SAFCA	No way to monitor creek during flood stage Channel and bank maintenance has to be done from creek bottom Access points to creek are limited
City	Reduce Median to 6.5 feet Limited space for turn lanes at Center Parkway Reduce Landscaping on North to 6 feet and South to 5.5 feet
Regional Transit	Problem with station platforms at Center Parkway



**NOTES:**

- THE 30 FT DIMENSION FOR THE LIGHT RAIL TRACK ASSUMES:
  - FLOOD/SOUNDWALL CAN BE USED AS RETAINING WALL
  - LANDSCAPING ADJACENT TO EAST BOUND TRACK CAN BE ADJUSTED TO MATCH TOP OF TIE
- NORTH BANK FLOODWALL VARIES FROM 0.0 - 3.5 FT BETWEEN FRANKLIN BLVD AND CENTER PARKWAY.
- SOUTH BANK FLOODWALL VARIES FROM 0.0 - 5.0 FT BETWEEN FRANKLIN BLVD AND CENTER PARKWAY.

**ALTERNATIVE 1**

APPROXIMATE SCALE: 1" = 10'

*Unionhouse Creek Conceptual Cross Section Between Franklin Blvd and Center Parkway Alternative 1*

## **Appendix A. Clean Water Act 404(b)(1) Analysis**



## **Section 404(b)(I) Evaluation For the South Sacramento County Streams Project Design Refinements**

### **I. INTRODUCTION**

Section 404 of the Clean Water Act requires approval by the U.S. Army Corps of Engineers for discharge of dredged or fill material into waters of the United States. This approval is contingent upon the project complying with the guidelines of Section 404(b)(1) of the Clean Water Act. These guidelines are summarized as follows:

- **Least Environmentally Damaging Practicable Alternative (LEDPA)**-There must be no practicable alternative to the proposed discharge, which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.
- **No Violation of Other Laws**-The project must not cause or contribute to violation of State water quality standards or toxic effluent standards; must not jeopardize the continued existence of federally listed endangered and threatened species or their critical habitats; and must not violate any requirement to protect marine sanctuaries.
- **No Significant Degradation**-The project must not cause or contribute to significant degradation of the waters of the United States.
- **Minimize and Mitigate Adverse Impacts**-The project must include appropriate and practicable steps to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

### **II. ANALYSIS OF MEASURES FOR THE LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE**

#### **Measures Not Studied in Detail**

The following measures were developed and analyzed either during the reconnaissance phase or early in the feasibility phase of the project. These measures were eliminated from further consideration because (1) they failed to meet the project flood control goals; (2) the costs exceeded the benefits; or (3) the associated environmental effects were excessive.

#### Detention Basins

Detention basin storage was considered on each of the major streams. Land available for detention basins is primarily in the upstream reaches of the project area. However, detention basins in these upper reaches would not provide adequate flood control protection because they would not collect runoff from downstream tributaries and overland flow. Urban development has left few opportunities for detention storage elsewhere in the project area. The high costs to excavate the detention basins and pump the stored water would exceed the benefits, and detention basins would not meet the project flood control goals for the entire project area.

#### Diversion Channels

Diversion channels would divert high flows from channels to other areas, reducing the water surface elevation in the channel and the potential for overbank flows. In the project

area, high flows on Unionhouse Creek could be diverted from the channel and routed along the city-owned land parallel to the channel. The city-owned land is designated as the right-of-way for the expansion of existing Cosumnes River Boulevard and the future location for light rail. The diversion would require extensive grading and transport of material and possibly the construction of a floodwall to protect the eastbound Cosumnes River Boulevard lanes. This diversion would, by design, inundate future westbound lanes of Cosumnes River Boulevard. A special traffic plan would have to be developed to ensure that the westbound lanes are closed during a flood threat and that traffic is diverted to the higher and drier eastbound lanes.

A hydraulic analysis has been done to analyze the effectiveness of the diversion from Unionhouse Creek on flooding in the project area. The analysis indicated that this measure would not lower the water surface elevation enough to eliminate the need to construct a floodwall on the north bank. Thus, the diversion would be more expensive than other measures to contain Unionhouse Creek flows. Therefore, the diversion of Unionhouse Creek flows was eliminated because it did not meet the project flood control goals and because the diversion would not be cost effective.

### Concrete Channels

Both rectangular and trapezoidal concrete channels are used to increase channel capacity by shaping the channel into a rectangular or trapezoidal shape and lining the channel with concrete. The shape of the channel combined with the concrete lining reduces friction so channel velocity and volume are increased while water-surface elevations are decreased. Concrete channels are expensive to construct and emergent vegetation would be lost. As a result, this measure was eliminated from further consideration due to the adverse environmental effects and the high cost of construction.

### Bridge Replacement or Removal

Bridge replacement is expensive, disrupts traffic, and can adversely affect local businesses. Therefore, bridge replacement or removal was eliminated from further consideration.

### Slurry Cutoff Walls

Slurry cutoff walls, similar to floodwalls, prevent water seepage through levees and reduce the chance of levee failure. Slurry cutoff walls consist of excavating a trench and putting in a wall composed of bentonite mix and soil. The walls may extend down to the foundation of the levee, but they cannot extend above the top of a levee. Slurry walls were not retained as a measure because they are less effective than floodwalls and are not compatible with existing levee heights.

## **Measures Brought Forward for Detailed Analysis**

Measures included for detailed analysis include raise and extend existing levees, floodwalls, bridge retrofit, and channel excavation. Levee raising would be possible near the North Beach Lake where land is not constrained by residential development or unique or valuable wildlife habitat. Floodwalls were considered a viable option in areas where land acquisition is expensive

or unacceptable. Bridge retrofitting would be less expensive and less disruptive to traffic and businesses than bridge replacement or removal. Channel excavation and widening, while somewhat expensive, would allow for increased flood capacity within the creeks without raising bridges. It would also afford opportunities for strategic widening in areas where land is available. This would increase channel capacity and also increase the area of aquatic habitat within the creeks. These measures were combined to form the selected alternative in the 1998 EIS/EIR in addition to design refinements made as described in the 2004 EA.

### **III. PROJECT DESCRIPTION**

#### **a. Location**

The South Sacramento project area is located in the lower elevations of the Morrison Creek watershed. Most of the watershed is in the Sacramento Valley, while the eastern-most parts of the watershed are in the lower foothills of the Sierra Nevada. Generally, the Morrison Creek watershed lies south and east of the city of Sacramento. A small portion of the watershed includes a populated area in the southern portion of the city of Sacramento (see Figure 1 of the EA). The “Morrison Creek stream group” includes Morrison, Florin, Elder, and Unionhouse Creeks.

For purposes of analysis, the project area was separated into a lower basin and an upper basin. The lower basin includes Morrison Creek downstream from the confluence with Unionhouse Creek, the North Beach Lake levee to the Sacramento River, and the Sacramento Regional Wastewater Treatment Plant. The upper basin includes Morrison Creek from Stockton Boulevard to its confluence with Unionhouse Creek, Elder Creek from Highway 99 to its confluence with Morrison Creek, Florin Creek from Stockton Boulevard to its confluence with Elder Creek, Elder Creek from Center Parkway to its confluence with Morrison Creek, and Unionhouse Creek from Center Parkway to the Union Pacific Railroad (UPRR) (Plate 1 of the EA).

#### **b. General Description**

The proposed design refinements are refinements to the feasibility-level plan in the 1998 EIS/EIR, which identified Alternative 4 – Consistent High Protection Plan as the selected plan. The primary difference between the original design and the refined design is the increase in channel capacity through channel excavation, bridge retrofits, and box culverts. Detailed plan and profile drawings of the design refinements are shown on Plate 2, Sheets 1-10 of the EA.

#### **Design Refinement Measures**

##### ***Channel Excavation***

Channel excavation would involve deepening and/or widening the existing channel to increase the volume (channel capacity) of the channel. Equipment and materials would travel or be transported on local roadways to the construction sites. Existing ramps would be used to access the channel, when possible, or temporary ramps would be constructed, if needed. Existing service roads would also be used, if available. The staging areas would be within the channels.

Channel excavation would be conducted using in-channel construction methods. First, the channel would be dewatered by installing temporary cofferdams and diverting stream flow around the section to be excavated. Since most of the creek channels have concrete low-flow channels at the bottom, channel deepening would require removal of the existing concrete low-flow channel. Old concrete would be ripped up and disposed of at an approved waste site authorized to accept concrete waste. The total volume of concrete to be removed is approximately 10,000 cubic yards.

Vegetation on the channel banks and bottom would then be cleared and transported to the nearest dump or landfill for disposal. Excavated soil from Morrison, Elder, and Florin Creeks would be transported to and spread on the Regional Sanitation District area west of Morrison Creek. Excavated material from Unionhouse Creek would be placed on the adjacent vacant area along the creek for use by the Sacramento Regional Transit District (Sacramento Regional Transit District, 2004b). The total volume of cleared vegetation and soil to be excavated and removed is approximately 250,000 cubic yards. Of that volume, 89,500 cubic yards would come from Unionhouse Creek. Plate 3 of the EA shows a cross section of Unionhouse Creek and the proposed light rail track.

The concrete low-flow channel would be reconstructed after excavation, floodwall construction, and other design measures are complete in each section. The concrete lining would be reconstructed at its original width, leaving portions of the channel bottoms unlined. The concrete would be allowed the appropriate amount of time to cure. As construction is completed in a stream section, equipment would be removed from the staging area. The cofferdam would then be removed, and stream flow would be diverted back into the stream channel, as design specifications and water quality restrictions would require.

### ***Bridge Retrofitting***

Bridge retrofitting would involve modifying a bridge's structure to ensure unimpeded passage of flows under the bridge. Prior to the refined design, proposed bridge modifications included concrete aprons, new parapet walls, in-fill walls, and plugging of deck drains. In addition, a stop-log structure would be installed at the UPRR bridges. Based on the lowered streambeds in the refined design, foundation modifications to several of the bridges would also be necessary. All the bridges have concrete channels under them. Once the concrete channel is removed, selected foundation piers would be excavated, and the spread footing would be removed. A new spread footing at the correct elevation would be constructed using reinforced concrete. Temporary shoring would be used to support the affected portion of the bridge during this work. This work would be required at 11 bridges.

### ***Drop Structures***

Drop structures, or weirs, would be constructed in channels where required to avoid potential erosion due to grade breaks. Grade breaks are anticipated at the upstream end of the project reaches where the excavated channel would merge with the existing

channel. Typical construction of drop structures would entail shallow excavation, construction of concrete forms, and placement of reinforced concrete. Where necessary, drop structures would be stepped to allow for fish passage. The drop structures/weirs would include a 15-foot concrete apron upstream of the drop structure to prevent channel scouring and resultant sediment buildup at the drop structure. The refined design calls for 11 drop structures within the project channel reaches. As with channel excavation, drop structures would be constructed while cofferdams are in place and stream flow is diverted around the construction area.

#### *Additional Box Culverts at Road Crossings*

Additional box culverts would be constructed across the Florin Creek culvert crossings at Center Parkway, Persimmon Avenue, and Orange Drive to increase the effective flow area and reduce the head loss. The new box culverts would either be constructed by jacking and boring concrete box culverts under the traveled way, or by traditional open cut construction using precast concrete box culverts. The details of construction will be further refined during final design. Construction of box culverts at each site is expected to take 6 to 8 weeks. Because this work would be in three separate locations, the work could be done concurrently.

#### *Floodwall/Sheetpile*

Floodwall/sheetpile construction would be the same as described in the 1998 EIS/EIR. In general, floodwall construction would be staged in the channel as described for channel excavation. Cranes would be used to lift material and equipment to wall locations on the tops of the levees or banks.

### **c. Authority and Purpose**

The South Sacramento project was authorized in the Water Resources Development Act of 1999 (Public Law 106-53). The Record of Decision for the 1998 EIS/EIR was provided by the Chief of Engineers on June 28, 2000.

### **d. General Description of Dredged or Fill Material**

#### (1) General Characteristics of Material (grain size, soil type)

Dredged material: concrete (from low flow channel); silty sand loam to silty clay loam  
Fill material: concrete (to restore concrete low flow channel after excavation)

#### (2) Quantity of Material (cu. yds.)

Dredged material: 250,000 cubic yards (10,000 cubic yards concrete removed from channel)  
Fill material (restore concrete low flow channel): 5,500 cubic yards

#### (3) Source of Material

Dredged material: Morrison, Florin, Elder, and Unionhouse creeks  
Fill material: Commercial cement plant

## **e. Description of the Proposed Discharge Site(s)**

### (1) Location

See attached map

### (2) Size

For dredged material placement site: 69 acres (Borrow Site #2); 6.6 acres (adjacent to Cosumnes River Boulevard); commercial concrete recycling plant (California Concrete Crushing and Recycling, 5980 Outfall Circle Sacramento, CA)

For fill material (restoring concrete low flow channel): 10 acres

### (3) Type of Site

For dredged material: the disposal site will be a confined facility that will not allow discharge to any jurisdictional waters.

For fill material: the concrete to be placed in the creek channels for reconstruction of the low flow channels would be placed while cofferdams are in place. This confined state of the fill placement areas will be maintained until concrete has cured.

### (4) Types of Habitat

For dredge placement site: agricultural and grassland

For concrete fill material: concrete low flow channel in creek beds. All of the creeks are freshwater perennial streams. The creeks are surrounded by high intensity land uses, which have limited the diversity and quality of the habitats in the creeks. In general, channel improvements and regular maintenance activities have cleared most riparian and emergent wetland vegetation in the channels and suppressed regrowth. On Morrison Creek west of the UPRR crossing there is an isolated jurisdictional wetland area within the ordinary high water boundaries of the creek. Downstream of the UPRR the channel is not concrete lined and generally has more dense vegetation. On Florin Creek upstream of State Route 99 to Stockton Boulevard, the channel is unlined and supports vegetation such as water primrose, bluegrass, mulefat, and water plantane.

### (5) Timing and Duration of Discharge

Placement of excavated/dredged material from the creek channel into the disposal sites would take place during the low flow summer months (May to September 2006 to 2010).

Construction of the concrete low flow channel in the creek beds would also take place during the same time period. Duration of dredge and/or fill material placement would be daily at varying locations along the project channel reaches during the 5-month period.

## **f. Description of Disposal Method**

Cofferdams will be utilized to divert creek flows around a section of channel. After the channel bed is sufficiently dry (U.S. Fish and Wildlife Service Biological Opinion requires dewatered portions to remain undisturbed for 15 days following dewatering to allow for any giant garter snakes potentially present to vacate the area), channel excavation/dredging with excavators, and concrete low flow reconstruction would take place in the dewatered section. Following completion of construction in the dewatered section, including complete curing of concrete,

cofferdams would be removed and reinstalled downstream of the completed construction area. Excavated material would be trucked to the disposal sites.

#### **IV. FACTUAL DETERMINATIONS**

##### **a. Physical Substrate Determinations**

###### (1) Substrate Elevation and Slope

Slopes range from 0 to 8 percent. Elevation ranges from sea level to 25 feet. Reaches in the urban areas have a nearly flat gradient.

###### (2) Sediment Type.

The dominant soils in the project area are San Joaquin Series soils. Soils adjacent to the streams in the project area are typically Clear Lake Clay, Egbert Clay, and Galt Clay.

###### (3) Dredged/Fill Material Movement

Dredged material will be completely removed from the channels only after placement of cofferdams; therefore, there will be no movement of dredged material within the water column. Fill material will have no movement within the water column because the concrete fill will be allowed to cure before cofferdams are removed and water is redirected back to the restored channel.

###### (4) Physical Effects on Benthos

Excavation of the creek bottom would remove existing benthos from the creek systems at the dredge location. However, benthos populations would be expected to return to pre-construction conditions through downstream migration of upstream populations. In general the sediment type is not anticipated to change. Proposed channel widening and reconstructing the low-flow channel to a uniform 12-foot width would expose stream flows to a larger area of natural soil following construction.

###### (5) Actions Taken to Minimize Impacts

Loss of dredge material back into the creek channel during excavation will be minimized by use of cofferdams along the creeks to divert creek flows which would allow the creek bed to dry prior to excavation. Vegetation would be restored to channel slopes to minimize erosion of soil back into the creek channel. Best management practices would be used during construction to minimize erosion and sedimentation caused by stormwater runoff.

##### **b. Water Circulation, Fluctuation and Salinity Determinations**

###### (1) General Water Chemistry

General water chemistry—including salinity, eutrophication, dissolved gases, and physical characteristics of the water such as color, odor, and taste—is not expected to change as a result of the proposed project refinements.

Because construction would take place during low flow summer months, flow in the channel immediately following construction would most likely be within the newly constructed concrete low flow channels, allowing vegetation to reestablish itself in the unlined portions of the channel prior to higher winter flows. Therefore, the project would not be expected to have an effect on increased turbidity or water clarity immediately following construction. Long-term water clarity is expected to return to pre-project conditions or better.

The proposed project refinements are not expected to have an effect on dissolved oxygen (DO) levels in the project reaches. Construction of drop structures would increase DO levels in the immediate vicinity of the structure outfalls; however, these effects would be too localized to have an overall effect along the reaches.

Excavation of the channel sediment/bottom would remove nutrients originating from urban and agricultural runoff containing fertilizer. Removal of these nutrients from the creek channels during dry conditions would probably have a beneficial effect to water quality in the short term; however, long term nutrient levels in these creeks would probably return to pre-project conditions following completion of project construction.

#### (2) Current Patterns and Circulation, Current Flow and Water Circulation.

Gradients similar to existing creek slopes would be maintained with the proposed design refinements. Design refinements would not change the highly channelized and concrete lined nature of the existing creeks, although channel widening would enable the channels to better contain high flow volumes. Velocity of flow, stratification, and hydrologic regime would remain unchanged.

#### (3) Normal Water Level Fluctuations (tides, river stage, etc.)

The proposed design refinements would not affect water level fluctuations within the stream reaches. The channels would still experience flashy flow conditions during storm events with much lower flow conditions during dry weather. Backwater flows from the Cosumnes and Mokelumne Rivers would still reach only the lower stretch of Morrison Creek around the UPRR via the Beach-Stone Lakes area during high winter flood flows.

#### (4) Salinity Gradients

There are no significant changes in salinity anticipated as a result of the proposed design refinements.

#### (5) Actions That Will Be Taken to Minimize Impacts

Downstream flow will be maintained throughout construction of the proposed design refinements through use of a diversion pipe and cofferdams. Best management practices will be implemented during construction to minimize erosion and sedimentation downstream. A spill prevention, control, and countermeasure plan will be prepared and appropriate materials will be onsite to minimize the potential and magnitude of spills occurring during construction.

## **e. Suspended Particulate/Turbidity Determinations**

### (1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site

There would be no discharge of material into waters of the U.S. as a result of placement of excavated materials into the identified disposal sites. The placement and removal of cofferdams into the creek channels during construction would result in a short-term, localized increase in turbidity levels within the creek waters.

### (2) Effects (degree and duration) on Chemical and Physical Properties of the Water Column

#### *(a) Light Penetration*

The project may have short-term adverse impacts during construction due to turbidity plumes. However, these effects on light penetration would be considered less than significant due to the isolated and short-term nature of these construction-related actions.

#### *(b) Dissolved Oxygen*

The proposed design refinements would have no adverse effects on dissolved oxygen in the creek reaches.

#### *(c) Toxic Metals and Organics*

Diazinon and chlorpyrifos are broad-spectrum organophosphorus pesticides used for urban and agricultural pest control in the Sacramento Valley. Morrison Creek, Elder Creek, and their tributaries are waterways listed on California's 2002 303(d) List as impaired by elevated diazinon and/or chlorpyrifos concentrations. Diazinon in soil has a half-life of 2 to 4 weeks. Diazinon in water has a half-life of 12 hours to 6 months. The actual half-life of diazinon in urban creeks may vary from the reported ranges, depending on temperature, pH, amount of organic content, and other factors.

Chlorpyrifos is relatively insoluble in water. Chlorpyrifos adsorbs strongly to soil organic matter, indicating that chlorpyrifos is less likely than diazinon to become mobile in the aquatic environment. Chlorpyrifos, like diazinon, is generally rapidly metabolized by most organisms and does not bioaccumulate or biomagnify in food chains.

Construction of the proposed design refinements could cause a short-term increase in levels of these pesticides in the water column due to disturbance of sediments. However, the majority of in stream construction activities would take place in dry conditions because of temporary diversion of water flow. This would minimize opportunities for the disturbed compounds to become suspended in the water column. In addition, removal of dredged material from the creeks would also be removing accumulated organics from the creek system. Therefore, although construction of the project has the potential to cause a temporary minor increase in levels of these organics, proposed construction techniques would significantly minimize any

potential increases and removal of sediments containing these accumulated organics would have a long-term beneficial effect on the water column.

#### ***(e) Aesthetics***

Suspended sediment and turbidity effects on chemical and physical properties of water are expected to be temporary during construction and less than significant. Installation of floodwalls 1 to 3 feet above the existing embankment would be considered a less than significant effect on the overall esthetics of the highly urbanized creek drainages. Floodwalls could attract graffiti, which could be considered a significant effect to esthetics. Disturbance at the disposal sites would be temporary and the sites would be converted back to their original states.

### **(3) Effects on Biota**

The construction actions of establishing and removing cofferdams and reintroduction of creek flows back to the channel following construction would create short-term increases in turbidity, deposition, and elevated water temperatures downstream. However, these actions are not expected to have a measurable long-term effect on photosynthetic organisms, suspension/filter feeders, or sight feeders within the water column. Those organisms entrained within the portions of creek channel that are being dewatered by diverting flow would be lost from the system during excavation of the channel bottom. However, the vast majority of biota within the water column would not be affected because downstream flow would be maintained throughout construction and most biota would remain within the water column being diverted.

### **(4) Actions taken to Minimize Impacts**

In addition to construction techniques, such as diversion of flows to temporarily dewater channels, to help reduce water quality effects, all potential effects would be reduced by implementing various best management practices for the project area. In addition, the project would comply with the State-adopted, EPA-approved Water Quality Standards as contained in the State's Basin Plan.

Prior to the start of construction, an NPDES general permit for construction activities would be acquired from the Central Valley Regional Water Quality Control Board, and a stormwater pollution prevention plan (SWPPP) would be developed per the guidelines of the general permit. The SWPPP would list all best management practices to be implemented during construction activities for the control of erosion, siltation, and any other pollutants that could potentially enter stormwater or surface waters of the streams. Best management practices would include but are not limited to the following:

- Inspect and maintain all storm drains and catch basins.
- Dispose of oil or liquid wastes per Federal, State, and local requirements.
- Fuel and maintain vehicles in specified areas, which are designed to capture spillage.
- Inspect and maintain vehicles and equipment to prevent dripping of oil and other fluids.

- Avoid grading and excavation in the rainy season. Construction would take place between May and October. If rains are likely during this period, temporary erosion control measures would be implemented such as berms, silt fences, stacked hay bales, and other protective measures.
- Train construction personnel in stormwater pollution prevention measures.
- Disturbed areas would be restored, stabilized, and revegetated prior to the start of the rainy season.

In addition, appropriate water quality certification from the Central Valley Regional Water Quality Control Board would be acquired and all terms and conditions of Nationwide Permits 25 and 33 would be implemented.

In addition to a SWPPP, a spill prevention, control, and countermeasure plan will be developed and implemented per Federal and State requirements to minimize effects from potential contaminant spills as a result of project construction.

#### **d. Contaminant Determinations**

Construction staging and activities within the stream channels could result in the contamination of stream water and/or channel soils. Potential refueling vehicle parking, and maintenance could result in spills of oil, grease, fuels, hydraulic fluids, and/or pollutants. Improper handling, storage, or disposal of fuels and materials or improper cleaning of machinery close to or within the waterways could cause surface water quality degradation if these fuels are washed into the creeks. Construction of the proposed design refinements could cause a short-term increase in levels of these pesticides in the water column due to disturbance of sediments. However, the majority of in stream construction activities would take place in dry conditions because of temporary diversion of water flow. This would minimize opportunities for the disturbed compounds to become suspended in the water column. In addition, removal of dredged material from the creeks would also be removing accumulated organics from the creek system. Therefore, although construction of the project has the potential to cause a temporary minor increase in levels of these organics, proposed construction techniques would significantly minimize any potential increases and removal of sediments containing these accumulated organics would have a long-term beneficial effect on the water column.

#### **e. Aquatic Ecosystem and Organism Determinations**

Overall adverse effects on plankton, benthos, nekton, and the aquatic food web in the upper basin would be short-term and temporary. While construction activities may cause a minor decrease in population of these biota within the creek system due to increased turbidity levels downstream and loss from dredging/excavation of the channel beds, populations are expected to return quickly to pre-project levels or greater following construction. The project may have a long-term beneficial effect on the aquatic ecosystem due to increased channel widths allowing for greater diversity and area of aquatic habitat. Finally, the removal of contaminated sediments from the channel bottoms may also have a beneficial effect on water quality.

## (1) Effects on Special Aquatic Sites

### *(a) Sanctuaries and Refuges*

The Beach-Stone Lakes area downstream of the design refinements would primarily be affected by high flood flows from the project area. All other flows would continue to be diverted into the Sacramento River via the City's pump No. 90. These high flood flows could transport pollutants such as metals and pesticides to the Beach-Stone Lakes area and subsequently degrade the surface water quality.

### *(b) Wetlands*

Delineated wetlands within the design refinement reaches are freshwater marsh communities within the creek channels. These freshwater marsh communities and the creek channels are waters of the U.S. The in-channel construction methods would temporarily reduce the seasonal wetland habitat in the channels. However, after construction is completed, the habitat within the creek channel would return to its pre-project condition through active replanting of emergent marsh habitat and passive recolonization of riparian vegetation. Since some of the effects are associated with widening the channel, including the bottom of the channel, habitat in the bottom of the channel (including emergent marsh) would be increased because portions of the widened channel would not have a concrete lining. As a result of widening, there would be no net loss of acreage, there would be a rapid replacement of cover, and habitat value would be increased.

## (2) Threatened and Endangered Species

Effects on special status species would result from the placement of floodwalls, new levee construction, and in-channel activities performed for channel deepening, widening, and bridge retrofitting in the upper basin. Species potentially affected by construction of the design refinements are giant garter snake, valley elderberry longhorn beetle, vernal pool crustaceans, burrowing owl, Swainson's hawk, and Sanford's arrowhead.

## (3) Other Wildlife

The project effects to vegetation and wildlife resources associated with installing floodwalls would be short-term, temporary effects. Wildlife species that inhabit this area would be temporarily displaced and would likely move to adjacent areas until construction is completed.

## (4) Actions to Minimize Impacts

Mitigation for project-related effects to vegetation and wildlife in the upper basin result from the temporary loss of habitat value. These effects would be mitigated by providing acreage and similar habitat to replace the lost values. Loss of habitat value was determined through the use of Habitat Evaluation Procedures (HEP) carried out by the Corps and USFWS per requirements of the Fish and Wildlife Coordination Act. Due to the temporary nature of most of the project effects, the mitigation requirements are very small: 0.71 acre of seasonal wetland, 0.23 acre of emergent marsh, and 0.19 acre of riparian scrub-shrub. Mitigation requirements would be fulfilled through purchase of

credits at a USFWS-authorized mitigation bank. In addition, recommendations from the USFWS Coordination Act Report (2002) and supplement (2004) would be implemented, as follows:

- Avoid impacts to woody vegetation and any trees overhanging the stream channels.
- Minimize impacts to aquatic resources by maintaining temporary water diversion structures (cofferdams) in-channel for as short a time period as possible.
- Minimize impacts to annual grasslands by re-seeding all disturbed areas at the completion of construction with annual grasses and forbs. A mixture of purple needlegrass, nodding needlegrass, blue wildrye, California barley, Yolo slender wheatgrass, and meadow barley is recommended.
- Minimize impacts to seasonal wetland and woodland habitat by providing embayments along Florin Creek within Southgate Park District property where emergent vegetation can establish.
- Plant native woody vegetation, such as valley oaks, along the outer margins of Florin Creek channel in Southgate Park District property.
- Replant emergent wetland habitat disturbed during construction.

The USFWS was consulted under Section 7 of the Endangered Species Act to determine potential effects to Federally listed species. The resultant Biological Opinion and incidental take statement (2002) and amendment (2004) identified terms and conditions to implement reasonable and prudent measures to avoid or compensate for effects to Federally listed species during project construction. Avoidance measures include:

- An employee environmental awareness program will be provided to construction and operation employees with information to encourage awareness and preservation of the ecosystem and the resources found in the project area. All avoidance and minimization measures to protect special status species will be discussed.
- All construction activity within giant garter snake habitat (all creek channels and upland areas within 200 feet of the creek channels) shall take place between May 1 and October 1.
- During a part of the Federally listed valley elderberry longhorn beetle's active season, from April 15 to June 1, no hauling activities shall occur along the project haul route in the vicinity of the beetle's habitat. Surveying and staking activities would be allowed within 100 feet of the beetle's habitat during that time period. Vehicle activities in the vicinity of the beetle's habitat shall be restricted to 5-10 vehicles per day during that time period.
- Between April 15 and October 1 any dewatered giant garter snake habitat must remain dry for at least 15 consecutive days prior to excavating or filling of the dewatered habitat.
- Plastic mono-filament jute, or chord netting (erosion control matting) shall not be used for erosion control or other purposes at the project site.
- The Contractor shall install concrete "K" rails adjacent to elderberry shrubs along the haul route to protect them from damage caused by project activities.
- The USFWS guidelines and conservation measures for giant garter snake and valley elderberry longhorn beetle shall be implemented.

Compensation requirements in the BO include:

- Secure 1.67 acres of beetle habitat (to be purchased at a mitigation bank)
- Secure 1.66 acres of giant garter snake aquatic habitat and 3.38 acres of upland habitat (to be purchased at a mitigation bank)
- Secure 6.18 acres of vernal pool habitat (to be purchased at a mitigation bank)

The State protected species on the project are Swainson's hawk, burrowing owl, and Sanford's arrowhead. The following avoidance and minimization measures have been proposed by the Corps and the non-Federal sponsor:

- Pre-construction surveys for Swainson's hawk, burrowing owl, and pond turtle following California Department of Fish and Game (CDFG) protocols.
- No construction between March 1 and May 1 when the hawks are returning from their winter migration.
- Consultation with CDFG if Swainson's hawks or pond turtles are encountered.
- Establishing replacement habitat to compensate for foraging habitat lost per CDFG policies.
- No disturbance of occupied burrowing owl burrows during the nesting season (February 1 through August 31).
- Passive exclusion of burrowing owls from occupied burrows prior to February 1. For every burrow rendered unsuitable, 2 more artificial burrows would be installed in the project area.
- Replacement of occupied burrows by creation of artificial burrows at a ratio of 2:1 prior to construction. Each new burrow must be in a location that provides at least 6.5 acres of foraging habitat.
- Pre-construction surveys would be completed for Sanford's arrowhead and appropriate avoidance measures would be implemented, including removal and replanting following construction or placement of protective coverings around the plant during construction.

## **f. Proposed Disposal Site Determinations**

### (1) Mixing Zone Determination

There will be no discharge from the dredge disposal sites; therefore a mixing zone will not be created.

### (2) Determination of Compliance with Applicable Water Quality Standards

Water quality standards consist of beneficial uses and Water Quality Objectives, as defined in The California Regional Water Quality Control Board-Central Valley Region: Sacramento River and San Joaquin River Basins Water Quality Control Plan (Basin Plan). The Basin Plan lists (designates) beneficial uses applicable to major waterways located within the Central Valley. Not every surface water body is listed in the Basin Plan; therefore, not every surface water body within the basin has designated beneficial uses. The Basin Plan states, "The beneficial uses of any specifically identified water body

generally apply to its tributary streams.” To establish uses in tributary streams, an evaluation would need to be conducted to determine specific beneficial uses and the Basin Plan would need to be amended to establish uses that differ from the downstream waters.

The Basin Plan does not specifically identify the Morrison Creek stream group. These waterways are, therefore, assumed to have the same beneficial uses as the waters to which they are tributary (i.e., the Sacramento River). These uses include Warm and Cold Freshwater Habitat (WARM and COLD, respectively). The water quality objectives that apply to protect WARM and COLD beneficial uses of impaired urban waterways are the narrative water quality objectives for pesticides and toxicity. The narrative pesticide objectives state, in part:

- No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses,
- Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses,
- Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies, and
- Pesticide concentrations shall not exceed the lowest levels technically and economically achievable

The Basin Plan’s narrative water quality objective for toxicity states, “...all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances. Compliance with this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, and biotoxicity tests of appropriate duration or other methods as specified by the Regional Water Board.” Specific numeric water quality objectives for diazinon and chlorpyrifos for the Sacramento County urban waterways have not been established in the Regional Board’s Basin Plan.

Section 303(d) of the Federal Clean Water Act requires States to: 1) identify those waters not attaining water quality standards (referred to as the “303(d) list”); 2) set priorities for addressing the identified pollution problems; and 3) establish a “Total Maximum Daily Load” (TMDL) for each identified water body and pollutant to attain water quality standards. The State is required to incorporate TMDLs into the State Water Quality Management Plan. The Basin Plan, and other applicable statewide plans, serve as the State Water Quality Management Plan that governs impaired watersheds in the Sacramento and San Joaquin River basins. TMDLs will be reviewed by the USEPA to determine whether all TMDL requirements are met. A TMDL represents the maximum load expressed in terms of mass per time, toxicity or other appropriate measure of a pollutant that a water body can receive and still meet water quality standards.

Since the early 1990s, studies of Sacramento County urban waterways by several agencies, including the Central Valley Regional Board, have shown concentrations of diazinon and, to a lesser extent chlorpyrifos, present at levels that can cause toxicity to some aquatic invertebrate species. Elevated concentrations of diazinon and chlorpyrifos have been detected in rainfall, urban runoff, urban waterways, and sumps that discharge to urban waterways during both rainy and dry seasons.

Since diazinon and chlorpyrifos can and do co-occur, the joint toxicity of these chemicals must be considered. The Central Valley Regional Water Quality Control Board's Total Maximum Daily Load Report For The Pesticides Diazinon & Chlorpyrifos In: Arcade Creek, Elder Creek, Elk Grove Creek, Morrison Creek, Chicken Ranch Slough, And Strong Ranch Slough (2004) recommends the TMDL for these creeks be expressed as the sum of the ratios of diazinon and chlorpyrifos concentrations in the stream to their respective criteria levels does not exceed one.

Although the proposed design refinements would not introduce additional amounts of these pesticides into the creeks, disturbance of creek channel soils could resuspend these constituents previously bound to the soils. It is anticipated that the potential for an increase in pesticide levels to occur in the water column would be immediately following reintroduction of flow into the reconstructed channel. Even at this point, water flows are still expected to be low and would be located in the concrete-lined low flow channel until the rainy season begins. It is expected that disturbed soils would be sufficiently stabilized by then that high flows in the channels following construction would not contain pesticide levels beyond ambient levels.

### (3) Potential Effects on Human Use Characteristic

The proposed actions would have no adverse effects on municipal or private water supplies; recreational or commercial fisheries; navigation; or aesthetics, parks, national historic monuments or similar preserves.

### **g. Determination of Cumulative Effects on the Aquatic Ecosystem**

The proposed design refinements would not be a significant contributor to adverse effects on the aquatic ecosystem. While the project would have some short-term construction related effects, they are considered or can be mitigated to less than significant levels. The project also affords long-term benefits to the aquatic ecosystem through widening of the channels and removal of potentially contaminated soils from the system.

### **h. Determination of Secondary Effects on the Aquatic Ecosystem**

No secondary effects to the aquatic ecosystem are anticipated from project construction. There would be some minor, short-term construction effects. Best management practices would be implemented to minimize these effects. After the project is constructed, creek functions should return to pre-project conditions or improve due to increased channel widths.

## **V. FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE**

The proposed dredge and fill activities would comply with Section 404(b)(1) guidelines of the Clean Water Act. No significant adaptations to the Section 404(b)(1) guidelines were made for this evaluation. Other alternatives considered to alleviate damages associated with flood flow waters included detention basins, diversion channels, concrete trapezoidal channels, rectangular concrete channels, bridge replacement or removal, or slurry cutoff walls. Nonstructural measures such as flood proofing structures, flood plain evacuation, increased flood plain restrictions, or flood warning systems were also considered. These measures were eliminated from further consideration because (1) they failed to meet the project flood control goals; (2) the costs exceeded the benefits; or (3) the associated environmental effects were excessive. A combination of raising existing levees, installation of floodwalls, channel excavation, and bridge retrofitting are deemed to be the most appropriate measures to increase flood protection levels in this stream group because of limited land available in this highly urbanized location, less disruptive to traffic, and would be cost-effective. A discussion of the effects associated with the project are presented in the San Joaquin River Basin South Sacramento County Streams Investigation Environmental Impact Statement/Environmental Impact Report (1998), The Supplemental EIR/EA for the South Sacramento County Streams Project, Camray Borrow Site and Additional Aspects of Levee Work on North Beach Lake Levee (2001), and the attached Environmental Assessment for the South Sacramento County Streams Project Design Refinements (2004).

The proposed dredge and fill activities would be in compliance with all State of California water quality standards, Section 307 of the Clean Water Act and the Endangered Species Act of 1973, as amended.

The proposed dredge and fill activities would not have a significant adverse impact on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, wildlife, and special aquatic sites. The activities would have no significant adverse effect on the life stages of aquatic organisms or other wildlife. No significant adverse effects on aquatic ecosystem diversity, productivity and stability or on recreational, and economic values would occur.

Steps taken to minimize potential adverse effects on the aquatic ecosystem include timing of disposal activities, use of best management practices during construction, and diversion of creek flows during construction.

### **i. Compliance with the Guidelines**

On the basis of the guidelines, the proposed design refinements for the South Sacramento County Streams project is specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

**Appendix B. Draft Supplemental CAR from the  
U.S. Fish and Wildlife Service**





## 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:  
CRC-Flood & Waterway Planning Branch

NOV 23 2004

District Engineer  
Corps of Engineers, Sacramento District  
ATTN: Chief, Planning Division  
1325 J Street  
Sacramento, California 95814-2922

Dear Colonel Light:

The Corps of Engineers (Corps) has requested supplemental coordination under the Fish and Wildlife Coordination Act (FWCA) for proposed modification of work planned under the South Sacramento County Streams Project, California. This letter constitutes the Fish and Wildlife Service's (Service) draft supplemental FWCA report for the proposed modifications. This report had been prepared under the authority of, and in accordance with, the provisions of section 2 (b) of the FWCA (48 Stat. 401, as amended, 16 U.S.C. 661 et seq.). This report is being coordinated with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Game (CDFG). By copy of this letter, this report is being circulated to the agencies and offices listed below for review and comment. We would appreciate receipt of any comments on this draft within 30 days of receipt of this report.

### Project Description

This project addresses flood problems on Morrison, Elder, Florin, and Unionhouse Creeks and at the Sacramento Regional Wastewater Treatment Plant and the North Beach Lake levee in south Sacramento County. The proposed design refinements are to the feasibility-level design presented in the 1998 environmental impact statement/environmental impact report (EIS/EIR). Alternative 4 - Consistent High Protection Plan was identified as the selected plan. The primary difference between the original design and the refined design is an increase in channel capacity through channel excavation, bridge retrofits, and box culverts. The specific design modifications for each stream channel are summarized below.



## **Design Refinements by Stream Reach**

### **Morrison Creek**

Average floodwall heights along Morrison Creek would be between 1.3-3.0 feet above the existing levee/bank height as a result of the design refinements. There are several isolated locations where the floodwall heights are as high as 7 feet. However, these short stretches are typically leading into bridge crossings where floodwall heights would match the heights of the bridges.

### *Channel Excavation*

The channel excavations would be contained within the lateral limits of the existing channel. The depth of the excavation varies from 0-3.0 feet. Channel side slopes would be excavated to a minimum ratio of 1 vertical:2 horizontal (1V:2H) in earthen sections. Existing side slopes that exceed this ratio would not be excavated.

### *Bridge Retrofitting*

A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

UPRR Bridge: install stop logs at both ends of bridge.

Mack Road Bridge: none required.

Brookfield Drive Bridge: construct in-fill walls; seal existing parapet joints.

G Parkway Bridge: construct new, continuous spread footings integral with the seven piles in each pier.

Franklin Boulevard Bridge: construct new parapets on both sides of bridge; construct in-fill walls; seal parapet joints.

Center Parkway Bridge: construct new, standard height parapets on both sides of bridge; construct in-fill walls; plug deck drains; construct new spread footing at each pile; seal parapet joints.

Florin Road Bridge: construct new parapets on both sides of bridge; construct in-fill walls; plug deck drains; seal parapet joints.

State Route 99 Bridges: extend existing pier walls and construct new, lower, continuous spread footings.

Sky Parkway Pedestrian Bridge: construct new parapets on both sides of bridge; extend concrete pier wall and construct new, lower pier wall footing; seal parapet joints.

Steiner Drive Bridge: construct new standard height parapet on upstream side of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower spread footing at each pile; seal upstream parapet joints.

53<sup>rd</sup> Street/ Riza Avenue Pedestrian Bridge: extend concrete pier wall and construct new, lower pier wall footing.

Stockton Boulevard Bridge: construct new standard height parapet on both sides of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower, continuous spread footing connecting all 11 columns at each pier; seal parapet joints.

#### *Drop Structures*

There are two drop structures designed for the main channel of Morrison Creek: one upstream of Stockton Boulevard and one downstream of Stockton Boulevard. In additions, three drop structures would be constructed in the three unnamed tributaries to Morrison Creek.

#### *Extend floodwalls up tributaries of Morrison Creek*

The project improvements could potentially be outflanked by upstream floodflows along three minor tributaries to Morrison Creek. In order to avoid this outflanking, floodwalls would be extended up the tributaries at an elevation equal to that of the potential floodwalls on Morrison Creek at the confluence.

#### **Elder Creek**

Floodwall heights along Elder Creek would be constructed up to 5.1 feet above the existing levee/bank height as a result of the design refinements. This maximum wall height is about 1 foot higher than the original design. The existing levee between Morrison Creek and Franklin Boulevard would be raised as described in the original design.

#### *Channel Excavation*

Channel depth excavation on Elder Creek would lower the channel profile about 1.5 feet. Channel excavation will not exceed the existing top width of the channel. Side slopes would be excavated at a ratio of at least 1V:2H. Bottom widths of the channel may vary from 15-25 feet.

#### *Bridge Retrofitting*

A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

Franklin Boulevard Bridge: none required.

Tangerine Avenue Bridge: construct in-fill walls; plug deck drains; seal existing parapet joints.

Center Parkway Bridge Southbound: construct in-fill walls; plug deck drains; seal existing parapet joints.

Center Parkway Bridge Northbound: construct in-fill walls.

LaMancha Avenue Bridge: construct new standard height parapet on both sides of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns and construct new, lower spread footing at all four columns at each of the three piers; seal parapet joints.

State Route 99 Bridges: construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower, continuous spread footing at 10 columns at each of 3 piers.

#### *Drop Structures*

One drop structure downstream of Highway 99 will be constructed in Elder Creek.

#### **Florin Creek**

Floodwall heights along Florin Creek would be constructed up to 5.6 feet above the existing levee/bank height as a result of the design refinements. This is about 1 foot lower than the original design. Also, whereas the original design specified floodwalls between Highway 99 and Stockton Boulevard, the refined design indicates that floodwalls would not be needed on this stretch of Florin Creek. Hydraulic analysis indicated that while overbank flow can still occur in this reach for the 100-year event, the available information indicates that flood damages should be minimal. The affected area comprises agricultural/fallow land and the open space areas of a park, neither of which will be significantly damaged by flooding. Also, constructing floodwalls upstream of Highway 99 on Florin Creek would affect the existing drainage patterns (local drainage) since this reach does not currently have levees/floodwalls.

The existing levees on Florin Creek between Elder Creek and Franklin Boulevard would be raised as described in the original design.

#### *Channel Excavation*

Channel excavation on Florin Creek is proposed from the confluence at Elder Creek to the downstream side of Orange Drive. Sensitivity studies showed that there was little to no benefit to channel excavation upstream of Orange Drive. The reach between Orange Drive and Stockton Boulevard is a fairly short reach, about 650 feet. Various channel widening alternatives were modeled in this reach with little to no change in the water-surface elevation. The design on the remaining reaches on Florin Creek would be refined through channel excavation as follows:

From the *confluence at Elder Creek to Franklin Boulevard*, the bottom width of the channel would be cut to 10 feet wide. Side slopes would be at 1H:2V ratio. The channel bottom would be excavated about 2 feet. Top width of the channel would be extended on additional 15-20 feet beyond the existing left (south or east) bank.

From *Franklin Boulevard to River Station 3479*, existing development encroachment on the immediate overbank areas has restricted any bank modifications. Therefore, the current channel top width would remain unchanged. The bottom width will be 5 feet with about 0.5 foot excavated from the channel depth. Existing channel side slopes would be maintained.

The *River Station 3479 to Persimmon Avenue*, the creek right-of-way increases on the right bank. The bottom width of the channel would be increased in this area with ranges from 15-25 feet. Top width of the channel would be increased about 20 feet toward the right (north) bank. Bottom depth excavation will be about 1 foot.

From *Persimmon Avenue to Orange Drive*, there is a section of existing bike trail on the right bank of the creek. This section of trail, which is paved and extends for about 2,800 feet, would be used to increase the top width of the channel an additional 10 feet. The bike trail would be reconstructed as an integral part of the new channel. Bottom depth excavation would be up to 1 foot. Bottom width would be increased 20 feet up to Highway 99 and 25 feet from Highway 99 to Orange Drive.

#### *Bridge Retrofitting*

A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

**Franklin Boulevard Bridge:** convert existing south abutment to a pier using the existing piles and pile cap; construct a new south abutment about 12 feet to the south of the existing abutment on Cast-In-Drilled-Hole (CIDH) concrete or driven piles; construct new 12-foot reinforced concrete slab span; seal parapet joints. Alternatively, the addition of a concrete box culvert at the south end of the span is also being considered in lieu of constructing a new 12-foot span on the bridge.

**Brookfield Drive Bridge:** construct new standard height parapet on both sides of bridge; plug deck drains; construct in-fill walls; seal parapet joints.

**Center Parkway Culvert:** construct new parapet on both sides of bridge; construct two new box culvert cells 5.5 feet wide by 7.0 feet tall on the right side of and lower than existing cells; seal parapet joints.

**Persimmon Drive Culvert:** construct new parapet on both sides of bridge; construct one new box culvert cell 8 feet wide by 6 feet tall on the right side of and lower than existing cells; seal parapet joints.

**State Route 99 Culvert:** none required.

Orange Avenue Culvert: construct new standard height parapet on both sides of bridge; construct two new box culvert cells 7.8 feet wide by 5.5 feet tall, one on each side of existing cells; seal parapet joints.

Stockton Boulevard Bridge: none required.

#### *Additional Box Culverts at Road Crossings*

To increase the effectiveness of hydraulic flow at the culvert crossings at Center Parkway, Persimmon Avenue, and Orange Drive, additional box culverts are proposed. At Center Parkway, two 5.5 foot by 7 foot box culverts would be added to the right of the existing culvers. At Persimmon Avenue, one 8 foot by 6 foot box culvert would be added to the right of the existing culverts. At Orange Drive, two additional 7.8 feet by 5.5 feet box culverts would be added, one on each side of the existing culverts.

#### *Drop Structures*

Florin Creek design refinements call for four drop structures; that is, one each at Franklin Boulevard, Center Parkway, Highway 99, and Orange Avenue.

#### **Unionhouse Creek**

The refined design for Unionhouse Creek in general reflects the original design. No refinements are proposed to increase the floodwalls from the height in the original design. Unionhouse Creek would overflow into the Bufferlands due to the proposed removal of the left bank levee from Morrison Creek to about 200 feet downstream of Franklin Boulevard.

#### *Channel Excavation*

Between Morrison Creek and Franklin Boulevard, the bottom width of the channel would be increased to 14 feet, and the channel depth would be excavated an additional 1-2 feet. The south levee would be removed or breached up to UPRR. This would increase the top width of the channel in this section by about 100 feet to the south, into Sacramento Regional Wastewater Treatment Plant's Bufferlands. Removal or breaching of the levee would allow for increased channel capacity by restoring the creek's connection to its floodplain. The Bufferlands buffer the surrounding residences and businesses from the activities of the treatment plant. The Bufferlands total 2,600 acres and are actively managed for open space, flood plain, agriculture, and wildlife habitat. The Bufferlands are also contiguous with the northern most part of the Stone Lakes National Wildlife Refuge.

From *Franklin Boulevard to Center Parkway*, the channel depth would be excavated about 2 feet. The bottom width of the channel will be increased to 14 feet, and the channel top width will be increased an additional 10-15 feet toward the left (south) bank to accommodate the bottom width increase.

The new top width of the flow area of *Unionhouse Creek* will be limited to 78 feet to accommodate proposed improvements for light rail and Cosumnes River

Boulevard between Franklin Boulevard and Center Parkway. Conceptual cross sections for this reach were determined with input from all involved agencies.

#### *Bridge Retrofitting*

There is no bridge retrofitting needed on the UPRR Bridge and Franklin Boulevard Bridge. Center Parkway Bridge will be retrofitted with in-fill walls and new, lower spread footings at each pile.

#### *Drop Structures*

There will be one drop structure constructed downstream of the Center Parkway Bridge on Unionhouse Creek.

#### **Construction Details**

Staging areas for equipment and materials would be located primarily within the channels. The location of the staging areas would depend on the channel segment being dewatered and excavated. In addition, part of the Franklin and Boyce stormwater detention basin to be constructed by the City would be used for staging and as a borrow site for the Corps project.

Several disposal sites would be used depending on the type of material. Old concrete from the low-flow channels would be disposed at an approved waste site authorized to accept concrete waste. Cleared vegetation from the channels would be transported to the nearest dump or landfill for disposal. Excavated soil from the Morrison, Elder, and Florin Creek channels will be transported to the Regional Sanitation district west of Morrison Creek and spread at Borrow Site #2. Excavated material from Unionhouse Creek would be placed on the vacant area adjacent to the creek between Franklin Boulevard and Center Parkway. This vacant area is about 5,700 feet long by 50 feet wide, covering an area of about 6.6 acres.

Access Routes along the main channels will be the same as identified in the 1998 EIS/EIR. Access to the three unnamed Morrison Creek tributaries would be along existing maintenance roads on the top banks of the tributaries.

Construction of the entire project is estimated to take about 5 years. Construction of the North Beach Lake levee between the Sacramento River and the UPRR is expected to begin in May 2005. Construction of the project features upstream of the UPRR, which include the design refinements, would begin in 2006. It is anticipated that construction will be carried out on one stream reach per year.

#### **Project Effects and Mitigation**

Effects of the project will only be discussed in relation to the changes made in the project description. All other project effects remain the same as described in the Service's FWCA report dated June 2002 and supplemental FWCA report dated February 2004.

Changes to the project description entail more earthwork than was discussed in the original FWCA report. Also, instead of covering vegetation with mats during construction, all vegetation

would now be removed. Earthwork involves deepening and widening channels, and installation of drops structures. A recent site visit confirmed that habitat quality and quantity matches what was evaluated during the Habitat Evaluations Procedures conducted for the project and reported in the 2002 FWCA report. Areas affected by the proposed changes include channel side slopes and levee tops with annual grassland habitat on them and a narrow band of emergent wetland found intermittently along the bottom edge of the creek. An additional 21.2 acres of annual grassland would also be affected by the proposed changes.

All vegetation in the construction area would now be lost due to the proposed changes in the project description. The Corps has proposed to replant the slopes of the channels upon completion of construction and maintain the plantings. The amount of emergent wetland that would be affected remains unchanged. In addition to completing the mitigation recommended in the 2002 FWCA report (0.72 acre), the Corps has proposed to replant any emergent wetland vegetation removed during deepening and widening the channels.

The additional disturbance of 21.2 acres of annual grassland would temporarily affect wildlife using this area. Since construction is phased, a temporary loss of habitat (1 year) species should be able to resume using the habitat the next year.

Construction of concrete aprons upstream of 8 of the 11 drop structures will be considered a permanent loss to giant garter snake habitat. The 15-foot wide aprons would extend up both slopes of the trapezoidal channel to prevent channel scouring. The drop structures would be installed in locations where there is currently a concrete low-flow channel; therefore, only the areas newly lined with concrete outside of the low-flow channel are considered permanent loss of habitat. The three drop structures in the unnamed tributaries to Morrison Creek will not have permanent habitat loss associated with them because these channels are currently concrete lined. The total area of additional, permanent loss of giant garter snake habitat will be 0.06 acre due to the proposed design refinements.

To minimize incidental take of the federally listed giant garter snake, the Corps proposes to compensate for the permanent loss of 0.06 acre upland giant garter snake habitat through the purchase of credits at a Service approved mitigation bank at a ratio of 3 to 1. The Services biological opinion for the *Amendment to the Formal Section 7 Consultation for the South Sacramento County Streams Project, Sacramento County, California*, enclosed, was completed on November 15, 2004.

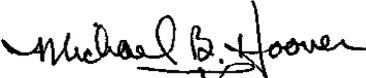
### **Recommendations**

The Service recommends the COE:

1. Complete mitigation (0.72 acre) for emergent wetland recommended in the Service's 2002 FWCA report.
2. Reseed all annual grassland habitat disturbed during construction.
3. Replant emergent wetland habitat disturbed during construction.

If you have any questions or comments regarding this report, please contact Stephanie Rickabaugh at (916) 414-6724.

Sincerely,

  
for David L. Harlow  
Acting Field Supervisor

Enclosure

Amendment to the Formal Section 7 Consultation for the South Sacramento County Streams Project (Service File No. 1-1-01-F-0043), Sacramento County, California

cc:

AES, Portland, OR

CDFG, Region 2, Rancho Cordova, CA

Dan Artho, USCOE, Sacramento, CA

NOAA Fisheries, Sacramento, CA

California Department of Fish and Game  
Natural Diversity Database  
CNDDDB Wide Tabular Report  
South Sacramento County Streams Project Design Refinements  
Florin and Sacramento East 7.5' Quads

Name (Scientific/Common)	CNDDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks						Population Status		Presence		
					A	B	C	D	X	U	Historic >20 yr	Recent <=20 yr	Pres. Extant	Poss. Extirp.	Extirp.
Accipiter cooperii Cooper's hawk	G5 S3	CDFG: SC	Fed: None Cal: None	68 S:1	0	0	1	0	0	0	0	1	1	0	0
Agelaius tricolor tricolored blackbird	G2G3 S2	CDFG: SC	Fed: None Cal: None	398 S:9	0	2	2	0	1	4	5	4	8	1	0
Ardea alba great egret	G5 S4	CDFG:	Fed: None Cal: None	29 S:1	0	0	0	0	0	1	0	1	1	0	0
Ardea herodias great blue heron	G5 S4	CDFG:	Fed: None Cal: None	74 S:1	0	0	0	0	0	1	0	1	1	0	0
Athene cunicularia burrowing owl	G4 S2	CDFG: SC	Fed: None Cal: None	669 S:16	0	5	5	0	1	5	5	11	15	0	1
Branchinecta lynchi vernal pool fairy shrimp	G3 S2S3	CDFG:	Fed: Threatened Cal: None	342 S:10	0	0	1	2	0	7	0	10	10	0	0
Branchinecta mesovallensis midvalley fairy shrimp	G2 S2	CDFG:	Fed: None Cal: None	58 S:7	0	0	0	0	0	7	3	4	7	0	0
Buteo swainsoni Swainson's hawk	G5 S2	CDFG:	Fed: None Cal: Threatened	1275 S:12	2	1	4	0	0	5	5	7	12	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	CDFG:	Fed: Threatened Cal: None	190 S:6	0	0	0	0	0	6	6	0	6	0	0
Downingia pusilla dwarf downingia	G3 S3.1	CNPS: 2 Code: 1-2-1	Fed: None Cal: None	110 S:1	0	1	0	0	0	0	0	1	1	0	0
Elderberry Savanna	G2 S2.1		Fed: None Cal: None	4 S:2	0	0	0	0	0	2	0	2	2	0	0
Emys (=Clemmys) marmorata marmorata northwestern pond turtle	G3G4T3 S3	CDFG: SC	Fed: None Cal: None	204 S:3	0	0	0	0	0	3	3	0	3	0	0
Juglans hindsii Northern California black walnut	G1 S1.1	CNPS: 1B Code: 3-3-3	Fed: None Cal: None	6 S:1	0	0	0	0	1	0	1	0	0	0	1
Legenere limosa legenere	G2 S2.2	CNPS: 1B Code: 2-3-3	Fed: None Cal: None	59 S:3	0	3	0	0	0	0	0	3	3	0	0
Lepidurus packardii vernal pool tadpole shrimp	G3 S2S3	CDFG:	Fed: Endangered Cal: None	174 S:14	0	0	0	1	0	13	0	14	14	0	0

California Department of Fish and Game  
Natural Diversity Database  
CNDDDB Wide Tabular Report  
South Sacramento County Streams Project Design Refinements  
Florin and Sacramento East 7.5' Quads

Name (Scientific/Common)	CNDDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks						Population Status		Presence		
					A	B	C	D	X	U	Historic >20 yr	Recent <=20 yr	Pres. Extant	Poss. Extirp.	Extirp.
Linderiella occidentalis California linderiella	G3 S2S3	CDFG:	Fed: None Cal: None	219 S:11	0	0	1	2	0	8	0	11	11	0	0
Northern Hardpan Vernal Pool	G3 S3.1		Fed: None Cal: None	125 S:6	0	0	0	0	0	6	6	0	6	0	0
Phalacrocorax auritus double-crested cormorant	G5 S3	CDFG: SC	Fed: None Cal: None	32 S:1	0	0	0	0	0	1	0	1	1	0	0
Pogonichthys macrolepidotus Sacramento splittail	G2 S2	CDFG: SC	Fed: None Cal: None	15 S:1	0	1	0	0	0	0	0	1	1	0	0
Progne subis purple martin	G5 S3	CDFG: SC	Fed: None Cal: None	25 S:8	0	0	0	0	0	8	0	8	8	0	0
Riparia riparia bank swallow	G5 S2S3	CDFG:	Fed: None Cal: Threatened	176 S:1	0	0	0	0	0	1	0	1	1	0	0
Sagittaria sanfordii Sanford's arrowhead	G3 S3.2	CNPS: 1B Code: 2-2-3	Fed: None Cal: None	52 S:15	1	2	4	1	3	4	0	15	12	3	0
Thamnophis gigas giant garter snake	G2G3 S2S3	CDFG:	Fed: Threatened Cal: Threatened	169 S:5	0	0	2	0	1	2	4	1	4	0	1

**Appendix C. Correspondence with the U.S. Fish and Wildlife  
Service Regarding Special Status Species**





# United States Department of the Interior



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

In reply refer to:  
1-1-04-F-0349

NOV 15 2004

Mr. Mark C. Charleton  
Chief, Planning Division  
Department of the Army  
U.S. Army Engineer District, Sacramento  
Corps of Engineers  
1325 J Street  
Sacramento, California 95814

Subject: Amendment to the Formal Section 7 Consultation for the South Sacramento County Streams Project (Service File No. 1-1-01-F-0043), Sacramento County, California

Dear Mr. Charlton:

This letter is in response to your request for amendment to the April 15, 2002, biological opinion Formal Section 7 Consultation for the South Sacramento County Streams Project, Sacramento County, California (Service File No. 1-1-01-F-0043) on the proposed South Sacramento County Streams Project (amendment project). At issue are the effects of the proposed amendment on the federally threatened giant garter snake (*Thamnophis gigas*) (snake). This amendment is issued in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act). This amendment is based on: (1) a September 22, 2004, letter from the Army Corps of Engineers (Corps), describing changes to the proposed project description originally described in the April 15, 2002, biological opinion; (2) our April 15, 2002, biological opinion; (3) the Corps' *Draft Environmental Assessment for the South Sacramento County Streams Project Design Refinements* dated September 2004; (4) an October 20, 2004, site visit by Service representatives; and (5) other information available to the Service.

The Corps proposes design refinement to the *Sacramento County Streams Investigation, California, Environmental Impact Statement/ Environmental Impact Report (EIS/EIR)* dated March 1998. The design refinements include: (1) deepen and/or widen existing channels to increase channel capacity; (2) retrofit bridges to ensure unimpeded passage of flows; (3) construct drop structures in channels to avoid potential erosion; and (4) construct box culverts to increase flow area and decrease head loss. These refinements are meant to ensure that the

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authorized project provides sufficient channel capacity (desired level of flood protection) in the south Sacramento area.

The April 15, 2002, biological opinion is now amended to read:

Page 3, Description of the Proposed Action: **Add:**

**“Proposed Design Refinement Measures for the Project”**

Channel excavation will involve deepening and/or widening the existing channel to increase the volume of the channel. Equipment and materials will travel or be transported on local roadways to the construction sites. Existing ramps would be used to access the channel, when possible, or temporary ramps will be constructed, if needed. Existing service roads will be used, if available. The staging areas will be within the channels.

Channel excavation will be conducted using in-channel construction methods. First, the channel will be dewatered by installing temporary cofferdams and diverting streamflow around the section to be excavated. Since most of the creek channels have concrete low-flow channels at the bottom, channel deepening will require removal of the existing concrete low-flow channel. Old concrete will be ripped up and disposed at an approved waste site. The total volume of concrete to be removed is approximately 10,000 cubic yards.

Vegetation on the channel banks and bottom will then be cleared and transported to the nearest dump or landfill for disposal. Excavated soil from Morrison, Elder, and Florin Creeks will be transported to and spread on the Regional Sanitation District area west of Morrison Creek. Excavated material from Unionhouse Creek will be placed on the adjacent vacant area along the creek for use by the Sacramento Regional Transit District. The total volume of cleared vegetation and soil to be excavated and removed is approximately 250,000 cubic yards. Of that volume, 89,500 cubic yards will come from Unionhouse Creek.

The concrete low-flow channel will be reconstructed after excavation, floodwall construction, and other design measures are completed in each section. The concrete lining will be reconstructed at its original width, leaving portions of the channel bottoms unlined. The concrete will be allowed the appropriated amount of time to cure. As construction is completed in a stream section, equipment will be removed from the staging area. The cofferdam will be removed and streamflow will be diverted back into the stream channel, as design specifications and water quality restriction require.

Bridge retrofitting involves modifying a bridge's structure to ensure unimpeded passage of flows under the bridge. Prior to the refined design, proposed bridge modifications included concrete aprons, new parapet walls, in-fill walls, and plugging of deck drains. In addition, a stop-log structure will be installed at the Union Pacific Railroad (UPRR) bridges. Based on the lowered streambeds in the refined design, foundation

modifications to several of the bridges would also be necessary. All the bridges have concrete channels under them. Once the concrete channel is removed, selected foundation piers will be excavated, and the spread footing will be removed. A new spread footing at the correct elevation will be constructed using reinforced concrete. Temporary shoring will be used to support the affected portion of the bridge during this work. This work will be necessary at 11 bridges.

Drop structures, or weirs, will be constructed in channels where required to avoid potential erosion due to grade breaks. Grade brakes are anticipated at the upstream end of the project reaches where the excavated channel will merge with the existing channel. Typical construction of drop structures/weirs includes a 15-foot concrete apron upstream of the drop structure to prevent channel scouring and resultant sediment buildup at the drop structure. The refined design calls for 11 drop structures within the project channel reaches. As with channel excavation, drop structures will be constructed while cofferdams are in place and streamflow is diverted around the construction area.

Box culverts will be constructed across the Florin Creek culvert crossings at Center Parkway, Persimmon Avenue, and Orange Drive to increase the effective flow area and reduce the head loss. The new box culverts would either be constructed by jacking and coring concrete box culverts under the road way, or by traditional open cut construction using precast concrete box culverts. Construction of box culverts at each site is expected to take 6 to 8 weeks. Because this work will be in three separate locations, the work will can be done concurrently.

Floodwall/sheetpile construction will be the same as described in the 1998 EIS/EIR. In general, floodwall construction will be staged in the channel as described for channel excavation. Cranes will be used to lift material and equipment to wall locations on the tops of the levees or banks.

### **Design Refinements by Steam Reach**

#### **Morrison Creek**

Average floodwall heights along Morrison Creek will be between 1.3-3.0 feet above the existing levee/bank height as a result of the design refinements. There are several isolated locations where the floodwall heights are as high as 7 feet. However, these short stretches are typically leading into bridge crossings where floodwall heights would match the heights of the bridges.

#### *Channel Excavation*

The channel excavations will be contained within the lateral limits of the existing channel. The depth of the excavation varies from 0-3.0 feet. Channel side slopes would be excavated to a minimum ration of 1 vertical:2 horizontal (1V:2H) in earthen sections. Existing side slopes that exceed this ratio will not be excavated.

*Bridge Retrofitting*

A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

UPRR Bridge: install stop logs at both ends of bridge.

Mack Road Bridge: none required.

Brookfield Drive Bridge: construct in-fill walls; seal existing parapet joints.

G Parkway Bridge: construct new, continuous spread footings integral with the seven piles in each pier.

Franklin Boulevard Bridge: construct new parapets on both sides of bridge; construct in-fill walls; seal parapet joints.

Center Parkway Bridge: construct new, standard height parapets on both sides of bridge; construct in-fill walls; plug deck drains; construct new spread footing at each pile; seal parapet joints.

Florin Road Bridge: construct new parapets on both sides of bridge; construct in-fill walls; plug deck drains; seal parapet joints.

State Route 99 Bridges: extend existing pier walls and construct new, lower, continuous spread footings.

Sky Parkway Pedestrian Bridge: construct new parapets on both sides of bridge; extend concrete pier wall and construct new, lower pier wall footing; seal parapet joints.

Steiner Drive Bridge: construct new standard height parapet on upstream side of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower spread footing at each pile; seal upstream parapet joints.

53<sup>rd</sup> Street/ Riza Avenue Pedestrian Bridge: extend concrete pier wall and construct new, lower pier wall footing.

Stockton Boulevard Bridge: construct new standard height parapet on both sides of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower, continuous spread footing connecting all 11 columns at each pier; seal parapet joints.

*Drop Structures*

There are two drop structures designed for the main channel of Morrison Creek: one upstream of Stockton Boulevard and one downstream of Stockton Boulevard. In additions, three drop structures will be constructed in the three unnamed tributaries to Morrison Creek.

*Extend floodwalls up tributaries of Morrison Creek*

The project improvements could potentially be outflanked by upstream floodflows along three minor tributaries to Morrison Creek. In order to avoid these outflanking, floodwalls will be extended up the tributaries at an elevation equal to that of the potential floodwalls on Morrison Creek at the confluence.

**Elder Creek**

Floodwall heights along Elder Creek will be constructed up to 5.1 feet above the existing levee/bank height as a result of the design refinements. This maximum wall height is approximately 1 foot higher than the original design. The existing levee between Morrison Creek and Franklin Boulevard will be raised as described in the original design.

*Channel Excavation*

Channel depth excavation on Elder Creek will lower the channel profile about 1.5 feet. Channel excavation will not exceed the existing top width of the channel. Side slopes will be excavated at a ratio of at least 1V:2H. Bottom widths of the channel may vary from 15-25 feet.

*Bridge Retrofitting*

A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

Franklin Boulevard Bridge: none required.

Tangerine Avenue Bridge: construct in-fill walls; plug deck drains; seal existing parapet joints.

Center Parkway Bridge Southbound: construct in-fill walls; plug deck drains; seal existing parapet joints.

Center Parkway Bridge Northbound: construct in-fill walls.

LaMancha Avenue Bridge: construct new standard height parapet on both sides of bridge; construct in-fill walls; plug deck drains; remove existing spread footings, extend columns and construct new, lower spread footing at all four columns at each of the three piers; seal parapet joints.

State Route 99 Bridges: construct in-fill walls; plug deck drains; remove existing spread footings, extend columns, and construct new, lower, continuous spread footing at ten columns at each of three piers.

#### *Drop Structures*

One drop structure downstream of Highway 99 will be constructed in Elder Creek.

#### **Florin Creek**

Floodwall heights along Florin Creek will be constructed up to 5.6 feet above the existing levee/bank height as a result of the design refinements. This is approximately 1 foot lower than the original design. Also, whereas the original design specified floodwalls between Highway 99 and Stockton Boulevard, the refined design indicates that floodwalls will not be needed on this stretch of Florin Creek. Hydraulic analysis indicated that while overbank flow can still occur in this reach for the 100-year event, the available information indicates that flood damages should be minimal. The affected area comprises agricultural/fallow land and the open space areas of a park, neither of which will be significantly damaged by flooding. Also, constructing floodwalls upstream of Highway 99 on Florin Creek will affect the existing drainage patterns (local drainage) since this reach does not currently have levees/floodwalls.

The existing levees on Florin Creek between Elder Creek and Franklin Boulevard will be raised as described in the original design.

#### *Channel Excavation*

Channel excavation on Florin Creek is proposed from the confluence at Elder creek to the downstream side of Orange Drive. Sensitivity studies showed that there was little to not benefit to channel excavation upstream of Orange Drive. The reach between Orange Drive and Stockton Boulevard is a fairly short reach, approximately 650 feet. Various channel widening alternatives were modeled in this reach with little to no change in the water-surface elevation. The design on the remaining reaches on Florin Creek will be refined through channel excavation as follows:

From the *confluence at Elder Creek to Franklin Boulevard*, the bottom width of the channel will be cut to 10 feet wide. Side slopes will be at 1H:2V ratio. The channel bottom will be excavated approximately 2 feet. Top width of the channel would be extended on additional 15-20 feet beyond the existing left (south or east) bank.

From *Franklin Boulevard to River Station 3479*, existing development encroachment on the immediate overbank areas has restricted any bank modifications. Therefore, the current channel top width would remain unchanged. The bottom width will be 5 feet with approximately 0.5 foot excavated from the channel depth. Existing channel side slopes will be maintained.

The *River Station 3479 to Persimmon Avenue*, the creek right-of-way increases on the right bank. The bottom width of the channel will be increased in this area with ranges from 15-25 feet. Top width of the channel will be increased approximately 20 feet toward the right (north) bank. Bottom depth excavation will be approximately 1 foot.

From *Persimmon Avenue to Orange Drive*, there is a section of existing bike trail on the right bank of the creek. This section of trail, which is paved and extends for approximately 2,800 feet, would be used to increase the top width of the channel an additional 10 feet. The bike trail will be reconstructed as an integral part of the new channel. Bottom depth excavation will be up to 1 foot. Bottom width would be increased 20 feet up to Highway 99 and 25 feet from Highway 99 to Orange Drive.

#### *Bridge Retrofitting*

A concrete apron is proposed under all bridges (but not culverts) and therefore is not listed under the proposed refinements below.

**Franklin Boulevard Bridge:** convert existing south abutment to a pier using the existing piles and pile cap; construct a new south abutment approximately 12 feet to the south of the existing abutment on CIDH concrete or driven piles; construct new 12-foot reinforced concrete slab span; seal parapet joints. Alternatively, the addition of a concrete box culvert at the south end of the span is also being considered in lieu of constructing a new 12-foot span on the bridge.

**Brookfield Drive Bridge:** construct new standard height parapet on both sides of bridge; plug deck drains; construct in-fill walls; seal parapet joints.

**Center Parkway Culvert:** construct new parapet on both sides of bridge; construct two new box culvert cells 5.5 feet wide by 7.0 feet tall on the right side of and lower than existing cells; seal parapet joints.

**Persimmon Drive Culvert:** construct new parapet on both sides of bridge; construct one new box culvert cell 8 feet wide by 6 feet tall on the right side of and lower than existing cells; seal parapet joints.

**State Route 99 Culvert:** none required.

**Orange Avenue Culvert:** construct new standard height parapet on both sides of bridge; construct two new box culvert cells 7.8 feet wide by 5.5 feet tall, one on each side of existing cells; seal parapet joints.

**Stockton Boulevard Bridge:** none required.

#### *Additional Box Culverts at Road Crossings*

To increase the effectiveness of hydraulic flow at the culvert crossings at Center Parkway, Persimmon Avenue, and Orange Drive, additional box culverts are proposed. At Center Parkway, two 5.5 foot by 7 foot box culverts will be added to the right of the existing culverts. At Persimmon Avenue, one 8 foot by 6 foot box culvert will be added to the right of the existing culverts. At Orange Drive, two additional 7.8 feet by 5.5 feet box culverts will be added, one on each side of the existing culverts.

#### *Drop Structures*

Florin Creek design refinements call for four drop structures; that is, one each at Franklin Boulevard, Center Parkway, Highway 99, and Orange Avenue.

#### **Unionhouse Creek**

The refined design for Unionhouse Creek in general reflects the original design. No refinements are proposed to increase the floodwalls from the height in the original design. Unionhouse Creek will overflow into the Bufferlands due to the proposed removal of the left bank levee from Morrison Creek to approximately 200 feet downstream of Franklin Boulevard.

#### *Channel Excavation*

Between Morrison Creek and Franklin Boulevard, the bottom width of the channel will be increased to 14 feet, and the channel depth will be excavated an additional 1-2 feet. The south levee will be removed or breached up to UPRR. This will increase the top width of the channel in this section by approximately an additional 100 feet to the south, into Sacramento Regional Wastewater Treatment Plant's Bufferlands. Removal or breaching of the levee will allow for increased channel capacity by restoring the creek's connection to its floodplain. The Bufferlands buffer the surrounding residences and businesses from the activities of the treatment plant. The Bufferlands total approximately 2,600 acres and are actively managed for open space, flood plain, agriculture, and wildlife habitat. The Bufferlands are also contiguous with the northern most part of the Stone Lakes National Refuge system.

From *Franklin Boulevard to Center Parkway*, the channel depth will be excavated approximately 2 feet. The bottom width of the channel will be increased to 14 feet, and the channel top width will be increased an additional 10-15 feet toward the left (south) bank to accommodate the bottom width increase.

The new top width of the flow area of *Unionhouse Creek* will be limited to 78 feet to accommodate proposed improvements for light rail and Cosumnes River Boulevard between Franklin Boulevard and Center Parkway. Conceptual cross sections for this reach were determined with input from all involved agencies.

*Bridge Retrofitting*

There is no bridge retrofitting needed on the UPRR Bridge and Franklin Boulevard Bridge. Center Parkway Bridge will be retrofitted with in-fill walls and new, lower spread footings at each pile.

*Drop Structures*

There will be one drop structure constructed downstream of the Center Parkway Bridge on Unionhouse Creek.

**Construction Details**

Staging areas for equipment and materials will be located primarily within the channels. The location of the staging areas will depend on the channel segment being dewatered and excavated. In addition, part of the Franklin and Boyce stormwater detention basin to be constructed by the City will be used for staging and as a borrow site for the Corps project.

Several disposal sites will be used depending on the type of material. Old concrete from the low-flow channels would be disposed at an approved waste site authorized to accept concrete waste. Cleared vegetation from the channels will be transported to the nearest dump or landfill for disposal. Excavated soil from the Morrison, Elder, and Florin Creek channels will be transported to the Regional Sanitation district west of Morrison Creek and spread at Borrow Site #2. Excavated material from Unionhouse Creek will be placed on the vacant area adjacent to the creek between Franklin Boulevard and Center Parkway. This vacant area is approximately 5,700 feet long by 50 feet wide, covering an area of approximately 6.6 acres.

Access Routes along the main channels will be the same as identified in the 1998 EIS/EIR. Access to the three unnamed Morrison Creek tributaries will be along existing maintenance roads on the top banks of the tributaries.

Construction of the entire project is estimated to take approximately 5 years. Construction of the North Beach Lake levee between the Sacramento River and the UPRR is expected to begin in May 2005. Construction of the project features upstream of the UPRR, which include the design refinements, would begin in 2006. It is anticipated that construction will be carried out on one stream reach per year.”

Page 5-7; Description of the Proposed Action; Flood Control Work: **Replace** the section beginning with “Area 3 - Between Morrison and State Route 99” and ending on page 7 with “...this area of the creek” with the following:

*“Morrison Creek.* The predominant flood control measure along Morrison creek would be floodwalls or sheetpile walls on both levees and on the channel banks of incised channels. Along the east bank of Morrison Creek from Unionhouse Creek to the UPRR

bridge, seepage and weakening of the railroad embankment would be corrected by constructing a floodwall or sheetpile wall 300 feet long on the waterside of the embankment. The top of the wall would be a maximum of about 1.6 feet above the top of the levee. Channel excavation will be a maximum of 1.1 feet deep. Construction would be done using the in-channel methods described for Area 1.

Farther up the east bank of Morrison Creek levee from UPRR bridge to Franklin Boulevard, there is an existing levee at an elevation of 19 feet. A floodwall or sheetpile wall 8,600 feet long would be placed along the waterside edge of the service road to strengthen the levee. The top of the wall would be about 3.0 feet above the existing top of the levee, and the width of the road would remain at 12 feet. Channel excavation will be about 1.1-2.0 feet in depth. In-channel construction methods would be used as described for, Area 1.

The channel of Morrison Creek is incised from Franklin Boulevard to State Route 99. In this area, there would be floodwalls or sheetpile walls sunk into streambanks for about 4,000 feet. The walls would be placed inside the fence line that marks the existing channel right of way. The height of the wall would extend 5.8 feet above the top of the channel bank. To reduce the risk of wall failure the wall would be placed at a depth of about 10 feet. Channel excavation will be about 2.6-3.3 feet in depth and one drop structure will be installed. In-channel construction methods would be used as described for Area 1.

The bridges on Morrison Creek are affected by pressure flow when backwater extends up the creek from Beach-Stone Lakes. To prevent water from leaving the channel under pressure flow, the Brookfield Drive, G parkway, Franklin Boulevard, Center Parkway, and Florin Road bridges would be retrofitted with concrete infill walls, concrete aprons, parapet walls, and drains.

*Elder Creek.* The predominant flood control measure on this creek would be floodwalls or sheetpile walls. In the leveed areas, from the confluence with Morrison Creek to Franklin Boulevard, about 2,500 feet of floodwall or sheetpile walls would be placed on both sides of the channel on the waterside edge of the service road on top of the levee. The top of the wall would be at a maximum 4.8 feet above the top of the existing levee height. Channel excavation will be a maximum of 1.9 feet in depth.

At the incised portion of Elder Creek, from Franklin Boulevard to State Route 99, about 3,836 feet would be improved with floodwalls or sheetpile walls. The floodwall or sheetpile wall would be placed in the channel bank inside the fence line that marks the existing channel right of way. The height of the walls would have a maximum height of 5.1 feet above the top of the channel bank. A total of 6,336 feet of floodwalls or sheetpiles would be constructed on Elder Creek. Channel excavation will be approximately 1.2-1.6 feet depth. In-channel construction methods would be used as described for Area 1. The following bridges on Elder Creek would be retrofitted with

concrete infill walls, concrete aprons, parapet walls, and drains: Franklin Boulevard, Tangerine Avenue, and Center Parkway.

*Florin Creek.* On this creek, the predominant flood control measure would be floodwalls or sheetpile walls. Florin Creek is an incised channel. About 7,392 feet of improvements would be constructed on both banks, from the confluence of Elder Creek, to State Route 99. The floodwall or sheetpile wall would be placed in the channel bank inside the fence line that marks the existing channel right of way. The height of the walls would be about 0.2 to 5.6 feet above the top of the channel bank. Channel excavation will be approximately 0.5-2.9 feet in depth and 10-60 feet in width. One drop structure will be installed and three box culverts. In channel construction methods would be used as described for Area 1. Two bridges would be retrofitted on Florin Creek with concrete infill walls, concrete aprons, parapet walls, and drains. These bridges are located on Brookfield Drive and Persimmon Avenue. The State Route 99 bridge would be retrofitted with parapet walls.

*Unionhouse Creek.* On Unionhouse Creek, the predominant flood control measure would be floodwalls or sheetpile walls. About 4,725 feet of the north levee below Franklin Boulevard would be improved with floodwalls or sheetpile walls that would be placed along the waterside edge of the service road to strengthen the levee. The top of the wall would be about 0-2.9 feet above the existing top of the levee. About 5,280 feet of the parkway would be improved on both banks with sheetpile walls. The walls would be placed inside the fence line that marks the existing channel right of way. The height of the walls would be about 2-2.5 feet above the top of the channel bank. In-channel construction methods would be used as described for Area 1. The Franklin Boulevard and Center Parkway bridges would be retrofitted with parapet walls to pass water more efficiently under the bridges during pressure flow conditions.

#### Area 4- Between State Route 99 and Stockton Boulevard

*Morrison Creek.* This reach of Morrison Creek is an incised channel, and flood control measures would consist of floodwalls or sheetpile walls on portions of both sides of the channel between State Route 99 and Stockton Boulevard. Where the top of the bank is low, a total of 7,000 linear feet of sheetpile wall would be constructed. The wall would be placed inside the fence line that marks the existing channel right of way and the construction would be done from inside the channel as described for Area 1. The wall heights would be about 0.4-6.7 feet above the top of the channel bank. Channel excavation will be about 2.5-3.3 feet in depth and 3 drop structures will be installed. The Sky Footbridge and Riza Footbridge would be retrofitted with concrete infill walls and concrete aprons. Steiner Drive and Stockton Boulevard bridges would be retrofitted with concrete infill walls, concrete aprons, parapet walls, and drains.

*Florin Creek.* This reach of Florin Creek is an incised channel, and flood control measures would consist of sheetpile walls on both sides of the channel for a total of 7,000 linear feet. The wall would be placed inside the fence line that marks the existing channel right of way, and the construction would be done from inside the channel as described for Area 1. The wall heights would be about 5.5 feet above the top of the channel bank. Channel excavation will be a maximum of 2.4 feet in depth and 30-40 feet increase in top width. One drop structure will be installed. No bridges would be retrofitted in this area of the creek.”

Page 9, Corps’ Proposed Conservation Measures; Activities Along the Haul Road; #2: **Replace:**  
“2. Within the project reach of Frontage Road/ east of Interstate 5 surveying and staking of the site would be permitted for the month of May. However, vehicle traffic would be restricted within the 100-foot buffer of the shrubs, to 5-10 vehicles per day during that time period. Additionally, within the 100-foot buffer surveying and staking would be done by hand and no large equipment will be used on the site until hauling activities commence. Hauling activities within this reach and occurring within the 100-foot buffer of the shrubs would begin no earlier than June 1, provided that no exit holes or beetles were present during preconstruction surveys. If beetles or exit holes are observed then all activities within the 100-foot buffer of the shrub will cease until June 15.”

Page 12, paragraph 2: **Add:**

“Due to the South Sacramento County Streams Project Design Refinements an additional loss permanent loss of 0.06 acres upland giant garter snake habitat will be compensated for through the purchase of credits at a USFWS-approved mitigation bank at a ration of 3:1.”

Page 28, Effects of the Proposed Action: **Add:**

“Construction of the proposed concrete aprons upstream of 8 of the 11 drop structures will be considered a permanent loss of giant garter snake habitat. The 15 foot-wide aprons will extend up both slopes of the trapezoidal channel to prevent channel scouring. The drop structures will be installed in locations where there is currently a concrete low-flow channel; therefore, only the areas newly lined with concrete outside of the low-flow channel are considered permanent loss of habitat. The three drop structures in the unnamed tributaries to Morrison Creek would not have permanent habitat loss associated with them because these channels are currently concrete lined. The area affected at each structure is indicated in Table 1.

The proposed design refinements associated with widening channels, modifying additional tributaries, and disposing of excavated material will affect additional nonnative annual grasslands, urban landscapes, and associated wildlife within the project area, which results in an increase of 2.87 acres of temporary loss of habitat to giant garter snake.”

**Table 1. Area of Permanent Loss of Giant Garter Snake Habitat**

Creek	Drop Structure	Concrete Apron (square feet)	Less Existing Low-Flow Channel (square feet)	Area of Permanent Snake Habitat Loss (square feet)
Morrison	Stockton Blvd.	718	180	538
Morrison	Upstream of Stockton Blvd.	497	180	317
Florin	Franklin Blvd.	302	180	122
Florin	Center Pkwy.	572	180	392
Florin	State Rte. 99	497	180	317
Florin	Orange Ave.	448	180	268
Elder	State Rte. 99	718	180	538
Unionhouse	Center Pkwy.	329	180	149
Total (square feet)				2,641
Total (acres)				0.06

Page 33, Amount or Extent of Take, Giant Garter Snake: **Replace** the number “9.8 acres” with “9.86 acres.”

Page 37, Terms and Conditions, The following terms and conditions implement reasonable and prudent measure number four, **Add**, this section to the first (a) term and condition.

To minimize and compensate for permanent loss of suitable snake habitat from the project design refinements, proposed in *Draft Environmental Assessment for the South Sacramento County Streams Project Design Refinements* dated September 2004, the Corps will acquire an additional 0.06 acres of giant garter snake aquatic habitat and 0.18 acres (at a 3:1 ratio) of giant garter snake upland habitat.

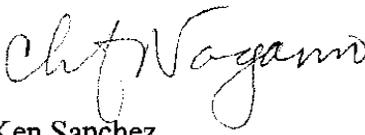
The Service has determined that the project amendment is not likely to result in jeopardy to giant garter snake. All other terms and conditions of the April 15, 2002, biological opinion (1-1-01-F-0043) and amendments on the proposed South Sacramento County Streams Project, Sacramento County, California, shall remain unchanged.

This concludes formal consultation on the proposed South Sacramento County Streams 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, or in this case, any incidental take occurs; (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 review; (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, or in this case, any incidental take occurs, any and all operations causing such take must cease pending reinitiation and Service review.

If you have any questions regarding this response, please contact Stephanie Rickabaugh or the acting Sacramento Valley Branch Chief at (916) 414-6600.

Sincerely,

  
for Ken Sanchez  
Acting Field Supervisor

cc:

AES, Portland, Oregon

Dan Artho, Corps of Engineers, Sacramento, California

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

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



August 23, 2004

Document Number: 040823033141

Daniel F. Artho  
U.S. Army Corps of Engineers, Sacramento District Planning Division  
1325 J Street  
Sacramento, CA 95814

Subject: Species List for Sacramento County Streams Project, Design Refinements

Dear: Mr. Artho

We are sending this official species list in response to your August 23, 2004 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested. You have stated that this list is for consultation with the Fish & Wildlife Service.

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

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

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, 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 November 21, 2004.

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

Endangered Species Division



**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: 040823033141**

**Database Last Updated: July 19, 2004**

**Quad Lists**

**FLORIN (496B)**

**Listed Species**

***Invertebrates***

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

***Fish***

- Hypomesus transpacificus* - Critical habitat, delta smelt (T)
- Hypomesus transpacificus* - delta smelt (I)
- Oncorhynchus mykiss* - Central Valley steelhead (T) (NMFS)
- Oncorhynchus tshawytscha* - Central Valley spring-run chinook salmon (T) (NMFS)
- Oncorhynchus tshawytscha* - winter-run chinook salmon (E) (NMFS)

***Amphibians***

- Ambystoma californiense* - California tiger salamander (T)
- Rana aurora draytonii* - California red-legged frog (T)

***Reptiles***

- Thamnophis gigas* - giant garter snake (T)

***Birds***

- Haliaeetus leucocephalus* - bald eagle (T)

***Mammals***

- Neotoma fuscipes riparia* - riparian (San Joaquin Valley) woodrat (E)
- Sylvilagus bachmani riparius* - riparian brush rabbit (E)

## Candidate Species

### Fish

*Acipenser medirostris* - green sturgeon (C)

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

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

## Species of Concern

### Invertebrates

*Anthicus antiochensis* - Antioch Dunes anthicid beetle (SC)

*Anthicus sacramento* - Sacramento anthicid beetle (SC)

*Branchinecta mesoovallensis* - Midvalley fairy shrimp (SC)

*Linderiella occidentalis* - California linderiella fairy shrimp (SC)

### Fish

*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* - 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)

## **SACRAMENTO EAST (512C)**

### **Listed Species**

#### **Invertebrates**

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

#### **Fish**

*Hypomesus transpacificus* - Critical habitat, delta smelt (T)  
*Hypomesus transpacificus* - delta smelt (T)  
*Oncorhynchus mykiss* - Central Valley steelhead (I) (NMFS)  
*Oncorhynchus tshawytscha* - Central Valley spring-run chinook salmon (T) (NMFS)  
*Oncorhynchus tshawytscha* - winter-run chinook salmon (E) (NMFS)

#### **Amphibians**

*Ambystoma californiense* - California tiger salamander (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**

*Acipenser medirostris* - green sturgeon (C)

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

## **Species of Concern**

### **Invertebrates**

*Anthicus antiochensis* - Antioch Dunes anthicid beetle (SC)

*Anthicus sacramento* - Sacramento anthicid beetle (SC)

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*Spirinchus thaleichthys* - longfin smelt (SC)

### **Amphibians**

*Spea hammondi* - western spadefoot toad (SC)

## **Reptiles**

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## **Birds**

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*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)

### **Plants**

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

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## **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.

(X) *Critical Habitat* designated for this species

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## 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 November 21, 2004.

**Appendix D. Record of Non-Applicability for Clean Air Act  
General Conformity, South Sacramento County Streams Project**



Environmental Resources Branch

SEP 04 2002

Ms. Doris Lo  
U.S. Environmental Protection Agency  
Region IX, Air-2  
75 Hawthorne Street  
San Francisco, CA 94105

Dear Ms. Lo:

The U.S. Army Corps of Engineers (Corps) must determine whether the South Sacramento County Streams Project will be in conformity with Section 17(c) of the Clean Air Act (40 CFR part 93). In accordance with 40 CFR 93.153(b), the Corps has determined that during the construction phase of this project, de minimis levels of criteria pollutants will not be exceeded. The Corps has determined that the proposed action will meet the conformity requirements of 40 CFR 93.176(c). Specifically, the Corps has determined that the South Sacramento County Streams Project will meet the requirements of 40 CFR 93.158(a)(5)(v) and 193.158(c) and is therefore in conformity with the Clean Air Act.

The Record of Non-Applicability for Clean Air Act General Conformity is enclosed. If you have any questions, please contact Mr. Dan Artho at the above address, or he can be reached by calling (916) 557-7723.

Sincerely,

Kenneth E. Hitch, P.E  
Chief, Planning Division

Enclosure

Copies Furnished:

Mr. Ron Maertz, Sacramento Metropolitan Air Quality Management District,  
777 12<sup>th</sup> Street, 3<sup>rd</sup> Floor, Sacramento, CA 95814.

Mr. Gary Honcoop, California Air Resources Board, Office of Air Quality and  
Transportation Planning, 1001 "I" Street, P.O. Box 2815, Sacramento, CA 95812.

Mr. Dave Boyer, Sacramento Area Council of Governments, 3000 S Street, Suite 300,  
Sacramento, CA 95816.

Cc:  
Plng Div  
PPMD  
ERB  
✓EAS (Artho)

ARTHO  
STEVENSON  
TOLAND  
DEVITT  
HITCH

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**RECORD OF NON-APPLICABILITY FOR  
CLEAN AIR ACT GENERAL CONFORMITY**

**SOUTH SACRAMENTO STREAMS PROJECT**

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Prepared for  
U.S. Army Corps of Engineers  
1325 J Street  
Sacramento, CA 95814

Prepared by  
EDAW, Inc.  
2022 J Street  
Sacramento, CA 95814

August 27, 2002



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Air Quality General Conformity Determination  
Emission Calculations  
Control Measures

**RECORD OF NON-APPLICABILITY FOR CLEAN  
AIR ACT GENERAL CONFORMITY**

**SOUTH SACRAMENTO STREAMS PROJECT**

**INTRODUCTION**

This record of Non-Applicability of Compliance is for the South Sacramento County Streams Project. The project addresses flood problems on Morrison, Elder, Unionhouse, and Florin Creeks within the Morrison stream group in south Sacramento County. The project also addresses flood problems at the North Beach Lake levee. Flood control measures include raising and extending existing levees, placing floodwalls or sheetpile walls on existing levees, restoration of bufferlands, and constructing bridge retrofits. The specific components of the project and anticipated years during which these activities would occur are summarized in Table 1, below:

<b>Table 1 South Sacramento Streams Project Construction Component Schedule</b>	
<b>Project Component</b>	<b>Scheduled Year(s) of Construction</b>
Construct sheetpile walls or floodwalls on levees or incised channel banks along portions of Morrison, Elder, Florin, and Unionhouse creeks	2003 - 2006
Retrofit bridges on Morrison, Elder, Florin, and Unionhouse creeks	2003 - 2006
Raise and widen the North Beach Lake levee from the Sacramento River to Unionhouse Creek and the west levee of Morrison Creek from Unionhouse Creek to the Union Pacific Railroad	2003
Construct floodwall or sheetpile wall on a portion of the North Beach Lake levee immediately east of Interstate 5	2003
Construct a floodwall on the west side of the Morrison Creek levee between the UPRR and Franklin Boulevard	2004
Source: USACOE 2002	

Section 176 (c) of the Clean Air Act requires that in federally designated "nonattainment" areas, federal actions must conform to the appropriate State Implementation Plan (SIP). Conformity to a SIP is defined in the Clean Air Act, as amended in 1990, as meaning conformity to a SIP's purpose of elimination or reduction of the number and severity of violations of the national ambient air quality standards. The rule for determining conformity of general federal actions was promulgated by the United States Environmental Protection Agency and became effective in January 1994 (40 CFR Part 93). Because the project is subject to permitting by the U.S. Army Corps of Engineers, the project is subject to the requirements of 40 CFR Part 93, General Conformity Rule. This report presents a summary of the requirements of the General Conformity Rule, the methodology used to evaluate the total direct and indirect emissions associated with the proposed action, and the results of the conformity determination.

## GENERAL CONFORMITY RULE

In order to ensure that federal government activities do not significantly contribute to increased levels of pollutants in air quality nonattainment or maintenance areas, Section 176(c) of the Clean Air Act (CAA) prohibits federal agencies, departments or instrumentalities from engaging in, supporting, licensing, or approving any action which:

- Causes or contributes to new violations of the National Ambient Air Quality Standard (NAAQS);
- Increases the frequency or severity of an existing violation; or
- Delays the timely attainment of a standard, interim emission reduction, or milestone

Actions not resulting in any of the above circumstances are considered to “conform” to the CAA goal of attaining and maintaining the NAAQS. Federal agencies claiming conformity are required to provide documentation which demonstrates that the total of direct and indirect emissions does not contribute to a violation of the NAAQS or any interim milestones.

In response to the CAA mandate, on November 30, 1993, the U.S. Environmental Protection Agency (U.S. EPA) promulgated the Federal General Conformity Rule to implement the conformity requirements (58 FR 63214). These regulations may be found in 40 CFR Parts 51 and 93. Part 51, Subpart W, mandates that States revise their State Implementation Plans (SIP) to include the conformity requirements. While the State provisions must be at least as stringent as the federal guidelines, the States are prohibited from imposing more stringent conformity requirements unless such requirements apply equally to the private sector, as well as federal government, activities. Once the SIP have been revised and approved by EPA, the conformity requirements become federally enforceable and federal agencies will be subject to the conformity requirements as they appear in the SIP. In cases where a Federal Implementation Plan (FIP) is in effect, federal actions must conform to the requirements of the FIP. Subpart B of Part 93 subjects federal agencies to the conformity determination requirements in the interim period before the States revise, and EPA approves, the SIP. The language of Parts 51 and 93 is identical; the only difference being that Part 93 governs federal actions in the interim period.

The statutory language of section 176(c) of the CAA, as amended, is very broad, covering all activities that a federal agency engages in, supports, provides financial assistance for, licenses, permits, or approves. In an effort to reduce the administrative burden of that broad language to a reasonable level, EPA developed an extensive applicability section in the General Conformity Rule. A determination must be made that the federal action conforms to an applicable implementation plan in accordance with the General Conformity Rule before the action is taken. In general, the rule applies to federal actions except (1) Actions covered by the Transportation Conformity Rule; (2) Actions with associated emissions below specified de minimis levels; and (3) Certain other actions that are exempt or presumed to conform. Also in 40 CFR 93.152, the rule requires conformity for “the relevant activity is the part, portion, or phase of the non-federal undertaking that requires the federal permit, license, or approval.”

## APPLICABILITY

Sacramento County is currently federally classified as a “severe” ozone nonattainment area and a “moderate” PM10 nonattainment area. The Sacramento Valley Air Basin is designated in attainment or unclassified for all other criteria pollutants. Consequently, the nonattainment criteria air pollutants for

the Sacramento Valley Air Basin are the two ozone precursors, volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>), and PM<sub>10</sub>. The *de minimis* thresholds for these pollutants are identified in Table 2, below:

Pollutant	Tons/year
VOCs	25
NO <sub>x</sub>	25
PM <sub>10</sub>	100

Based on Sacramento County's current "severe" nonattainment federal designation for ozone and "moderate" nonattainment designation for PM<sub>10</sub>.  
Source: SMAQMD, 2002; 40 CFR 93.152

### EMISSIONS EVALUATION

Construction emissions were calculated based on the "worst-case" annual construction schedule, inventory of equipment, workforce, and haul truck trips attributable to the proposed action. Specific construction activities scheduled to occur during the initial year of construction (year 2003), as reflected in Table 1, are anticipated to include raising the North Beach Lake levee, floodwall/sheetpile installation, bridge retrofit, and ecosystem restoration. The remaining construction-related activities, would take place over a period of 3 years (2004-2006), not just in 2004. The numbers in Table 3 under the heading "Year 2004" are for the year 2004 only (the second most intensive year of construction). Table 3 depicts an annualized summary of the estimated equipment usage, amount of material handled, area of disturbance, and estimated workforce associated with all construction-related activities attributable to the proposed action. As shown, the initial year of construction is anticipated to be the most intensive and, therefore, has the greatest potential for generation of pollutant emissions.

Source	Unit of Measure	Year 2003	Year 2004
Off-Highway Equipment <sup>1</sup>	Number of Pieces	51	30
Soil Handled	Cubic Yards	494,020	10,000
"Worst-Case" Daily Area of Disturbance <sup>2</sup>	Acres/Day	7.5	5
Workforce <sup>1</sup>	Number of Personnel	168	70

Represents cumulative totals for all activities scheduled to occur during the periods indicated, as identified in Table 1 of this report. Refer to Appendix A of this report for detailed assumptions and emission calculations.

<sup>1</sup> Based on a cumulative total of estimated construction requirements for all components scheduled to occur during this year; does not account for reductions due to cross-over of equipment or personnel between components. As a result, actual estimated number of pieces of equipment and construction personnel would likely be less than depicted.

<sup>2</sup> Based on a cumulative total of the estimated maximum daily area of disturbance for all component activities. Assumes all scheduled component activities were to occur simultaneously on any given day. Daily disturbance would vary from day to day and would be limited to the duration of each individual component.

Source: USACOE 2002

The estimation of construction-generated emissions include emissions associated with the operation of on-site equipment, travel on unpaved surfaces, material handling, wind erosion of exposed graded surfaces, wind erosion of active storage piles, and off-site vehicle travel, including material delivery trucks, maintenance trucks, and employee vehicles. Emissions from such sources were calculated using emission factors and mitigation reduction efficiencies obtained from the U.S. EPA, Sacramento Metropolitan Air Quality Management District, and the South Coast Air Quality Management District. Predicted "worst-case" annual emissions (year 2003) attributable to the proposed action are summarized in Table 4. Refer to Appendix A of this report for detailed emissions calculations and assumptions.

Source	Estimated Annual Emissions (tons/year) <sup>1,2</sup>		
	VOC	NO <sub>x</sub>	PM <sub>10</sub>
Off-Highway Equipment	1.87	12.29	0.37
On-Highway Equipment	0.03	0.23	0.02
Personnel Trips	0.03	0.07	0.00
Fugitive Dust	0.00	0.00	65.89
<b>Total Net Increase</b>	<b>1.93</b>	<b>12.59</b>	<b>66.28</b>
<b>Conformity Determination Threshold (each pollutant)</b>	<b>25</b>	<b>25</b>	<b>100</b>

<sup>1</sup> Represents the estimated net increase in emissions associated with mobile, stationary, and area sources based on year 2003 construction schedule.  
<sup>2</sup> With implementation of proposed mitigation measures.  
Source: USACOE 2002; EDAW 2002

## CONCLUSIONS

As shown in Table 4, estimated "worst case" annual emissions (year 2003) attributable to the proposed action would not exceed the *de minimis* thresholds of 25 tons per year for each of the ozone precursor pollutants (e.g., VOCs and NO<sub>x</sub>, and 100 tons per year for PM<sub>10</sub>). Because construction activities scheduled to occur during subsequent years (i.e., 2004-2006) would be substantially less intensive than those occurring during year 2003, emissions generated during subsequent years would, likewise, not be anticipated to exceed the *de minimis* thresholds. In addition, it should be noted that, in comparison to Sacramento County's emissions inventory, the predicted net increases in annual emissions attributable to the proposed action constitute less than one-half of one percent of the area's total emissions inventory for each nonattainment pollutant. Refer to Appendix A for a summary of Sacramento County emissions inventory. Based on this analysis, the net increase of direct and indirect emissions attributable to the proposed action would not exceed the *de minimis* thresholds and, therefore, federal General Conformity requirements would not be applicable to the proposed action.

## REFERENCES

- United States Army Corps of Engineers (USACOE). May-August 2002. Telephone Communications and Correspondence between Dan Artho, Environmental Manager, USACOE, and Kurt Legleiter, Air Quality Specialist, EDAW.
- United States Environmental Protection Agency, Office of Air Quality Planning and Standards (USEPA). 1995. Compilation of Air Pollutant Emission Factors. Volume I: Stationary Point and Area Sources. AP-42. Fifth Edition.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 1994. Air Quality Thresholds of Significance.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 2002. Road Model 3.1.
- South Coast Air Quality Management District (SCAQMD). 1993. CEQA Air Quality Handbook.

**APPENDIX**

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**AIR QUALITY GENERAL CONFORMITY DETERMINATION**

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**EMISSION CALCULATIONS**

<b>EMISSIONS SUMMARY</b>			
	<b>Emissions (tons/year)</b>		
<b>UNCONTROLLED EMISSIONS</b>	<b>ROG</b>	<b>NOx</b>	<b>PM-10</b>
<b>Levee Construction &amp; Improvements</b>			
Off-Highway Equipment	1.81	14.55	0.63
On-Highway Equipment	0.03	0.19	0.01
Personnel Trips	0.02	0.06	0.00
Fugitive Dust	NA	NA	137.75
<b>Subtotal:</b>	<b>1.85</b>	<b>14.80</b>	<b>138.40</b>
<b>Bufferlands Restoration</b>			
Off-Highway Equipment	0.16	0.81	0.04
On-Highway Equipment	0.01	0.04	0.00
Personnel Trips	0.00	0.01	0.00
Fugitive Dust	NA	NA	17.33
<b>Subtotal:</b>	<b>0.17</b>	<b>0.86</b>	<b>17.37</b>
<b>TOTAL (Uncontrolled):</b>	<b>2.03</b>	<b>15.66</b>	<b>155.77</b>
<b>CONTROLLED EMISSIONS</b>			
<b>Levee Construction &amp; Improvements</b>			
Off-Highway Equipment	1.72	11.64	0.35
On-Highway Equipment	0.03	0.19	0.01
Personnel Trips	0.02	0.06	0.00
Fugitive Dust	NA	NA	54.74
<b>TOTAL</b>	<b>1.76</b>	<b>11.89</b>	<b>55.10</b>
<b>Bufferlands Restoration</b>			
Off-Highway Equipment	0.15	0.65	0.02
On-Highway Equipment	0.01	0.04	0.00
Personnel Trips	0.00	0.01	0.00
Fugitive Dust	NA	NA	11.15
<b>Subtotal:</b>	<b>0.16</b>	<b>0.70</b>	<b>11.18</b>
<b>Emissions Summary (Controlled)</b>			
Off-Highway Equipment	1.87	12.29	0.37
On-Highway Equipment	0.03	0.23	0.02
Personnel Trips	0.03	0.07	0.00
Fugitive Dust	0.00	0.00	65.89
<b>TOTAL (CONTROLLED):</b>	<b>1.93</b>	<b>12.59</b>	<b>66.28</b>
<b>General Conformity Thresholds</b>	<b>25</b>	<b>25</b>	<b>100</b>
Assumes estimated combined emissions reductions of approximately 5% for ROG; 20% for NOx. PM-10 reductions are based on control measures recommended by the SMAQMD and corresponding reduction efficiency, obtained from the SCAQMD's CEQA Air Quality Handbook (1993). General Conformity thresholds are based on Sacramento County's current "severe nonattainment" designation for ozone and "moderate nonattainment" designation for PM-10. Sacramento County is classified "attainment" or "unclassified" for all remaining criteria pollutants.			
<b>NOTE:</b> Estimated emissions are considered "worst-case", assuming all activities were to occur simultaneously. The assumptions used in this analysis do not account for reductions in emissions due to the sharing of equipment or personnel between activities. Fugitive dust (PM-10) emission reductions are based on the minimum estimated reduction efficiencies, obtained from the SCAQMD CEQA Air Quality Handbook (1993) and SMAQMD's Air Quality Thresholds of Significance (1994). As a result, predicted emissions are anticipated to be less than estimated.			

Off-Highway Equipment Emission Factors							
Equipment	Emission Factor (lbs/hr)						
	ROG	NOx	PM-10				
Tractors/Backhoes	0.081	0.725	0.032				
Grader	0.220	1.588	0.065				
Compactor/Roller	0.108	0.700	0.034				
Pile Hammer*	0.260	2.310	0.105				
Dozer	0.458	4.078	0.185				
Excavator	0.230	1.410	0.053				
Crane	0.180	1.210	0.048				
Front-end Loader	0.081	0.725	0.032				
Paver	0.171	1.109	0.053				
Drilling Rig	0.276	1.903	0.044				
Towed Mixer*	0.260	2.310	0.105				
Scraper	0.455	3.620	0.156				
ATV	0.441	0.004	0.013				
Sources: SMACMD, 2002; USEPA, 2000							
*Based on average emission factors for "Other Construction Equipment"							
**Source: U.S. EPA, 2000. Control of Emissions From Nonroad Large Spark Ignition Engines, Recreational Engines, and Highway Motorcycles.							
OFF-HIGHWAY EQUIPMENT							
Levee Construction/Improvements				Annual Emissions (lbs/year)			
Construction Phase	Equipment	Quantity	Daily Usage (hrs/day)	Annual Usage (Days/Year)	ROG	NOx	PM-10
Mobilization & Demobilization							
	Backhoe	1	4	30	9.72	87.00	3.84
Demolition & Temporary Fencing							
	Backhoe	1	8	30	19.44	174.00	7.68
Clearing & Grubbing							
	Scrapers	2	7	45	286.65	2280.60	98.28
	Front-end Loader	1	6	45	21.87	195.75	8.64
	Dozer	2	8	45	329.76	2936.16	133.20
Development of Borrow Area							
	Scrapers	1	7	45	143.33	1140.30	48.14
	Backhoe	1	7	45	25.52	228.38	10.08
	Dozer	1	7	45	144.27	1284.57	58.28
Irrigation System Removal							
	Backhoe	1	7	45	25.52	228.38	10.08
Keyway Excavation & Levee Embankment							
	Scrapers	7	8	60	1528.80	12183.20	524.16
	Excavator	1	7	60	96.60	592.20	22.28
	Compactor	1	7	60	45.15	294.00	14.18
	Dozer	1	7	60	192.36	1712.76	77.70
Floodwall Construction							
	Crane	1	7	60	75.60	508.20	20.16
	Excavator	1	7	60	96.60	592.20	22.28
Sheet Pile Wall							
	Crane	2	7	30	75.60	508.20	20.16
	Pile Hammer	1	7	30	54.60	485.10	22.05
Stone Protection							
	Dozer	2	7	30	192.36	1712.76	77.70
	Backhoe	1	6	30	14.58	130.50	5.76
Relief Well Construction							
	Drilling Rig	1	6	30	49.68	342.54	7.92
	Towed Mixer	1	7	30	54.60	485.10	22.05
	Backhoe	1	6	30	14.58	130.50	5.76
	Small Crane	1	7	30	37.80	254.10	10.08
Hydro Seeding							
Final Grading & Aggregate Base							
	Grader	1	6	15	19.80	142.92	5.85
	Roller	1	4	15	6.45	42.00	2.03
	Paver	1	8	15			
	Dozer	1	6	15	41.22	367.02	16.65
Fences & Gates							
	Backhoe	1	8	15	9.72	87.00	3.84



TRAVEL ON UNPAVED SURFACES				
Vehicle Type	Miles/Trip	Miles/Year	Annual VMT	
Levee Construction & Improvements				
Concrete Truck	6	2880	2,880.00	
Dump Truck	6	720	1,530.00	
Dump Truck	6	810		
Flat Bed Truck	6	900	7,560.00	
Flat Bed Truck	6	720		
Flat Bed Truck	6	1080		
Flat Bed Truck	6	3500		
Flat Bed Truck	6	900		
Flat Bed Truck	6	380		
Haul Truck	6	1080	2,520.00	
Haul Truck	6	1440		
Maintenance Trucks	6	3960	3,960.00	
Material Delivery Trucks	6	495	495.00	
Pickup Truck	1	60	630.00	
Pickup Truck	1	60		
Pickup Truck	1	90		
Pickup Truck	1	90		
Pickup Truck	1	120		
Pickup Truck	1	120		
Pickup Truck	1	60		
Pickup Truck	1	30		
Water Truck	6	1350	4,500.00	
Water Truck	6	1800		
Water Truck	6	900		
Water Truck	6	450		
*Refer to "On-Highway Vehicles" worksheet for estimated VMT by phase.				
Bufferlands Restoration				
	Number of Trips	Number of Days	Miles/Trip Unpaved	Annual VMT on Unpaved
Mobilization & Demobilization				
Pickup Truck	4	14	0.5	28
Flatbed Truck	4	14	0.5	28
Storm Water Pollution Prevention Measures				
Pickup Truck	4	10	0.5	20
Flatbed Truck	4	10	0.5	20
Site Preparation				
Pickup Truck	4	20	0.5	40
Flatbed Truck	4	20	0.5	40
Water Truck	4	20	0.5	40
Planting & Contractor Plant Acq.				
Pickup Truck	4	40	0.5	80
Flatbed Truck	4	40	0.5	80
Contractor Plant Acq.				
Pickup Truck	4	10	0.5	20
Panel Truck	4	10	0.5	20
Live Cutting Collection				
Pickup Truck	4	10	0.5	20
Plant Establishment				
Pickup Truck	4	36	0.5	72
Flatbed Truck	4	36	0.5	72
Water Truck	4	36	0.5	72
Irrigation System Installed				
Pickup Truck	4	30	0.5	60
Flatbed Truck	4	30	0.5	60
Grass Seeding (Hydro Seeding)				
Pickup Truck	4	14	0.5	28
Water Truck	4	14	0.5	28
Earthwork for Water Control				
Pickup Truck	4	30	0.5	60
			Total	888

**Summary of On-Highway Vehicle Travel on Unpaved Surfaces**

Vehicle Type	Annual VMT		
	Levees	Bufferlands	Total
Concrete Truck	2,880.00		2,880.00
Dump Truck	1,530.00		1,530.00
Flat Bed Truck	7,560.00	320	7,880.00
Haul Truck	2,520.00		2,520.00
Maintenance Trucks	3,960.00		3,960.00
Material Delivery Trucks	495.00		495.00
Pickup Truck	630.00	428	1,058.00
Water Truck	4,500.00	140	4,640.00







FUGITIVE ASSUMPTIONS - Levee Construction									
Construction Phase	Estimated Surface Area of Daily Disturbance (Acres)	Estimated Duration of Active Surface Disturbance (Days)	Quantity of Soil Being Handled (e.g., excavated, transported, etc.) (cubic yards)	Anticipated Moisture Content of Borrow/Excavated Material (e.g., Low, Average, High)	Will soil storage piles be required? If so, please state approx. area of coverage (acres) & days of use.	Acres	Days/Year	Weight Handled (lbs/year)	Tons/year
Clearing & Grubbing, Development of Borrow Area	3.5	45	100000	AVG	10				
Keyway Excavation & Levee Embankment	1.5	60	350000	AVG	100				
Final Well Construction	Minimal	30	Minimal						
Final Grading & Aggregate Base		15							
Fences & Gates		15							
Floodwall Construction		60							
Sheet Pile Wall		30							
Storm Protection		30							
Scrapar Trips	86400	VMT	128,800 trips/year; 3 miles/trip, 86,400 miles/year						
(Source: Artho, Daniel F. SPK, USACE, Personal Communications June-July, 2002.)									
<b>Emission Sources</b>									
Grading	15	Days/Year (Cumulative) (#Days Final Grading)							
Bulldozing/Debris Pushing	195	Days/Year (Cumulative) (#Days Borrow Area Development)							
Scraping	150	Days/Year (Cumulative)							
Travel on Unpaved Surfaces (Scrapers)	86,400	VMT/Year							
Travel on Unpaved Surfaces (Trucks)									
Concrete Truck	2,800.00								
Dump Truck	1,500.00								
Flat Bed Truck	7,560.00								
Haul Truck	2,520.00								
Maintenance Trucks	3,960.00								
Material Delivery Trucks	495.00								
Pickup Truck	630.00								
Material Handling (Loading & Unloading)									
Keyway Levee, Borrow Area, Seeding	360,000	cy	2700	Weight Handled (lbs/cy)	972,000,000	Weight Handled (lbs/year)	486,000	Tons/year	
Cleaning & Grubbing	100,000	cy							
Structure Excavation	21,500	cy							
Structure Backfill	11,500	cy							
Wind Emission (Graded Surface)									
Keyway/Levee	1.5	Acres/Day	60	Days/Year					
Borrow Area	3.5	Acres/Day	45	Days/Year					
Wind Emission (Active Storage Piles)									
Borrow Area		Acres Exposed/Day	#Days/Year	Days/Year					
Soil Storage Piles	10	Acres	100	Days/Year					
Mean SM Content	7.5								
Moisture Content	3.2								
Avg. Wind Speed	7								
Days > 0.1in. Rain	60								
Percent Wind Speeds > 12 mph	8.2								

FUGITIVE ASSUMPTIONS - Bufferlands Restoration		Estimated Surface Area of Daily Disturbance (acres)	Estimated Duration of Active Surface Disturbance (Days)	Days/Year (Cumulative) (#Days Borrow Area Development)	Weight (lbs/cyd)	Weight Handled (tons/year)
Construction Phase						
Mobilization & Demobilization	3.5	14				
Storm Water Pollution Prevention Measures	1.5	10				
Site Preparation	Minimal	20				
Planting & Contractor Plant Acq.		40				
Live Culling Collection		10				
Plant Establishment		36				
Irrigation System Installation		30				
Earthwork for Water Control		30				
(Source: Artho, Daniel F. SPK. USACE. Personal Communications June-July, 2002.)						
Emission Sources						
Bulldozing/Debris Pushing	30					
Travel on Unpaved Surfaces (Trucks)						
Flat Bed Truck	320.00	miles/year				
Water Truck	140.00	miles/year				
Pickup Truck	428.00	miles/year				
Material Handling (Loading & Unloading)						
Site Preparation at Nicolaus Pond	800	cy		2,700	Weight (lbs/cyd)	1,377
Fence Installation	220	cy				
Wind Erosion (Graded Surface)						
Site Preparation at Nicolaus Pond	1.5	Acres/Day			Days/Year	
Soil Storage Piles (Nicolaus Pond)	1	Acres		30	Days/Year	days/year
Mean Silt Content	7.5					
Moisture Content	3.2					
Avg. Wind Speed	7					
Days > .01 in. Rain	60					
Percent Wind Speeds > 12 mph	8.2					

Source: SCAQMD, CEQA Guidelines (1993)  
Source: U.S. EPA AP-42, Section 13.2 (1998)  
Source: California ARB (1992)  
Source: U.S. EPA AP-42, Section 13.2 (1998)  
Based on percentage mean wind speeds, spring. Mean wind speeds during remaining seasons avg. less than 12 mph (CARB, 1984)

FUGITIVE EMISSIONS - Levee Construction & Improvements		
<b>Grading:</b>		
$E(\text{lbs/VMT})=0.051(S)^2(0.60)$		
Where:		
$S=\text{Average Speed of Grader:}$	4.00	(mph)
	0.49	lbs/VMT
$\text{Avg. Hrs/Day:}$	6.00	
$\text{Total VMT/Day:}$	24.00	
$\text{Days/Year:}$	195.00	
$\text{Number of Graders:}$	1.00	
$\text{Total PM-10/Day (Uncontrolled):}$	2,291.33	lbs/year
$\text{Total PM-10/Day (Controlled):}$	1,512.28	lbs/year
<b>Bulldozing-Debris Pushing:</b>		
$E(\text{kg/hr})=(0.45(s)^{1.5}(M)^{1.4})(.75)$		
Where:		
$s=\text{Silt Content of Material:}$	7.50	(percent)
$M=\text{Moisture Content of Material:}$	3.20	(percent)
	1.81	kg/hr
	4.00	lbs/hr
	0.00	tons/hr
$\text{Hours/Day:}$	6.00	
$\text{Days/Year:}$	195.00	
$\text{Number of Dozers:}$	7.00	
$\text{Total PM-10/Day (Uncontrolled):}$	32,750.10	lbs/year
$\text{Total PM-10/Day (Controlled):}$	21,615.06	lbs/year
<b>Scraping:</b>		
$E(\text{lbs/VMT})=(6.2)(10)^{-6}(s)^{1.4}(W)^{2.5}(0.60)$		
Where:		
$W=\text{Avg. Weight:}$	25.00	(tons)
$s=\text{Silt Content of Material:}$	7.50	(percent)
	0.20	lbs/VMT
$\text{Total VMT/Day:}$	86,400.00	VMT/year
$\text{Total PM-10/Day (Uncontrolled):}$	18,865.24	lbs/year
$\text{Total PM-10/Day (Controlled):}$	11,131.06	lbs/year
<b>Travel on Unpaved Haul Roads (Scrapers):</b>		
$E(\text{lbs/VMT})=(k)(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}$		
Where:		
$k=\text{Particle Size Multiplier:}$	0.36	
$s=\text{Silt Content:}$	7.50	
$S=\text{Vehicle Speed:}$	5.00	
$W=\text{Avg. Vehicle Weight:}$	25.00	
$w=\text{Number of Wheels:}$	16.00	
	1.95	lbs/VMT
$\text{Total VMT/Year:}$	86,400.00	
$\text{Total PM-10/Day (Uncontrolled):}$	168,655.36	lbs/year
$\text{Total PM-10/Day (Controlled):}$	55,656.27	lbs/year
<b>Travel on Unpaved Haul Roads (Dump, Concrete, &amp; Haul Trucks):</b>		
$E(\text{lbs/VMT})=(k)(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}$		
Where:		
$k=\text{Particle Size Multiplier:}$	0.36	
$s=\text{Silt Content:}$	7.50	
$S=\text{Vehicle Speed:}$	10.00	
$W=\text{Avg. Vehicle Weight:}$	25.00	
$w=\text{Number of Wheels:}$	12.00	
	3.38	lbs/VMT
$\text{Total VMT/Year:}$	14,490.00	
$\text{Total PM-10/Day (Uncontrolled):}$	48,990.90	lbs/year
$\text{Total PM-10/Day (Controlled):}$	16,167.00	lbs/year
<b>Travel on Unpaved Haul Roads (Delivery &amp; Pickup Trucks):</b>		
$E(\text{lbs/VMT})=(k)(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}$		
Where:		
$k=\text{Particle Size Multiplier:}$	0.36	
$s=\text{Silt Content:}$	7.50	
$S=\text{Vehicle Speed:}$	10.00	
$W=\text{Avg. Vehicle Weight:}$	2.50	
$w=\text{Number of Wheels:}$	4.00	
	0.39	lbs/VMT
$\text{Total VMT/Year:}$	5,085.00	
$\text{Total PM-10/Day (Uncontrolled):}$	1,980.51	lbs/year
$\text{Total PM-10/Day (Controlled):}$	653.57	lbs/year

<b>Material Handling (Loading &amp; Unloading)</b>		
$E(\text{lb/ton of material})=(k) (0.0032) ((U/5)^{-1.3}/(M/2)^{-1.4})$		
Where:		
$k$ =Particle Size Multiplier:	0.35	
$U$ =Mean Wind Speed:	7.00	(mph)
$M$ =Moisture Content of Material:	3.20	(percent)
	0.00	lbs/ton
Total Tons Handled/Year:	493,000.00	
Total PM-10/Day (Uncontrolled):	442.66	lbs/year
Total PM-10/Day (Controlled):	292.29	lbs/year
(Source: EPA, 1985)		
<b>Wind Erosion of Exposed Graded Surfaces (Keyway &amp; Levee)</b>		
Emission Factor (AP-42, Table 11.9-4):	0.38	tons/acre annually
Total Acres Exposed (per day):	1.50	
Days Exposed:	60.00	
Total PM-10/Day (Uncontrolled):	187.40	lbs/year
Total PM-10/Day (Controlled):	123.68	lbs/year
<b>Wind Erosion of Exposed Graded Surfaces (Borrow Sites)</b>		
Emission Factor (AP-42, Table 11.9-4):	0.38	tons/acre annually
Total Acres Exposed (per day):	3.50	
Days Exposed:	45.00	
Total PM-10/Day (Uncontrolled):	327.95	lbs/year
Total PM-10/Day (Controlled):	216.44	lbs/year
<b>Wind Erosion of Active Storage Piles</b>		
$E(\text{lbs/day/acre})=[(1.7) (G/1.5) (365+H/235) (I-15)] (J)$		
Where:		
$G$ =Silt Content:	7.50	(percent)
$H$ =Days exceeding 0.01 inches of precipitation per year:	60.00	
$I$ =Wind speeds exceed 12 miles per hour:	8.20	(percent)
$J$ =Fraction of TSP:	0.50	
PM-10 Emission Factor:	3.02	lbs/day/acre
Total Acres Exposed Daily:	10.00	
	30.15	lbs/day
	100.00	days/year:
Total PM-10/Day (Uncontrolled):	3,015.39	lbs/year
Total PM-10/Day (Controlled):	2110.77	lbs/year
(Source: SCAQMD, 1993)		
<b>TOTAL UNCONTROLLED (Tons/Year):</b>	<b>137.6</b>	
<b>TOTAL CONTROLLED (Tons/Year):</b>	<b>54.7</b>	
Controlled Emissions are based on approved mitigation measures recommended by the SCAQMD and the minimum estimated reduction efficiencies, as identified in SCAQMD's CEQA Air Quality Handbook (1993).		

FUGITIVE EMISSIONS - Bufferlands Restoration		
<b>Bulldozing-Debris Pushing:</b>		
$E \text{ (kg/hr)} = (0.45)(s)^{1.5}(M)^{1.4}(.75)$		
Where:		
s=Silt Content of Material:	7.50	(percent)
M=Moisture Content of Material:	3.20	(percent)
	1.81	kg/hr
	4.00	lbs/hr
	0.00	tons/hr
Hours/Day:	6.00	
Days/Year:	195.00	
Number of Dozers:	7.00	
Total PM-10/Day (Uncontrolled):	32,750.10	lbs/year
Total PM-10/Day (Controlled):	21,815.08	lbs/year
<b>Travel on Unpaved Haul Roads (Water &amp; Flatbed Trucks):</b>		
$E \text{ (lbs/VMT)} = (k) (5.9) (s/12) (S/30) (W/3)^{0.7} (w/4)^{0.5}$		
Where:		
k=Particle Size Multiplier:	0.36	
s=Silt Content:	7.50	
S=Vehicle Speed:	10.00	
W=Avg. Vehicle Weight:	25.00	
w=Number of Wheels:	12.00	
	3.38	lbs/VMT
Total VMT/Year:	460.00	
Total PM-10/Day (Uncontrolled):	1,555.27	lbs/year
Total PM-10/Day (Controlled):	513.24	lbs/year
<b>Travel on Unpaved Haul Roads (Delivery &amp; Pickup Trucks):</b>		
$E \text{ (lbs/VMT)} = (k) (5.9) (s/12) (S/30) (W/3)^{0.7} (w/4)^{0.5}$		
Where:		
k=Particle Size Multiplier:	0.36	
s=Silt Content:	7.50	
S=Vehicle Speed:	10.00	
W=Avg. Vehicle Weight:	2.50	
w=Number of Wheels:	4.00	
	0.39	lbs/VMT
Total VMT/Year:	428.00	
Total PM-10/Day (Uncontrolled):	166.70	lbs/year
Total PM-10/Day (Controlled):	55.01	lbs/year
<b>Material Handling (Loading &amp; Unloading)</b>		
$E \text{ (lb/ton of material)} = (k) (0.0032) ((U/5)^{1.3}(M/2)^{1.4})$		
Where:		
k=Particle Size Multiplier:	0.35	
U=Mean Wind Speed:	7.00	(mph)
M=Moisture Content of Material:	3.20	(percent)
	0.00	lbs/ton
Total Tons Handled/Year:	1,377.00	
Total PM-10/Day (Uncontrolled):	1.24	lbs/year
Total PM-10/Day (Controlled):	0.82	lbs/year
(Source: EPA, 1985)		
<b>Wind Erosion of Exposed Graded Surfaces (Nicolaus Pond)</b>		
Emission Factor (AP-42, Table 11.9-4):	0.38	tons/acre annually
Total Acres Exposed (per day):	1.50	
Days Exposed:	30.00	
Total PM-10/Day (Uncontrolled):	93.70	lbs/year
Total PM-10/Day (Controlled):	61.64	lbs/year
<b>Wind Erosion of Active Storage Piles</b>		
$E \text{ (lbs/day/acre)} = (1.7) [(G/1.5) (365-H/235) (I-15)] (J)$		
Where:		
G=Silt Content:	7.50	(percent)
H=Days exceeding 0.01 inches of precipitation per year:	60.00	
I=Wind speeds exceed 12 miles per hour:	8.20	(percent)
J=Fraction of TSP:	0.50	
PM-10 Emission Factor:	3.02	lbs/day/acre
Total Acres Exposed Daily:	1.00	
	3.02	lbs/day
	30.00	days/year:
Total PM-10/Day (Uncontrolled):	90.46	lbs/year
Total PM-10/Day (Controlled):	63.32	lbs/year
(Source: SCAQMD, 1993)		
<b>TOTAL UNCONTROLLED (Tons/Year):</b>	<b>17.3</b>	
<b>TOTAL CONTROLLED (Tons/Year):</b>	<b>11.2</b>	
Controlled Emissions are based on approved mitigation measures recommended by the SMAQMD and the minimum estimated reduction efficiencies, as identified in SCAQMD's CEQA Air Quality Handbook (1993).		

County Level Emissions and Air Quality									
Trends & Forecasts - Sacramento County									
Pollutant	Emissions (Tons/Day, Annual Average)		Emissions (Tons/Year*)		10-Percent Threshold (Tons/Year*)				
	2000	2005	2000	2005	2000	2005	2000	2005	2005
ROG	109	86	39,785	31,390	3,979	3,139			
NOx	97	78	35,405	28,470	3,541	2,847			
PM-10	49	53	17,885	19,345	1,789	1,935			

\*Based on Tons/Day Annual Average, assumes 365 days/year.

Source: California Air Resources Board, 2002. ARB Almanac 2002, Appendix A: County Level Emissions and Air Quality by Air Basin

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**CONTROL MEASURES**

## **Emission Control Measures**

### **Fugitive Emissions**

The contractor will maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type and methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. Water exposed surfaces, graded area, and storage piles at least twice daily. Watering may be required on non-working days if dry, windy conditions exist and there are large disturbed areas. To minimize the amount of disturbed area and the amount of material actively worked, the Contractor must have sufficient, competent equipment available to accomplish these tasks. All trucks hauling soil, sand, and other loose materials will be covered or will maintain at least two feet freeboard. If dust control is not achieved using the above control measures, traffic speeds on unpaved roads will be limited to 15 miles per hour.

### **Mobile Source Emissions**

To reduce NO<sub>x</sub> emissions from off-road diesel powered equipment, the Contractor shall provide a plan for approval by Sacramento County Department of Environmental Review and Assessment (DERA) and Sacramento Air Quality Management District (SMAQMD) demonstrating that the heavy-duty (>50 horse power) construction equipment and vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a fleet-averaged 20 percent NO<sub>x</sub> reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. Acceptable options are alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

The contractor shall submit to DERA and SMAQMD a comprehensive inventory of all construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during the construction project. The inventory shall include the horsepower rating, engine production year, and hours of use or fuel throughout for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the Contractor shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

Source: USACOE, 2002

TABLE A11 - 9 - A

**CONTROL EFFICIENCY OF PM10 MITIGATION MEASURES**  
**Percentage Efficiencies Within the Emission Source Category (C)**

Emission Source	Mitigation Measure	Reduction Efficiency	Favorable Factors
Fugitive Dust/ Construction	Apply non-toxic chemical soil** stabilizers according to manufacturers' specifications, to all inactive construction areas (previously graded areas inactive for ten days or more)	30% - 65%*	Stabilizers applied in sufficient concentration to provide erosion protection for at least one year
Fugitive Dust/ Construction	Replace ground cover** in disturbed areas as quickly as possible	15% - 49%*	Small, densely planted ground cover
Fugitive Dust/ Construction	Enclose, cover, water twice daily, or apply non-toxic soil binders**, according to manufacturers' specifications, to exposed stock piles (i.e., gravel, sand, dirt) with 5% or greater silt content	30% - 74%*	Automatic water mist or sprinkler systems should be installed in areas with stock piles
Fugitive Dust/ Construction	Water active sites at least twice daily	34% - 68%*	Water at sufficient frequency to keep soil moist enough♦ so visible plumes are eliminated. ♦ Water content is greater than 12%
Fugitive Dust/ Construction	Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 mph	NQ	
Fugitive Dust/ Construction	Monitor for particulate emissions according to District-specified procedures	NQ	
Fugitive Dust from Roads	All trucks hauling, dirt, sand, soil, or other loose materials are to be covered, or should maintain at least two feet of freeboard in accordance with the requirements of CVC section 23114, (freeboard means vertical space between the top of the load and top of the trailer)	7% - 14%*	Tightly secured covering to truck
Fugitive Dust from Roads	Sweep streets once a day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water)	25% - 60%*	Sweep streets immediately after period of heaviest vehicular track-out activity

(Continued)

Source: SCAQMD, 1993. CEQA Air Quality Handbook.

**TABLE A11 - 9 - A**  
(continued)

Emission Source	Mitigation Measure	Reduction Efficiency	Favorable Factors
Fugitive Dust from Roads	Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.	40 - 70%*	Set up truck washing area on paved access road area so subsequent truck travel on unpaved roads can be eliminated
Fugitive Dust from Roads	Pave construction roads that have a traffic volume of more than 50 daily trips by construction equipment, or 150 total daily trips for all vehicles	92.5% (91% for trucks) 94% for Passenger Vehicles)	
Fugitive Dust from Roads	Pave construction access roads at least 100 feet onto the site from main road	92.5% (91% for trucks) (94% for Passenger Vehicles)	
Fugitive Dust from Roads	Pave construction roads that have a daily traffic volume of less than 50 vehicular trips.	92.5% (91% for trucks) (94% for Passenger Vehicles)	
Fugitive Dust from Roads	Apply water three times daily, or apply non-toxic soil stabilizers** according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces	45%-85%*	Use non-toxic chemical stabilizers that are formulated for use on unpaved road surfaces
Fugitive Dust from Roads	Traffic speeds on all unpaved roads to be reduced to 15 mph or less	40%-70%*	Effective traffic control or signage

\* Use the lowest value if better information is not known. If higher than lowest value is used, please provide the supporting analysis and data in the environmental documentation.

\*\* If watering is needed for soil binders on ground covers, additional percentage reductions should not be taken for watering.

**Appendix E. Correspondence with  
the State Historic Preservation Officer**



STATE OF CALIFORNIA - THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

**OFFICE OF HISTORIC PRESERVATION**  
**DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 842898  
 SACRAMENTO, CA 94298-0001  
 (916) 653-8624 Fax: (916) 653-9624  
 calshpo@ohp.parks.ca.gov  
 www.ohp.parks.ca.gov



December 1, 2004

REPLY TO: COE970429

Tanis J. Toland, Chief, Environmental Analysis Section  
 US Army Engineer District, Sacramento  
 Corp of Engineers  
 1325 J Street  
 Sacramento, CA ~~94296-0001~~

95814-2922

Re: South Sacramento Streams Project on Morrison Creek Watershed, Sacramento County

Dear Ms. Toland:

Thank you for submitting to our office your November 3, 2004 letter continuing consultation on the above referenced undertaking. You are consulting with me in accordance with 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act.

The Corps' project addresses flood control problems by raising existing levees, constructing sheet pile floodwalls, and constructing a detention basin. The Area of Potential Effects (APE) has changed since our last correspondence on April 16, 2004 to include the above mentioned detention basin. I have no objection to the revised APE.

I have reviewed the Cultural Resources Inventory for this project and see that the identification efforts for this project are adequate to determine that there are no historic properties in the APE. Therefore, I concur with your finding of No Historic Properties Affected for this undertaking.

Thank you for the opportunity to comment on this undertaking. If you have any questions about my comments, please contact staff archaeologist Julia Huddleson at (916) 654-4614 or a jhudd@ohp.parks.ca.gov.

Sincerely,

Milford Wayne Donaldson, FAIA  
 State Historic Preservation Officer



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

REPLY TO  
ATTENTION OF

Environmental Resources Branch

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

**NOV 03 2004**

Dear Mr. Donaldson:

In accordance with 36 CFR 800.4(b)(1), the U.S. Army Corps of Engineers (Corps), Sacramento District, is writing in reference to continuing consultation on the design refinements to the South Sacramento County Streams (South Sac) Project. Previous consultation was conducted with Ms. Anmarie Medin of your staff under reference number COE970429A. We are writing pursuant to 36 CFR 800.4(d)(1) to request your concurrence with our determination of "no historic properties affected" for the design refinements to the South Sac project.

The South Sac project addresses flooding problems on Morrison, Elder, Florin, and Unionhouse Creeks by identifying a project design that would increase flood protection by raising existing levees in the lower basin of the project area and constructing sheet pile floodwalls in the upper basin of the project area.

During previous consultation conducted via email and phone conversation on April 16, 2004, the Corps agreed to notify your office if the area of potential effects (APE) was altered for the project. A detention basin, which measures approximately 1,664 feet by 357 feet and is located adjacent to Franklin Boulevard between Elder and Florin Creeks, has since been added to the APE (enclosure 1). No other changes to the APE or the project design have been made. This area was included in the records and literature search conducted on January 22, 2004, and there are no known historic properties present.

Previously, Ms. Medin inquired about the extent of the utilities affected and relocated for the South Sac project. Utilities that will be affected may include subsurface utilities. However, any areas to be disturbed were previously disturbed during the original construction and placement of the utilities. As previously mentioned, excavation of the various channel depths and widths would consist of project work, including staging, conducted from within the channels.

Maximum vertical excavation of the channels would be 3 feet below the current channel levels. The increase in channel width would vary from 1 to 20 feet, with one section on Unionhouse Creek that would be excavated horizontally up to 100 feet. The APE has been documented as the area in California with the greatest population during prehistoric times and up to contact with Europeans. However, the area has also been highly disturbed due to its history of

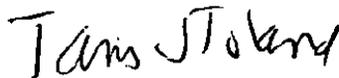
extensive agricultural use prior to its current highly urbanized state. Construction of homes, freeways, industry, and infrastructure has contributed to disturbance in the area. If previously unknown properties are discovered, work will halt in that location until the requirements of 36 CFR 800.13(b) are met.

Most of the APE has been surveyed previously. Those areas that had not been examined were surveyed on March 10 and 29, 2004, and October 12, 2004, by Corps archeologist Richard Perry and Corps historian Melissa Montag. A survey report has been prepared that details the physical, cultural, and historic setting; includes survey methodology; and outlines recommendations (enclosure 2). No cultural resources were identified during the surveys. Based on the results of this survey and investigations, as well as the review of existing documentation, the Corps has concluded that there are no historic properties in the APE, and has therefore determined that the South Sac project as planned will have no effect on properties that are included in, or are eligible for, the National Register of Historic Places.

On March 17, 2004, letters were sent to potentially interested Native Americans asking for their comments, if any, on the design refinements to the South Sac project. To date, no responses have been received.

We request that you review the enclosed documentation, and if you agree with our determination, we would appreciate your concurrence within 30 days. Correspondence may be sent to Ms. Melissa Montag (CESPK-PD-R), U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814-2922. If you have any questions concerning the documentation or our determination, please contact Ms. Montag at (916) 557-7907. Please contact Mr. Paul Devitt, Project Manager, at (916) 557-7208 with any specific project questions.

Sincerely,



Tanis J. Toland  
Chief, Environmental Analysis Section

Enclosures



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

Dr. Knox Mellon  
State Historic Preservation Officer  
Office of Historic Preservation  
P.O. Box 942896  
Sacramento, California 94296-0001

**FEB 12 2004**

Dear Dr. Mellon:

The U.S. Army Corps of Engineers, Sacramento District (Corps), is writing pursuant to 36 CFR 800.3(c)(3) to reinitiate consultation on the South Sacramento County Streams (South Sac) project located in south Sacramento. Previous consultation on this project was completed under file No. COE970429A. The Corps received a letter dated July 22, 1997, complying with a determination of no effect on historic properties on the proposed project, which was then called the South Sacramento Streams Flood Improvements Project, Sacramento County. Due to changes in the area of potential effects (APE), the Corps is reinitiating consultation in order to fulfill Section 106 responsibilities.

The APE is located on the Sacramento East and Florin, California, 7.5-minute U.S.G.S. topographic maps (enclosure 1). The project is located near Sacramento and is part of the larger watershed for Morrison Creek called the Morrison Creek stream group. A portion of the watershed lies within the Sacramento city limits. Morrison, Elder, Florin, and Beacon Creeks are also within the APE for this proposed project. In accordance with 36 CFR 800.4(a)(1), we are also requesting your concurrence with our determination of the redefined APE.

The South Sac project addresses flooding problems on Morrison, Elder, Florin, and Unionhouse Creeks by identifying a project design that would increase flood protection by raising existing levees in the lower basin of the project area and constructing sheetpile floodwalls in the upper basin of the project area.

On January 22, 2004, we completed an updated records and literature search at the North Central Information Center at California State University, Sacramento. We have also checked the National Register of Historic Places and the California Historic Bridge Inventory. Nearly all of the APE has been surveyed previously, and these surveys were negative for the presence of cultural resources or historic properties. We will conduct a field survey in those areas not yet

surveyed and plan to examine the geomorphology of the area, which is already highly disturbed due to urban and industrial construction and activity. We will also obtain a list of potentially interested Native Americans from the Native American Heritage Commission.

We request that you review the enclosed documentation and provide any comments on the APE within 30 days. These comments may be sent to Ms. Melissa Montag (CESPK-PD-R), U.S. Army Corps of Engineers, 1325 J Street, Sacramento, California 95814-2922. If you have any questions, please contact either Ms. Montag, Historian, at (916) 557-7907 or email: [melissa.l.montag@usace.army.mil](mailto:melissa.l.montag@usace.army.mil), or Mr. Richard Perry, Archeologist, at (916) 557-5218 or email: [richard.m.perry@usace.army.mil](mailto:richard.m.perry@usace.army.mil). Please contact Mr. Paul Devitt, Project Manager, at (916) 557-7208 with any specific project questions. Thank you for your time and consideration in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Tanis J. Toland". The signature is fluid and cursive, with a large initial "T" and "J".

for

Tanis J. Toland  
Chief, Environmental Analysis Section

Enclosure

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

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caishpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov



March 26, 2004

REPLY TO: COE970429A

Tanis J. Toland  
Chief, Environmental Analysis Section  
US Army Engineer District, Sacramento  
1325 J Street  
Sacramento, CA 94296-0001

Re: South Sacramento County Streams Project on Morrison Creek Watershed, Sacramento County

Dear Ms. Toland:

Thank you for your February 12, 2004 letter reinitiating consultation on the South Sacramento County Streams project located in South Sacramento. Your letter explains our earlier consultation was concluded in 1997 with a no effect determination, but the Corps is reinitiating Section 106 consultation because of changes in the project's Area of Potential Effects (APE).

You have provided an APE map that shows highlighted watercourses on portions of USGS quadrangles and asked for my concurrence in the redefined APE. Your letter explains the project includes portions of Morrison, Elder, Florin, and Beacon Creeks. The proposed project will raise existing levees in the lower basin of the project area and construct sheetpile floodwalls in the upper basin of the project area. It is unclear to me if this APE includes all potential construction staging areas as well as any ancillary activities such as potential utility relocation. I would like additional information on the specific location and vertical extent of the proposed actions before I concur that the APE is adequately delimited.

Your letter explains that you will survey unsurveyed portions of the APE and plan to examine the geomorphology of the area, which is highly disturbed due to urban industrial construction and activity. I assume this information will relate to the vertical depth of potential impacts and will be used to inform your delineation of the APE as well as assessment of the project's potential to encounter buried archaeological deposits. You state you will also conduct consultation with interested Native Americans. I look forward to reviewing the results of the Corps efforts to identify historic properties.

Thank you for the opportunity to comment on this undertaking. I look forward concluding our consultation as soon as possible. If you have any questions about my comments, please contact staff archaeologist Anmarie Medin at (916) 653-6624 or at [amedin@ohp.parks.ca.gov](mailto:amedin@ohp.parks.ca.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Knox Mellon".

Dr. Knox Mellon  
State Historic Preservation Officer

## Montag, Melissa L SPK

---

**From:** Anmarie Medin [amedia@ohp.parks.ca.gov]  
**Sent:** Friday, April 23, 2004 10:15 AM  
**To:** 'Montag, Melissa L SPK'  
**Subject:** RE: South Sacramento County Streams Project - Phone Conversation follow-up

Melissa,

Thank you for this email. It provides much useful information. I will get a letter out to you soon that covers this round of communication so you have something for your project files. I think we are okay with the APE as is currently understood, with the proviso that as project details become known COE will continue consultation as appropriate.

Lets hope this one wraps up quickly,  
Anmarie

-----Original Message-----

**From:** Montag, Melissa L SPK [mailto:Melissa.L.Montag@usace.army.mil]  
**Sent:** Friday, April 16, 2004 3:55 PM  
**To:** 'amedia@ohp.parks.ca.gov'  
**Subject:** South Sacramento County Streams Project - Phone Conversation follow-up

Anmarie,

I'm glad we had a chance to talk yesterday. So we have something on paper and a record for future use, I'll review what we discussed. If I miss something or need to further elaborate, just let me know. The reference number for the project is COE970429A and I originally called to discuss the issues you brought up in your March 26, 2004 letter to the Corps in response to my February 12, 2004 letter reinitiating consultation on the project due to the changes in the originally authorized project's APE.

The concerns in the letter were related to (A) potential construction staging areas, (B) utility relocation, (C) vertical extent of the proposed project actions, and (D) project potential for encountering buried archaeological deposits. Since the project is still in the planning stages there may be further changes or additions to actions. If the project changes in such a way that the APE is altered or activities not previously discussed are incorporated then I will inform you and the OHP of those changes.

Addressing the concerns:

(A) The project involves excavation of various concrete channels to further depth and width, varying by area. Construction would occur within the current channel confines. Sheetpile floodwalls would also be constructed from within the channels. Staging areas would be from within the channels and access would be via existing roads and access ramps leading directly from the roads to the channels.

(B) Utility relocation, as far as is currently known, will involve those utilities (fiber optic lines, electrical) that are within the designated APE, along the channels and potentially buried in the ground around and under the concrete channels. As details about the extent of the utilities affected become available I will incorporate them into consultation.

(C) Maximum vertical excavation of the channels would be 3.0 feet below the current channel level. Increase in channel width would vary from 1 to 20 feet, with one section located on Unionhouse Creek that will be excavated horizontally up to 100 feet. Much of the current concrete lining of the channels will be disposed of and reinforced with new concrete lining. In addition to reinforcement of channel walls and banks that have been eroded due to heavy river flows and deep river scouring, several bridge supports will be reinforced as well.

(D) The possibility of encountering buried and previously unknown cultural resources does exist. The area has been documented as the heaviest populated area in California during prehistoric times and up to contact with Europeans. However, the area has also been highly disturbed due to historic agriculture use prior to its current state as highly

7/29/2004

urbanized. Construction of homes, freeways, industry, and infrastructure have contributed to disturbance in the area. The potential of discovering buried cultural resources will be discussed in the continuing consultation with your office and documentation of the project.

I hope that answers the questions you had regarding the proposed APE for the project. If you require additional information to concur that the APE is adequately delimited, please let me know. I will provide further information (specifically relating to utilities) as it becomes available and look forward to communicating as this project continues.

Thank you,

*Melissa Montag*

*Historian*

*U.S. Army Corps of Engineers*

*Environmental Analysis Section (CESPK-PD-R)*

*1325 J Street*

*Sacramento, CA 95814-2922*

*(916) 557-7907*

*(fax) 557-7856*

*e-mail: [Melissa.L.Montag@usace.army.mil](mailto:Melissa.L.Montag@usace.army.mil)*

**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

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calshpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov



April 27, 2004

REPLY TO: COE970429A

Tanis J. Toland  
Chief, Environmental Analysis Section  
US Army Engineer District, Sacramento  
1325 J Street  
Sacramento, CA 94296-0001

Re: South Sacramento County Streams Project on Morrison Creek Watershed, Sacramento County

Dear Ms. Toland:

This letter is in response to an April 16 email from Melissa Montag of your staff continuing consultation on the South Sacramento County Streams project located in South Sacramento. I had sent a letter requesting more information on the Area of Potential Effects (APE) for this undertaking and how specific aspects of the undertaking might result in changes to the APE.

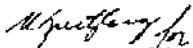
Ms. Montag's email provides the following additional details on the project that improve my understanding:

1. Utility relocation will involve those utilities within the designated APE. As details about the extent of the utilities affected become available, COE will incorporate them into consultation.
2. Most work, including staging, will be conducted from within the channel. Maximum vertical excavation of the channels would be 3.0 feet below the current channel level. Increase in channel width would vary from 1 to 20 feet, with one section located on Unionhouse Creek that will be excavated horizontally up to 100 feet.
3. The potential of discovering buried cultural resources will be discussed in our continuing consultation.

Ms. Montag's email states "Since the project is still in the planning stages there may be further changes or additions to action. If the project changes in such a way that the APE is altered or activities not previously discussed are incorporated then I will inform you and the OHP of those changes." I appreciate the COE's need to retain flexibility in their projects and do not object to this approach in defining the APE for this undertaking.

Thank you for the opportunity to comment on this undertaking. I look forward concluding our consultation as soon as possible. If you have any questions about my comments, please contact staff archaeologist Anmarie Medin at (916) 653-6624 or at [amedin@ohp.parks.ca.gov](mailto:amedin@ohp.parks.ca.gov).

Sincerely,

  
Steven D. Mikesell  
Acting State Historic Preservation Officer

## **Appendix F. Public Comments and Responses**

# St Charles Borromeo School

7580 Center Parkway  
Sacramento, CA 95823  
Tel (916) 421-6189  
Fax (916) 421-3954

Dan Artha  
Environmental Resources Branch  
U.S. Army Engineer District

10-11-04

Dear Mr Dan Artho,

St. Charles Borromeo Parish and School are very concerned about the upcoming construction on the Florin Creek Channel and Center Parkway crossing bridge. A large amount of the morning, afternoon and weekend traffic using this bridge are parents and students at the school and parishioners of the parish going to weekend and daily Mass.

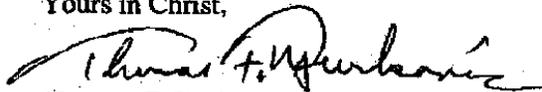
We hope that the construction timeline would fall during the summer months to minimize the disruption of the school. We also have utilities and sewer lines that cross the channel and if these basic utilities will be disrupted, the summer months would minimize the affect on our publics.

Comment CBS-1

Comment CBS-2

We, like everyone else in the area, will be glad to see better drainage in the case of heavy rains and would like to do all we can to support your efforts. We look forward to hearing about your timeline for construction and working with you so we can try to plan around any disruption of services and access that might result from the construction.

Yours in Christ,



Thomas F. Yurkovic  
Principal of St. Charles Borromeo School

*Christ is among us*

***Response to CBS-1: Due to endangered species restrictions, all construction activities would take place between May 1 and October 1. Currently, construction in the Phase II portion of the project is not scheduled to begin until May 2006.***

***Response to CBS-2: Comment noted. Any temporary disruption of utilities would be coordinated through the city and county public works departments.***



October 12, 2004  
E225.000

10705 Greenway Avenue  
Mather  
California  
95635  
Phone (916) 876-6000  
Fax (916) 876-6150  
www.csd-1.com

Dan Artho  
U.S. Army Corps of Engineers  
Environmental Planning Section  
1325 J Street  
Sacramento, CA 95814

Dear Mr. Artho:

**Subject: Draft Environmental Assessment for the South Sacramento Streams Project**

**Board of Directors**

**County of Sacramento**

Roger Dickinson

Illa Collin

Muriel P. Johnson

Roger Niello

Don Nottoli

**City of Citrus Heights**

Jeannie Bruins

**City of Elk Grove**

Sophia Scherman

**City of Folsom**

Kerri Howell

**City of Rancho Cordova**

Dan Skoglund

**City of Sacramento**

Heather Fargo

Cheryl Creson  
Agency Administrator

Robert F. Shanks  
District Engineer

Marcela Maurer  
Chief Financial Officer

Wendell H. Kido  
District Manager

Mary K. Snyder  
Collection Systems Manager

County Sanitation District 1 (CSD-1) and Sacramento Regional County Sanitation District (SRCSD) have reviewed the Draft Environmental Assessment (DEA) for the South Sacramento Streams Project. We expect that if the project is subject to currently established policies, ordinances, fees, and to conditions of approval, then mitigation measures within the EA will adequately address the sewage aspects of the project. We anticipate a less than significant impact to the sewage facilities due to mitigation.

Comments SAN-1

CSD-1 and SRCSD do have projects proposed in their Master Plans within the subject area and lying near some of the creeks proposed for expansion. Additionally, sewer facilities exist in the project area. The Environmental Impact Report (EIR) should address coordination of design and construction of redevelopment projects with both districts to insure continuous service and protection of sewage facilities.

Comments SAN-2

If you have any questions regarding these comments, please call Joyce Ferguson at (916) 876-6098 or myself at (916) 876-6094.

Sincerely,

Matt Morgan, P.E.  
Development Services

MM/BM: cc

cc: Maria Cabla  
Steve Hong

arthe101204.ltr.doc

cc to Dan Artho  
**RECEIVED**  
BY *cc* DATE *10/18*

*Response to SAN-1: The Corps' pre-construction, engineering, and design (PED) phase for Phase II of the project will begin following approval of the design refinements from Corps Headquarters and signing of the Project Cooperation Agreement between the Corps and the California State Reclamation Board. The PED phase for Phase II is anticipated to begin Spring 2005. County Sanitation District-1 and Sacramento Regional County Sanitation District will be consulted on all design features involving sewage aspects of the project and any existing or proposed sewage facilities in the project area.*

*Response to SAN-2: See response to SAN-1.*

**DEPARTMENT OF TRANSPORTATION**  
 DISTRICT 3 - SACRAMENTO AREA OFFICE  
 VENTURE OAKS, MS 15  
 P. O. BOX 942874  
 SACRAMENTO, CA 94274-0001  
 PHONE (916) 274-0614  
 FAX (916) 274-0648  
 TTY (530) 741-4509



*Flex your power!  
 Be energy efficient!*

October 21, 2004

04SAC0139  
 03 SAC-99/5/160  
 South Sacramento County Streams Project  
 Design Refinements  
 Environmental Assessment /  
 Finding of No Significant Impact

Mr. Dan Artho  
 U.S. Army Corps of Engineers  
 Environmental Planning Section  
 1325 J Street  
 Sacramento, CA 95814

Dear Mr. Artho:

Thank you for the opportunity to review and comment on the South Sacramento County Streams Project Design Refinements documentation. Our comments are as follows:

- We understand that this project's activities primarily consist of (1) water channel excavations to widen or deepen streambed capacity, (2) measures to implement bridge retrofitting, and (3) actions to install new or replacement box culverts within stream waterways. The Plate 1 "Project Area and Features Map", on Page 58, depicts waterway improvements that include work within the State Route 99 freeway corridor right-of-way. Any work conducted within State right-of-way will require an encroachment permit prior to construction. For project assistance, please contact Steve Hetland at (916) 274-0549.

Comment  
CT-1
- Any modifications as a result of the aforementioned activities affecting State bridge structures and proximate waterways should be modeled. Prior to any project approval, Caltrans will want to review the modeling results and, in particular, will want to be consulted regarding any areas where possible impacts are expected. Caltrans should also be provided with proposed mitigation for our approval regarding the measures taken to address such impacts at each location.

Comment  
CT-2
- Please clarify how the proposed freeway bridge and any adjacent frontage road bridge retrofitting is to be scoped and conducted. For example, will these bridges be expanded to accommodate widened waterways?

Comment  
CT-3
- Caltrans has future plans to widen State Route 99 and Interstate 5 to 8-lane facilities. Any bridge retrofitting should allow for future freeway widening needs with accommodations for auxiliary lanes and interchanges.

Comment  
CT-4

**RECEIVED**  
 BY DATE

CC to Dan Artho  
 10/25

*Response to CT-1: All required state, county, and city encroachment permits will be obtained for the project prior to construction.*

*Response to CT-2: The Corps' pre-construction, engineering, and design (PED) phase for Phase II of the project will begin following approval of the design refinements from Corps Headquarters and signing of the Project Cooperation Agreement between the Corps and the California State Reclamation Board. The PED phase for Phase II is anticipated to begin Spring 2005. Caltrans will be consulted on all design features involving state bridges during the PED phase.*

*Response to CT-3: See response to CT-2.*

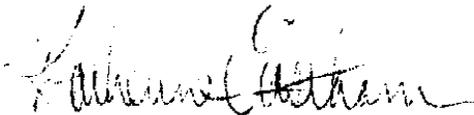
*Response to CT-4: See response to CT-2.*

Mr. Dan Artho  
October 21, 2004  
Page 2

- Caltrans should be provided with the Hydraulic Reports and Environmental Studies for the various waterway, culvert and bridge retrofit changes involved with this proposed project. Comment CT-5
- Caltrans may require all wall installations to be at least 2 feet lower than State freeway and highway bridge low points. Comment CT-6
- Bridge maintenance mitigation should be provided that addresses how access to the underside of bridges will be maintained for periodic inspection and repair, given all the changes planned at the bridge crossings of these upgraded waterways. This proposed mitigation should be developed and reviewed with Caltrans staff at the time the waterway project plans are ready. Comment CT-7
- Traffic Management Plans will be required where project activities have the potential to disrupt traffic. If the project construction will impact traffic flow, each of the traffic situations should be addressed during the encroachment permit application process. Traffic Management Guidelines are enclosed for reference. Comment CT-8

If you have any questions regarding these comments, please contact Ken Champion at (916) 274-0615.

Sincerely,



KATHERINE EASTHAM, Chief  
Office of Transportation Planning – Southwest

Enclosure

*Response to CT-5: See response to CT-2.*

*Response to CT-6: See response to CT-2.*

*Response to CT-7: See response to CT-2. Project design will maintain access to the underside of state bridges. In addition, operation and maintenance of the project features will be a responsibility of the non-Federal sponsor. A project Operation and Maintenance Manual will be prepared by the Corps in coordination with the project's non-Federal partner and participating agencies.*

*Response to CT-8: As stated in the 1998 EIS/EIR and Design Refinements EA, a traffic management plan will be prepared that will address potential impacts to traffic flow. The traffic management plan will be included as part of the encroachment permit application.*

State of California  
Department of Transportation

# Transportation Management Plan Guidelines

Prepared By:  
Division of Traffic Operations  
Office of Systems Management Operations

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# **I. INTRODUCTION**

## **A. BACKGROUND**

With the construction of California's state highway system virtually complete, the California Department of Transportation (Department) major emphasis on transportation projects has largely shifted from new construction to reconstruction, operation, and maintenance of existing facilities. As traffic demand steadily increases, Department work activities can create significant additional traffic delay and safety concerns on already congested highways. Planning work activities and balancing traffic demand with highway capacity becomes more critical.

In order to prevent unreasonable traffic delays resulting from planned work, Transportation Management Plans (TMPs) must be carefully developed and implemented in order to maintain acceptable levels of service and safety during all work activities on the state highway system.

## **B. WHAT ARE TRANSPORTATION MANAGEMENT PLANS?**

A TMP is a method for minimizing activity-related traffic delay and accidents by the effective application of traditional traffic handling practices and an innovative combination of public and motorist information, demand management, incident management, system management, construction strategies, alternate routes and other strategies.

All TMPs share the common goal of congestion relief during the project period by managing traffic flow and balancing traffic demand with highway capacity through the project area, or by using the entire corridor. Certain low-impact Maintenance and Encroachment Permit activities do not require the development of individual TMPs. "Blanket" TMPs are developed for those activities. A blanket TMP is a generic list of actions that would be taken to keep delay below the delay threshold when performing activities on highways. Each district Maintenance and Encroachment Permit office should have a list of activities to which blanket TMPs apply.

All Capital projects require individual TMPs. Blanket TMPs are suitable for minor projects. Major TMPs are required for high-impact projects. Generally, major TMPs are distinguished by being:

- Multi-jurisdictional in scope, encompassing the Department of California Highway Patrol (CHP), city, county and regional governments, state DOTs, employers, merchants, developers, transit operators, ridesharing agencies, neighborhood and special interest groups, emergency services, and Transportation Management Associations;
- Multi-faceted, comprised of an innovative mix of traffic operations, facility enhancement, demand-management and public relations strategies, as well as more traditional work zone actions, construction methods and contract incentives, customized to meet the unique needs of the impacted corridor;
- In place over a longer period of time, sometimes implemented up to a year or more prior to the start of actual construction, with specific elements often implemented incrementally to coincide with construction phasing.

## **C. POLICY**

Department Deputy Directive 60 (DD-60) titled Transportation Management Plans (see APPENDIX) requires TMPs and contingency plans for all state highway activities.

### **Policy Statement:**

The Department minimizes motorist delays when implementing projects or performing other activities on the state highway system. This is accomplished without compromising public or worker safety, or the quality of the work being performed.

TMPs, including contingency plans, are required for all construction, maintenance, encroachment permit, planned emergency restoration, locally or specially-funded, or other activities on the state highway system. Where several consecutive or linking projects or activities within a region or corridor create a cumulative need for a TMP, the Department coordinates individual TMPs or develops a single interregional TMP.

TMPs are considered early, during the project initiation or planning stage.

Major lane closures require District Lane Closure Review Committee (DLCRC) approval.

### **Definitions:**

Major lane closures are those that are expected to result in significant traffic impacts despite the implementation of TMPs.

Significant traffic impact is 30 minutes above normal recurring traffic delay on the existing facility or the delay threshold set by the District Traffic Manager (DTM), whichever is less.

Contingency Plans address specific actions that will be taken to restore or minimize effects on traffic when congestion or delays exceed original estimates due to unforeseen events such as work-zone accidents, higher than predicted traffic demand, or delayed lane closures.

## **II. TMP DEVELOPMENT AND IMPLEMENTATION**

### **A. OVERVIEW**

#### **Responsibilities:**

##### **The DTM:**

- o Acts as the single focal point for all traffic impact decisions resulting from planned activities on the state highway system.
- o Determines the extent of a TMP.
- o Facilitates review and approval of TMP measures and planned lane closure requests.
- o Directs the termination or modification of active planned lane closure operations when traffic impact becomes significant, without compromising traveler or worker safety.

### **The TMP Manager:**

- o Acts as the single focal point for development and implementation of TMPs.

### **The Construction Traffic Manager (CTM):**

- o Serves as a liaison between Construction, the DTM and the TMP Manager.
- o Reviews the TMP and traffic contingency plan for constructability issues.
- o Act as a resource for the Resident Engineer, DTM and TMP Manager during TMP implementation and reviews the contractor's contingency plan.

The extent of a TMP is determined by the DTM during the preliminary studies of a capital project. For all TMPs, an itemized estimate of the proposed strategies and their respective costs are included in the Project Study Report (PSR) or Project Study Scoping Report (PSSR) for proper funding consideration. The workload required to develop and implement TMPs is estimated in advance and captured in the district work plan.

For major TMPs, a TMP team may need to be formed and led by the TMP Manager. The itemized strategies and costs are further refined in the project report stage as determined by the TMP team and appropriate functional units using the most current geometric information available. Those elements of the TMP not included as part of the main construction contract should be itemized under State Furnished Material and Expenses using the appropriate Basic Engineers Estimate System (BEES) codes in the plans, specifications and estimates. During construction, TMP activities are to be monitored and evaluated by the TMP team and those elements found not to be cost effective should be modified as deemed appropriate or eliminated. The TMP process is explained in detail in the following sections.

## ***B. FUNDING AND PROGRAMMING***

When identifying funding for various TMP elements, it is important to distinguish between capital outlay and capital outlay support.

Work done by district staff for the planning and designing of TMP activities for capital projects are a normal part of the project development process and should be captured as capital outlay support. The TMP Manager and each functional manager should work closely with the project manager to ensure that TMP activities are included in all project work plans. TMP support activities to consider include ridesharing programs, Freeway Service Patrol (FSP) contracts, public awareness campaigns, parallel route improvements and the Request for Proposal (RFP) process up to award of the contract. Note that some of these activities may also have a capital component in addition to the support component discussed here. Workload hours for TMP activities must be included in the Capital Outlay Support (COS) project's work plan in order to be resourced (funded) by COS. These activities should then be charged to each project's expenditure authorization (EA), using the appropriate Work Breakdown Structure (WBS) code for that stage of the project. TMP-related work should be charged only to the WBS codes reserved for those activities. These codes can be found on the Department's Division of Project Management's Intranet web page.

Work done by district staff for implementing TMP elements during construction of capital projects are also a normal part of the project development process. Again, workload (hours) for implementing TMP activities must be included in the COS project's work plan in order to be resourced (funded) by COS. These activities should then be charged to the appropriate project's phase three EA, and WBS code 270 (Perform Construction Engineering and Contract Administration).

Some funds necessary to implement TMP elements not done by the Department staff, including consultant contracts, can be sourced from capital outlay funds allocated by the California Transportation Commission (CTC) as itemized in the plans, specifications and estimates. Some TMP elements, such as parallel route improvements and highway advisory radios, could be a phase of the construction contract or separate construction contracts while others such as public awareness campaigns and transit subsidies must be separate contracts or cooperative agreements.

The TMP elements that need to be in place prior to start of construction are identified and funded as stage construction or first order of work under a single package presented to the CTC. If approved, the Division of Budgets may assign specific amounts for each TMP activity. All TMP activities may not necessarily be included under the main contract. Service contracts such as those for freeway service patrols, public service or consultant contracts, information campaigns, or establishing telephone hotlines must be arranged separately with consultants and other providers. For most projects, it takes four to six months to get a service contract in place. This means that all consultant contracts have been advertised, the consultant selected, and the contract ready for signature and award immediately following CTC allocation of funds. Other activities such as parallel route improvements are usually included in the main construction contract and as a first order of work under a cooperative agreement.

In some cases, the CTC can be petitioned to fund a portion of the TMP as an initial phase of the main project. This is usually for a high priority project where plans, specifications, and estimates for the main project are not yet finalized, but early funds are needed to initiate TMP activities such as making transit arrangements with local governments. The petition to fund an initial phase comes from the district, explaining why a portion of the project must proceed before funding for the main project is allocated. These early funds reduce the programmed funds for the main project accordingly.

The Federal Highway Administration (FHWA) supports the TMP concept and views major reconstruction projects as an excellent opportunity to initiate continuing traffic management strategies that provide improved traffic operations long beyond the completion of work. Examples include: installation of permanent Changeable Message Sign (CMS), full structural section shoulders, continuing auxiliary lanes, and wider shoulders for incident management during construction if cost-effective in the long term. All cost-effective transportation management activities that address the problem of delay or safety are eligible for 100 percent Federal Aid funding.

TMPs and contingency plans for Encroachment Permit projects are developed by the permittee or by Department staff. Staff time for development, review and implementation of TMPs for Encroachment Permits is charged to the permit. Maintenance normally develops TMPs for its projects; Maintenance and staff from other functional areas that expend time on Maintenance TMP charge to the designated Maintenance EA.

### ***C. TMP IN PROJECT INITIATION DOCUMENT***

The TMP is part of the normal project development process and must be considered in the Project Initiation Document (PID) or planning stage (project K phase). Since projects are generally programmed, budgeted, and given an Expenditure Authorization (EA) upon PID approval, it is important to allow for the proper cost, scope and scheduling of the TMP activities at this early stage of development. TMPs that are retrofitted to projects already programmed must be handled on a case by case basis and may require a contract change order.

Prior to PID approval, the initiating unit sends conceptual geometrics to the district Division of Operations for evaluation. The DTM estimates the extent of the TMP required and determines whether potential traffic delays are anticipated that cannot be mitigated by traditional traffic handling practices or well-planned construction staging. The TMP Manager must sign-off on the TMP DATA SHEET in the PID. A TMP cost estimate should be developed for each alternative being considered. An estimate should not be based only on the project cost. The cost of a TMP could range from a small percentage of project cost to 20 percent or more. Further guidance can be obtained from the following publications "Wilbur Smith & Associates TMP Effectiveness Study" and Frank Wilson & Associates "A Traffic Management Plan Study for State Route 91" located in Headquarters Traffic Operations, Office of System Management Operations.

### TMP Elements

A list of potential TMP strategies with their respective elements is categorized in TABLE 1. As many different elements as are feasible should be considered for the proposed project's preliminary TMP.

When developing a preliminary TMP at this early stage, use the most current layout of the roadway (geometrics) information available and consider:

Contingency Plans	Expected vehicle delay (from data sheet)
Lane closure policies and procedures	Public/media exposure
TMC coordination	Political or environmental sensitivity
Multi-jurisdictional communication and buy-in	Business impacts and affected activity
CHP and local law enforcement involvement	Percent trucks
Emergency closures	Potential increase in accidents
Clearance of alternate routes for STAA and oversized	Permit issues
Special training or workforce development	Conflicting construction projects
Duration of construction (months)	Percent reduction in vehicle capacity
Length of project (miles)	Special factors (if any)
Number of major construction phases	Impact on Transit/Railroad services
Urbanization (urban, suburban, or rural)	Viability of alternative routes
Traffic volumes	

Wilbur Smith Associate's TMP Effectiveness Study and Frank Wilson & Associate's A Traffic Management Plan Study for State Route 91 During Construction of HOV Lanes (both available from Headquarters Division of Traffic Operations, Office of System Management Operations) are excellent sources for guidance on selecting the most cost-effective TMP elements. The district Public Information office is also an experienced source for estimating the effectiveness of public information campaign options, and can help the TMP Manager estimate their cost and effectiveness in reducing traffic demand through the project area.

Public information campaigns serve two main purposes in TMPs. They inform the public about the overall purpose of the project to generate and maintain public support; and they encourage changes in travel behavior during the project to minimize congestion. Because they give travelers the information they need to make their own travel choices, public information campaigns can be the single most effective of all TMP elements.

The FSP is a congestion relief program of roving tow trucks operating in most metropolitan and some rural areas. The FSP program is operated by Regional Transportation Planning Agencies (RTPAs) with funding from the Department. The Department also reimburses the CHP for training and supervisory services provided for the FSP. The RTPAs contract with tow companies

for commute time service and some weekend and mid-day service to assist motorists with simple repairs (i.e. flat tire, one gallon of gas) or tow the automobile from the highway.

FSP is available for incident management during construction. However, construction-related FSP service needs to be funded as part of the TMP. A cooperative agreement with the RTPA is required, outlining the services provided and the fund transfer. An interagency agreement with the CHP is required for any support services (field supervision and dispatch operator services). These agreements should be initiated with the RTPA and the CHP as soon as it is determined that FSP should be in the project TMP.

The Department's HQ Traffic Operations is currently working on Master Agreements with the RTPAs for future FSP services. This process will simplify the process for both the Department and the RTPAs by eliminating the need for a cooperative agreement for each project. Only a task order form will be needed for each project. A similar agreement is being created with the CHP. Please contact HQ Traffic Operations, Freeways Operations Branch for more information.

**TABLE 1**

<b>TMP STRATEGIES AND THEIR ELEMENTS</b>	
<b>A. Public Information</b>	Off peak/Night/Weekend Work
Brochures and Mailers	Planned Lane/Ramp Closures
Media Releases (including	Project Phasing
Minority Media Sources)	Temporary Traffic Screens
Paid Advertising	Total Facility Closure
Public Information Center	Truck Traffic/Permit Restrictions
Public Meetings/Speaker's Bureau	Variable Lanes
Telephone Hotline	Extended Weekend Closures
Visual Information (videos, slide shows, etc.)	Reduced Speed Zones
Local cable TV and News	Coordination with Adjacent Construction
Traveler Information Systems (Internet)	Traffic Control Improvements
Internet	Total Facility Closure
<b>B. Motorist Information Strategies</b>	<b>E. Demand Management</b>
Electronic Message Signs	HOV Lanes/Ramps
Changeable Message Signs	Park-and-Ride Lots
Extinguishable Signs	Parking Management/Pricing
Ground Mounted Signs	Rideshare Incentives
Commercial Traffic Radio	Rideshare Marketing
Highway Advisory Radio (fixed and mobile)	Transit Incentives

Planned Lane Closure Web Site	Transit Service Improvements
The Department's Highway Information Network (CHIN)	Train or Light-Rail Incentives
Radar Speed Message Sign	Variable Work Hours
	Telecommute
<b>C. Incident Management</b>	Shuttle Service Incentives
Call Boxes	
Construction or Maintenance Zone Enhanced	<b>F. Alternate Route Strategies</b>
Enforcement Program – COZEEP or MAZEEP	Ramp Closures
Freeway Service Patrol	Street Improvements
Traffic Surveillance Stations (loop detectors and CCTV) Closures	Reversible Lanes
911 Cellular Calls	Temporary Lanes or Shoulder Use
Transportation Management Centers	
Traffic Control Officers	<b>G. Other Strategies</b>
CHP Officer in TMC during construction	Application of new technology
Onsite Traffic Advisor	Innovative products
CHP Helicopter	Improved specifications
Traffic Management Team	Staff Training/Development
<b>D. Construction Strategies</b>	
Incentive/Disincentive Clauses	
Ramp Metering	
Lane Rental	

If the DTM determines that a major TMP is required, the TMP Manager forms a TMP development team. The team's membership will vary according to the TMP elements proposed and the project's impacts. At a minimum, it should include representatives from Construction, Public Affairs, Project Development, Traffic Operations (including Transportation Permits), the CHP and local agencies. Others to be considered as the plan gets refined are Rideshare, Transportation Planning, Public Transportation, Maintenance, Structures, CHP, local law enforcement, local transit agencies, emergency services, and FHWA. Local Maintenance field staff familiar with conditions in the project area should be team members or should be consulted as needed as the TMP develops.

#### ***D. TMP IN PROJECT REPORT***

As more information becomes available during the project report phase the preliminary scope and cost of the overall TMP and the individual elements should continue to be refined. The TMP team will coordinate the TMP strategies with the project engineer and appropriate units, with

each team member handling their area of expertise. For major projects, subcommittees or task forces may be formed to handle the planning, implementation, monitoring, and evaluation details of some elements. The TMP Manager will keep the Project Manager and district Construction Coordinator updated and must sign-off on the TMP data sheet of the project report.

It is appropriate at this point to develop a timeline schedule for major TMPs keeping in mind that many elements of the TMP have to begin prior to the start of construction. Many TMP elements listed in Table 1 need to be developed separately but concurrently with the project plans. They may be bid and constructed or initiated separately from the project or be included in the project plans and be installed or implemented as the first order of work.

Some tasks may take a long time depending on the complexity of the major project and the type of transportation management necessary. For example, if building new park-and-ride lots are necessary for the Ridesharing element, the planning phase would have to be extended for several months and a design phase added.

An additional activity involves analyzing the existing traffic volume in the corridor, both on the freeway and surface streets. This will provide a basis for establishing the goal of the TMP, i.e., the number of vehicles that should be removed from the freeway, and in determining the capability of the surrounding surface streets to handle the additional traffic demand. It can also provide a database for evaluating the overall effectiveness of the TMP.

#### ***E. TMP IN PS&E***

Those TMP elements that are not part of the main contract, but are identified as capital outlay costs tied to the main project, should be itemized as State Furnished Materials and Expenses using the appropriate BEES item cost (see TABLE 2). The Project Engineer should consult with the TMP Manager to ensure that the appropriate "Maintaining Traffic" Standard Special Provisions (SSP) are included in the PS&E. The SSPs should always require the contractor to submit a contingency plan.

The TMP and PS&E should address oversize and overweight vehicles traveling under a transportation permit. Additional construction area signs should be provided that restrict travel to overwidth vehicles whenever the lateral clearance drops to 15 feet or less.

The DTM must concur with the PS&E and with Encroachment Permit and Maintenance TMPs.

### **TABLE 2**

<b>TMP BEES ITEM CODES</b>
066003 State Furnished Materials
066004 Miscellaneous State Furnished Materials
066005 Concurrent Work
066006 Miscellaneous Concurrent Work
066008 Incentive Payment
066009 Utility Expense

066010 Work by Others

066060 Additional Traffic Control

066061 CHP Enhanced Enforcement

066062 COZEEP Contract

066063 Traffic management plan - public Information

066064 Specter Radar Unit

066065 Freeway Service Patrol

066066 Public Transit Support

066069 Rideshare Promotion

066070 Maintain Traffic

066072 Maintain Detour

066074 Traffic Control

066076 Temporary Traffic Control

066077 Install Traffic Control Devices

066578 Portable Changeable Message Signs

066825 Temporary Striping

066872 Service Contract

128602 Traffic Control System (One Way)

128650 Portable Changeable Message Signs

129150 Temporary Traffic Screen

861793 Telephone Service (Location 1)

860811 Detector Loop

860925 Traffic Monitoring Station (Count)

860926 Traffic Monitoring Station (Speed)

860927 Traffic Monitoring Station (Incident)

860930 Traffic Monitoring Station

861088 Modify Ramp Metering System

861985 Travelers Information system

869070 Power and Telephone Service

991046 Public Address System

991047 Telephone Facility

994920 Bicycle Parking Rack

995000 Bus Shelter
995002 Bus Passenger Shelter (Type S-1)
995004 Bus Passenger Shelter (Type SM-1)
995005 Bus Passenger Shelter (Type LM-1)

## ***F. TMP DURING CONSTRUCTION AND MAINTENANCE OPERATIONS***

During construction, those TMP elements that are part of the main contract or Encroachment Permit are implemented under the general direction of district Construction or Encroachment Permits. Those separate contracts/agreements such as for rideshare and transit activities and public awareness campaigns will be under the direction of their respective contract managers.

Special effort should be given to assure that Changeable Message Sign (CMS), Highway Advisory Radio (HAR) and other media tools provide accurate and timely information to motorists regarding lane closure times and

TMP elements must be carefully monitored for cost effectiveness. The TMP team should determine whether the implemented measures are reaching the predetermined goals for cost effectiveness. If an element's predetermined goal is not immediately reached during implementation, but there is a general trend toward meeting that goal, the element can remain in effect and the FHWA will continue to participate. Elements that show no sign of approaching their predetermined goals as determined by the TMP Manager must be modified as deemed appropriate or dropped.

Contractor compliance with lane closure pickup deadlines can be enforced in two ways. A "maintaining traffic" SSP allows a penalty to be assessed to the contractor for value of traffic delay when the contractor exceeds the lane closure window. The minimum penalty is \$1,000 per 10 minutes, but it can greatly exceed the minimum, depending on traffic volumes and the highway facility. The DTM calculates the "delay penalty" during PS&E. The second method is for the state representative to suspend the contract work.

A contractor or the Department forces (such as Maintenance) can be ordered to pick up a lane closure early if traffic impacts become significant either due to a project incident or activities outside the project area. Early pickup should only be ordered when traveler and worker safety will not be compromised. The "maintaining traffic" SSPs for capital projects provide for compensating contractors for early pickup. Encroachment Permit provisions require the permittee to pick up a closure early without compensation.

DTM's are to ensure that lane closures will not be terminated early, or may be extended beyond the lane closure window when the activity needs to be completed for the safety of the public or workers. These activities may include structure inspections and repairs, guardrail repairs, culvert replacement.

In order to avoid significant traffic impacts, it is essential to monitor and respond immediately to delay, pick up closures on time, and have solid traffic and contractor contingency plans.

A Department staff member who can make informed decisions about implementing contingency plans and modifying, terminating or extending approved lane closures should be available to respond to significant delays and other unexpected events whenever lane closures are in place.

The designated employee(s) may be Traffic Operations, Construction, or TMC staff, depending on the district.

At the end of the project a post-TMP evaluation report must be completed by the TMP Manager for all major TMPs and for TMPs where the actual delay exceeded the threshold set by the DTM. Post-TMP meetings with the CHP and other partners can be held to identify what went well and what could have been done differently. Samples of past TMP reports can be obtained from headquarters' Traffic Operations, Office of System Management Operations and from the DTM.

### Contingency Plan

Both traffic and contractor contingency plans are required for all planned work. Both blanket and individual TMPs must include contingency plans. The traffic contingency plan, prepared by the Department or a consultant, addresses specific actions that will be taken to restore or minimize affects on traffic when the congestion or delay exceeds original estimates due to unforeseen events such as work-zone accidents, higher than predicted traffic demand, or delayed lane closures. The contractor contingency plan addresses activities under the contractor's control in the work zone. After the contractor's contingency plan is submitted and approved, it becomes part of the TMP contingency plan.

The TMP contingency plan should include, but is not limited to the following:

- Information that clearly defines trigger points which require lane closure termination (i.e., inclement weather, length of traffic queue exceeds threshold);
- Decision tree with clearly defined lines of communication and authority;
- Specific duties of all participants during lane closure operations, such as, coordination with CHP or local police, etc.;
- Names, phone numbers and pager numbers for the DTM or their designee, the Resident Engineer (RE), the Maintenance Superintendent, the Permit Inspector, the on-site traffic advisor, the CHP Division or Area Commander, appropriate local agency representatives, and other applicable personnel;
- Coordination strategy (and special agreements if applicable) between DTM, RE, on-site traffic advisor, Maintenance, CHP and local agencies;
- Contractor's contingency plan;
- Standby equipment, State personnel, and availability of local agency personnel for callout (normally requires a Cooperative Agreement);
- Development of contingencies based on maintaining minimum service level.

### **G. RETROFITTING PROGRAMMED PROJECTS**

Usually the extent of the TMP is to be determined prior to programming (PID approval). However, it may sometimes be necessary to retrofit a TMP to a project that is already programmed due to project changes, policy changes, emergencies or unforeseen conditions. These projects must be handled on a case by case basis since the course of action will depend on how far along the project development process is and how extensive the TMP needs to be. Retrofitted TMPs may require a TMP team and TMP Manager and involvement from all functional units as discussed earlier in these guidelines. The project manager is responsible for

initiating a TMP investigation since they are most knowledgeable of project status. Some suggestions for funding retrofitted TMP are:

#### Use of Minor Funds

Minor A and B money has been used to pay for TMP measures that total less than \$1,000,000. The districts will not usually be reimbursed for this even though the FHWA agrees to participate (it is not economically feasible for the Department to process minor funds for reimbursement). There have been exceptions however, and that decision is at the discretion of the Federal Resources Branch in headquarters Budgets Program.

#### Charge to Other Project Phase 4 (Construction) Funds

Funds from other construction contracts in the district may be used if those projects are in the vicinity of, or will be affected by, the project requiring TMP funds. At the discretion of the Deputy District Director for Construction a list of chargeable project EAs may be submitted to headquarters Accounting for prorated charging. Very few Accounting staff are aware of the process required and headquarters Traffic Operations, Office of System Management Operations should be contacted for assistance.

#### Project Cost or Scope Changes

The CTC has delegated to the Director of the Department the authority to increase a project's cost by up to 20 percent without prior commission approval. This authority has been delegated to other Department managers as described in Project Management Directive PMD6. This increase can be used for TMP implementation and will be 100 percent reimbursable by the FHWA. The increased costs must be absorbed by other projects in the district since the total capital outlay allocation remains the same.

### ***H. LOCAL INVOLVEMENT***

The TMP Deputy Directive 60 applies to all projects on state facilities, including those not funded by the state. District Directors are responsible for assuring local compliance. Since many measure projects are split funded, the Department and local entities must work cooperatively to develop an effective TMP. The Department is responsible for approving all PSRs and it is at this point that agreements should be reached concerning the costs and scope of TMP measures.

### **III. CORRIDOR, REGIONAL AND MULTI-FUNCTIONAL AREA TMPs**

When multiple or consecutive projects are within the same general corridor, the cumulative impact can result in excessive traffic delays and detour conflicts. These may be multiple capital projects, the involvement of more than one district, or a combination of capital projects and Encroachment Permit and/or Maintenance activities. Corridor or regional coordination will minimize or eliminate these impacts and reduce inconvenience to the motoring public.

When multiple projects are in the same corridor or on corridors within the same traffic area, it may be possible to develop a single corridor or regional TMP. In other cases, individual TMPs are developed and funded from their own sources, and a bare-bones corridor or regional TMP addresses the cumulative impact. Each project covered by corridor and regional TMP contributes resources in proportion to its traffic impact. During TMP implementation, the TMC serves as an information clearinghouse and coordinates operations. The TMC helps identify conflicts and recommends appropriate action. When provided with accurate and up-to-date lane closure information the TMC provides real-time traffic information via electronic media, CMS, and HAR.

The TMP Manager coordinates the development and implementation of corridor and regional TMPs. The TMP Manager forms a TMP team including, as a minimum, representatives from Construction, Maintenance, Public Affairs and Traffic Operations for each of the affected districts. The initial meeting is held several months in advance of the construction season to set milestones, and allow time to gather project information and prepare and distribute information.

The corridor/regional TMP may need elements in addition to those provided by the individual TMP for each project. Those elements may include changeable message signs at key locations outside individual project limits, the establishment of an information hot line and web-sites for all projects involved. The use of the statewide Caltrans Highway Information Network (CHIN) number (1-800-427-ROAD), and particularly the use of TMCs as a central reporting hub. The Northern Valley TMC in District 3 has established reporting procedures specifically for interregional TMPs that are obtainable from headquarters Traffic Operations.

#### **IV. MAJOR LANE CLOSURE APPROVAL PROCESS**

This process applies to all major lane closures on the state highway system. Major lane closures are those lane closures that are expected to result in significant traffic impacts despite the implementation of TMPs. A "significant traffic impact" is defined in DD-60 as (a) 30 minutes above normal recurring traffic delay on the facility, or (b) the delay threshold set by the DTM, whichever is less. When a planned lane closure is expected to have a significant traffic impact, Headquarters District Lane Closure Review Committee (DLCRC) review and approval is required. The functional unit directly involved in the work must submit the major lane closure request to the DLCRC for approval as detailed below.

A traveler's trip should not be increased by more than 30 minutes due to planned Department activities. The DTM may set a lower maximum if the economic impact of a delay over 20 minutes would be high. The lesser of these delay limits is the maximum delay threshold allowed for any activity. Only the DLCRC can approve a higher delay threshold for a project.

Additionally, it should be noted that TMP activities are comprehensive, and involve actions in addition to traffic management through the work zone, as detailed in these TMP Guidelines. All lane closure operations and other planned activities should be evaluated at the earliest possible developmental stage for potential impacts and mitigation strategies. Pre-implementation meetings and contingency plans remain important aspects of all lane closure operations to minimize impacts of unforeseen events.

##### ***A. THRESHOLD CRITERIA FOR LANE CLOSURES REQUIRING APPROVAL OF THE DLCRC***

DLCRC review and approval is required when planned activities are expected to result in a traffic delay that exceeds 30 minutes or the delay threshold set by the DTM, which ever is less.

DLCRC review and approval is not required for emergency closures due to natural events or incidents. However, the DTM must be notified, and every effort must be made to minimize traveler delay and reopen traffic lanes as soon as practical.

##### **Applicability**

The DLCRC, comprised of the CHP, District Public Information Officer, and Deputy District Directors of Construction, Design, Maintenance and Operations, approves all requests for major lane closures that meet the above threshold criteria. The criteria are applicable for moving or static lane closure operations. The DLCRC will decide when to submit lane closure requests that

are of an interregional, statewide, environmental, or otherwise sensitive nature to the Headquarters Lane Closure Review Committee (HQLCRC) for their approval.

The DLCRC is responsible for determining when HQLCRC approval is required. The HQLCRC is comprised of the Division Chiefs for Construction, Maintenance, Design and Local Programs, and Traffic Operations along with the Headquarters Public Information Officer, and a representative from the CHP. The HQLCRC may review the closure or leave the decision to the DLCRC. The HQLCRC should be advised of all planned lane closures that exceed the above threshold criteria. All planned lane closures that exceed the above threshold criteria and are of an interregional, statewide, environmental, or otherwise sensitive nature, as determined by the district LCRC, may also require approval of the HQLCRC.

#### Contents of Major Lane Closure Request Submittal

The functional unit requesting the lane closure and responsible for its performance prepares a proposed lane closure submittal. Sufficient information is provided to ensure complete understanding of the proposal. The submittal is sent through the DTM for review before sending it on to the LCRC. If additional TMP efforts can reduce the expected additional delay to less than 30 minutes, then the closure does not have to go to the LCRC. The DLCRC/HQLCRC may require additional information during its review. At a minimum, the following information is recommended initially:

1. Location and vicinity maps showing the state highway(s), local street network, and other adjacent lane closures or nearby work that may affect traffic during the same period, including special events;
2. Dates, times and locations of the lane closure(s);
3. Brief description of the work being performed during the lane closure(s);
4. Brief description of each lane closure and its anticipated affect on traffic;
5. Amount of expected delay and corresponding queue length for each lane closure;
6. Summary of TMP strategies that will be used to reduce delay and motorist inconvenience during the lane closure(s) (refer to Table 1). A copy of the approved TMP for the project, if available;
7. Contingency plan (see "Contingency Plan" below).

#### **B. EVALUATION**

The LCRC is responsible for approving major lane closures and will use the items below for evaluating lane closure operations. In its evaluation of the proposal, the LCRC will give consideration to the accuracy, reliability, and completeness of information provided as well as other reliable sources of information available to the LCRC.

Proposals will be evaluated on the basis of effectiveness in the following areas:

- Promoting motorist and worker safety;
- TMP strategies;
- Plans for coordination with adjacent construction, maintenance, encroachment permits, and special events;

- Plans for coordination with TMC and field personnel;
- Plans for coordination with public media;
- Plans for use of existing field elements such as traffic surveillance loops, changeable message signs, highway advisory radio, and Closed Circuit Television cameras;
- Lines of communication and authority (top to bottom);
- Plans for monitoring delay (or corresponding queue length) during lane closure operations;
- Alternatives to proposed closures;
- Viability of contingency plans;

### ***C. Post-Closure Evaluation Statement***

A Post-Closure Evaluation statement will be submitted to headquarters' Traffic Operations Program, Office of System Management Operations, on all projects that exceed expected delay or run outside of the closure window. No more than one page is suggested. The functional unit performing the lane closure will prepare the statement within five working days of the date the lane closure exceeded the threshold criteria. The statement should explain:

- The cause and impact of delays;
- Either actions taken or to be taken to avoid or mitigate an occurrence or recurrence;
- Why the expected delay was exceeded and/or why it was necessary to exceed the closure window;
- How the situation can be avoided in the future.

Post-closure evaluation statements are only for closures formally approved by the District LCRC under this process (i.e. exceed the lesser of 30 minutes or the DTM limit).





October 21, 2004

Mr. Dan Artho
U.S. Army Corps of Engineers, Environmental Planning Section
1325 J Street
Sacramento, CA 95814

Dear Mr. Artho:

Board of Directors

County of Sacramento

Roger Dickinson

Illa Collin

Muriel E. Johnson

Roger Nicillo

Don Noutoli

City of Citrus Heights

Jeannie Bruins

City of Elk Grove

Sophia Scherman

City of Folsom

Kerri Howell

City of Rancho Cordova

Dan Skoglund

City of Sacramento

Heather Fargo

City of West Sacramento

Christopher Cabaldon

County of Yolo

Mike McGowan

Cheryl Creson
Agency Administrator

Robert E. Shanks
District Engineer

Marcia Mauer
Chief Financial Officer

Wendell H. Kido
District Manager

Mary K. Snyder
Collection Systems Manager

Stan R. Dean
Plant Manager

Subject: Draft Environmental Assessment. South Sacramento
County Streams Project Design Refinements

The Sacramento Regional County Sanitation District (SRCSD) has
reviewed the subject document. At present, SRCSD has concerns related
to two design refinement measures; 1) deposition of spoil material from
channel excavation in Morrison, Elder, Florin, and Unionhouse Creeks,
and 2) removal or breaching of the Unionhouse Creek south levee, west of
Franklin Blvd.

Channel Excavation

Section 2.2.1 states that soil excavated from Morrison, Elder, and Florin
Creeks (approx. 160,500 cubic yards) would be transported to and spread
on the SRCSD area west of Morrison Creek. Excavated material from
Unionhouse Creek (approx. 89,500 cubic yards) would be placed on the
adjacent vacant area (also owned by SRCSD) along the creek for use by
the Sacramento Regional Transit District.

SRCSD has not been approached by any agency with a proposal for its
property to be used for this purpose. Prior to allowing such a use of
SRCSD property, SRCSD would need to be presented with an accurate
description of the spoil material composition and a detailed plan
describing how the spoil material would be placed. SRCSD has concerns
regarding how the spoil material might impact the value of the property,
existing and future SRCSD infrastructure, current agricultural activities,
and sensitive biological resources.

Comment BL-1

Unionhouse Creek South Levee Removal

Removal or breaching of the Unionhouse Creek south levee, as described
in section 2.2.2, may compromise SRCSD's ability to use the land south
of Unionhouse Creek for future SRCSD infrastructure. Specific design
plans for this refinement should be presented to SRCSD for input.

Comment BL-2

RECEIVED stamp with handwritten signature and date 10/25

*Response to BL-1: It is the non-Federal sponsor's responsibility to supply suitable disposal sites prior to construction of the project. The non-Federal sponsor will coordinate with SRCSD in the event that Borrow Site #2 would be pursued further as a disposal site. As indicated in the 1998 EIS/EIR, a reclamation plan would be developed to restore the sites to their original agricultural use. The reclamation plan would contain provisions for restoration of stockpiled topsoil to the site. The plan would also comply with City standards and provisions of the Surface Mining and Reclamation Act.*

*Response to BL-2: The Corps' pre-construction, engineering, and design (PED) phase for Phase II of the project will begin following approval of the design refinements from Corps Headquarters and signing of the Project Cooperation Agreement between the Corps and the California State Reclamation Board. The PED phase for Phase II is anticipated to begin Spring 2005. SRCSD will be consulted on all design features involving SRCSD properties and facilities during the PED phase.*

Mr. Dan Artho  
October 21, 2004  
Page 2

Section 4.6 reports that impacts to the western burrowing owl would be temporary; however, removal of the Unionhouse Creek south levee would destroy a high concentration of active owl burrows. Strategically breaching the levee could avoid the destruction of active burrows and preserve valuable habitat for future owls.

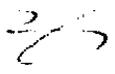
Comment BL-3

Giant garter snake habitat in the vicinity of the concrete lined Unionhouse Creek is questionable; however, vernal pool crustacean habitat has been documented south of Morrison Creek. Impacts to habitat for these federally listed species resulting from the removal or breaching the Unionhouse Creek south levee will be addressed by the USFWS in their Biological Opinion for the project refinements.

Comment BL-4

If you have any questions regarding these comments, please call me at 875-9273.

Sincerely,

  
Bryan Young  
Natural Resource Supervisor  
Sacramento Regional County Sanitation District  
cc: Dan Bonebrake  
Stan Dean  
Bob Shanks

***Response to BL-3: Unionhouse Creek south levee between UPRR and Franklin Boulevard will be strategically breached in order to avoid affects to burrowing owl habitat and potential vernal pool habitat. Preliminary assessments on hydraulic affects to lands south of the levee as a result of strategic breaching indicates that there would be very little, if any, change in flood frequency from what currently exists in that area, and changes to depth and duration of inundation would be minimal.***

***Response to BL-4: See response to BL-3.***

October 27, 2004

Mr. Dan Artho  
 Project Engineer  
 US Army Corps of Engineers  
 1325 J St  
 Sacramento, CA 95814

**SUBJECT: Draft EA: South Sacramento County Streams Project Design Refinements  
 SAC200400273**

Dear Mr. Artho,

Thank you for providing this project to the Sacramento Metropolitan Air Quality Management District (District) for staff review. We regret our comments are several days late. We did not receive a routing letter with this document. Staff comments follow.

We see that the Environmental Assessment was written primarily to fulfill NEPA requirements. Additionally, the air quality analysis was done in terms of tons of pollutants/year and focuses on a general conformity determination. We also see that measures (Mitigation 4.3.3, pg 39) were included to mitigate the effects of air quality emissions from construction activities.

We recommend that the future NEPA/CEQA environmental document use the air quality assessment protocol described in the Guide for Air Quality Assessment, 2004 that can be found on the District website, [www.airquality.org](http://www.airquality.org). If air impacts from construction are found to be significant under the District's threshold, we suggest you utilize the District's standard construction mitigation. A copy of it is enclosed. The construction emissions analysis should include the emissions which will be generated by on-road construction equipment such as soil hauling. Their impacts should be identified and mitigation, if necessary, discussed with District staff.

Comment AIR-1

Comment AIR-2

During the construction phase(s) of the project, District Rule 403 – Fugitive Dust, will apply. The developer/contractor is required to control dust emissions from earth moving activities, or any other construction activity to prevent airborne dust from leaving the project site. District Rules are available at [www.airquality.org](http://www.airquality.org).

Comment AIR-3

cc to Don Artho  
**RECEIVED**

BY *cc* DATE *11/1*

***Response to AIR-1: All mitigation and Best Management Practices (BMPs) identified in this EA and in the 1998 EIS/EIR will be implemented during construction of the project. An air emissions analysis for State thresholds exceedence will be included as part of the California Environmental Quality Act (CEQA) document being prepared by SAFCA, the CEQA lead agency. Any significant affects to air quality will be mitigated to less than significant in coordination with Sacramento Metropolitan Air Quality Management District staff.***

***Response to AIR-2: See response to AIR-1.***

***Response to AIR-3: See response to AIR-1. The contractor will be required to control air borne dust from leaving the project area through implementation of BMPs.***

If you or the proponents of this project have questions or comments, please contact me at 874-4885 /or by email at [jborkenhagen@airquality.org](mailto:jborkenhagen@airquality.org).

Sincerely,

A handwritten signature in black ink that reads "Jeane Borkenhagen". The signature is written in a cursive, flowing style.

Jeane Borkenhagen, Associate Air Quality Planner Analyst

ENC: Standard SMAQMD construction mitigation

cc: Ron Maertz SMAQMD

# SMAQMD Recommended Mitigation for Reducing Emissions from Heavy-Duty Construction Vehicles

Revised October 15, 2002

## *Category 1: Reducing NOx emissions from off-road diesel powered equipment*

The project shall provide a plan for approval by [DERA, City of x, SMAQMD, etc] demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction<sup>1</sup> compared to the most recent CARB fleet average at time of construction; and

The project representative shall submit [to DERA, City of x, SMAQMD, etc.] a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

and:

## *Category 2: Controlling visible emissions from off-road diesel powered equipment*

The project shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and [DERA, City of x, SMAQMD, etc.] shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other SMAQMD or state rules or regulations.

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<sup>1</sup>Category 1: Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.



October 20, 2004

Mr. Dan Artho, Environmental Resources Branch  
Department of the Army  
U.S. Army Engineer District, Sacramento  
Corps of Engineers  
1325 J Street  
Sacramento, CA 95814-2922



SUBJECT: Comments on the Draft Environmental Assessment for the Proposed South Sacramento County Streams Project

*Sheldon*  
*Administrative Headquarters*  
6000 Orange Avenue  
Sacramento, CA 95823-3225  
Phone 916-428-1171  
Facsimile 916-428-7334  
www.southgaterecreationpark.net

Dear Mr. Artho:

The District thanks the U.S. Army Corps of Engineers for the opportunity to comment on the Draft Environmental Assessment for the Proposed South Sacramento County Streams Project. The proposed project lies within the District's boundaries. Based on the review of the Draft Environmental Assessment for the Proposed South Sacramento County Streams Project, dated September the District requests that the Army Corps of Engineers analyze the potentially significant impacts of the proposed project on the District's existing and proposed resources as applicable in the document, especially as it relates to Florin Creek Park, Sheldon Park, the Florin Creek Bike Trail and the access to use during the course of project construction.

*Board of Directors*  
Rolf P. Appel  
John E. Cockerham  
Edwin A. Smith  
Christine Thompson  
Shirley J. Wirth

This letter documents the Southgate Parks and Recreation District's (District) review and comments on the Draft Environmental Assessment (DEA) for the South Sacramento County Stream Project (proposed project).

*General Manager*  
Rod Cooper

*Assistant General Manager*  
Ward Winchell

*Section 2 Alternatives*

- Page 13 - The Draft EA includes a detailed discussion of the floodwalls that would be constructed along Florin Creek. As noted, the District has three facilities immediately adjacent to Florin Creek, including the Florin Creek Park, Sheldon Park and the Florin Creek Bike Trail. The floodwalls would be constructed up to 5.6 feet above the existing levee/bank height, along the Florin Creek/Hwy. 99 segment. Although Public Safety is not an NEPA issue that would need to be analyzed in this EA, the District is concerned that the placement of the floodwalls could potentially result in safety issues to the pedestrian/bike trail users, thus having impacts to recreation. The District recommends that certain portions of the floodwalls that are within public access areas include landscaping that effectively discourages members of the

cc to  
Don Artho  
**RECEIVED**  
BY cc | DATE 10/24

public from climbing over the walls and/or hiding behind the walls, and/or vandalizing the wall. The Draft EA states that the bike path would need to be removed in order to accommodate the widening of the channel. The District would like to ensure that the Corp coordinates with the District when relocating the trail and meets District design standards. The bike trail must remain a 6-foot wide paved asphalt bike trail with 2-foot wide decomposed granite shoulders on each side. The District accepts CalTrans bike trail construction standards.

- Page 14 - The Draft EA describes the removal and replacement of the existing Florin Creek Bike Trail on the right (north) bank of the creek between Persimmon Avenue and Orange Drive. The Draft EA states that the bike path would need to be removed in order to accommodate the widening of the channel. The District would like to ensure that the Corp coordinates with the District when relocating the trail and meets District design standards. The bike trail must remain a 6-foot wide paved asphalt bike trail with 2-foot wide decomposed granite shoulders on each side. The District accepts CalTrans bike trail construction standards.

### *Section 3 Affected Environment*

- Page 18 - The Draft EA discusses the potential aesthetic impacts from construction of the floodwalls. As noted previously, the District recommends landscaping as an additional measure. According to Army Corps Project Manager, Paul Devitt, there may be another option using compacted earthen embankments with landscaping that could be used for floodwall construction, as an alternative to steel sheetpiles. The District would prefer the use of earthen embankments with landscaping or a suitable substitute. This would discourage members of the public from jumping over the walls, hiding behind the walls, as well as serving as a deterrent to graffiti and other vandalism.

### *Section 4 Environmental Consequences*

- Page 34 – The Draft EA discussed the potential for impacts to recreation during construction. The District recommends that the park users, bicyclists and pedestrians be informed of park area closures that may result from the construction in Florin Creek. The District recommends that signage be placed in areas up to one-month prior to the construction activities in order to allow the users to use other park facilities, either within Sheldon Park and Florin Creek Park, or other District parks. The District also recommends that clear signs designating detour routes be provided to minimize the potential for park users to enter dangerous construction areas.

The Draft EA states that construction activities would include the removal of 4,000 feet of bike trail along Florin Creek in order to complete the proposed channel widening in that area. However, on page 18 of the Draft EA, the description of the bike path removal states that 2,800 feet of the bike trail

would be removed. Please revise in order to reflect the correct and consistent length of bike trail to be removed and replaced.

The Draft EA does not specifically address how floodwaters would be contained within the creek once it arrives at Persimmon Avenue. Please address how these waters will be retained within the channel.

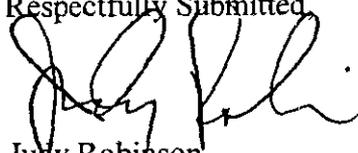
Plate 1. Project Area and Features Map shows a bridge proposed at Citrus Road. Citrus Road ends on the south side of Orange Avenue. Please respond as to where this bridge will connect or revise the map accordingly.

The Draft EA states that the bike path would need to be removed and would not be replaced prior to completion of channel work. Therefore, there would be some period of time that the users would have to use detours to connect back to the bike path. The Corp has recommended detours and alternative routes during construction which could involve the use of local street systems. The District needs to ensure the safety of the users and detour locations and design standards should be coordinated with the District. The District also recommends exploring an alternative that would allow for construction of the new bike path prior to removal of the existing bike path in order to reduce impacts to recreation.

The mitigation measures discussed in section 4.2.3 Mitigation of the Draft EA includes the development of a traffic management plan in order to minimize the temporary effects and ensure safety of the users of the bike trail. The District recommends that in addition to coordination with the City, County, and Caltrans to develop the traffic management plan, the Corp also include the District for the portions that affect the recreation facilities, including the bike path detours within the District.

Thank you again for the opportunity to comment on the Draft Environmental Assessment for the Proposed South Sacramento County Streams Project. Please continue to forward documentation related to this project to the District. Should there be any questions regarding the information contained in this comment letter, please feel free to contact me at (916) 428-1171, ext. 14.

Respectfully Submitted,



Judy Robinson  
Planning & Facilities Manager

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOUTHGATE RECREATION AND PARK DISTRICT COMMENTING ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SOUTH SACRAMENTO COUNTY STREAMS PROJECT

WHEREAS, the District is in receipt of a Draft Environmental Assessment for the Proposed South Sacramento County Streams Project dated September 2004; and

WHEREAS, on November 18<sup>th</sup>, 1997 the Southgate Board of Directors passed Resolution 97-57 commenting on a draft Feasibility Report and joint Draft EIR/EIS for the South Sacramento County Streams Investigation, California from the Sacramento Area Flood Control Agency (SAFCA) and the U.S. Army Corps of Engineers; and

WHEREAS, the Southgate District provided additional comments regarding this project in subsequent correspondence on July 7, 1999 and April 22, 1999; and

WHEREAS, the Proposed South Sacramento County Streams Project takes into account Southgate's concerns regarding flooding and trail safety by eliminating some of the originally proposed floodwalls and by modifying others; and

WHEREAS, the District still has some concerns regarding safety and security and where floodwalls are being proposed and has provided an alternate recommendation; and

WHEREAS, there are a few areas of the draft Environmental Assessment that the District requests be addressed.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Southgate Recreation and Park District hereby provides the comments contained in the attached letter to be addressed and clarified by the U.S. Army Corps of Engineers where indicated and included with the Final Environmental Impact Report.

BE IT FURTHER RESOLVED that adequate response to the District's comments and incorporation of the proposed mitigation be conditioned as requirements for the certification of the South Sacramento County Streams Project Environmental Impact Report.

PASSED AND ADOPTED by the Board of Directors of the Southgate Recreation and Park District this 19th day of October, 2004, by the following vote to wit:

AYES:

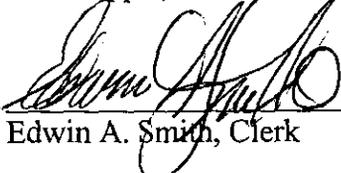
Appel, Cockerham  
Smith & Wirth

NOES:

None

Absent: Thompson

  
\_\_\_\_\_  
Rolfe Appel, Chair

  
\_\_\_\_\_  
Edwin A. Smith, Clerk



*Seldon*

*Administrative Headquarters*  
6000 Orange Avenue  
Sacramento, CA 95823-3225  
Phone 916-428-1171  
Facsimile 916-428-7334  
www.southgaterecandpark.net

*Board of Directors*

Rolfe P. Appel  
John E. Cockerham  
Edwin A. Smith  
Christine Thompson  
Shirley J. Wirth

*General Manager*

Rod Cooper

*Assistant General Manager*

Ward Winchell



*TO* • Grant Kreinberg/SAFCA  
Osa Armi/Shute, Mihaly & Weinberg

*FROM* • Richard Hunn/ESA

*DATE* • November 3, 2004

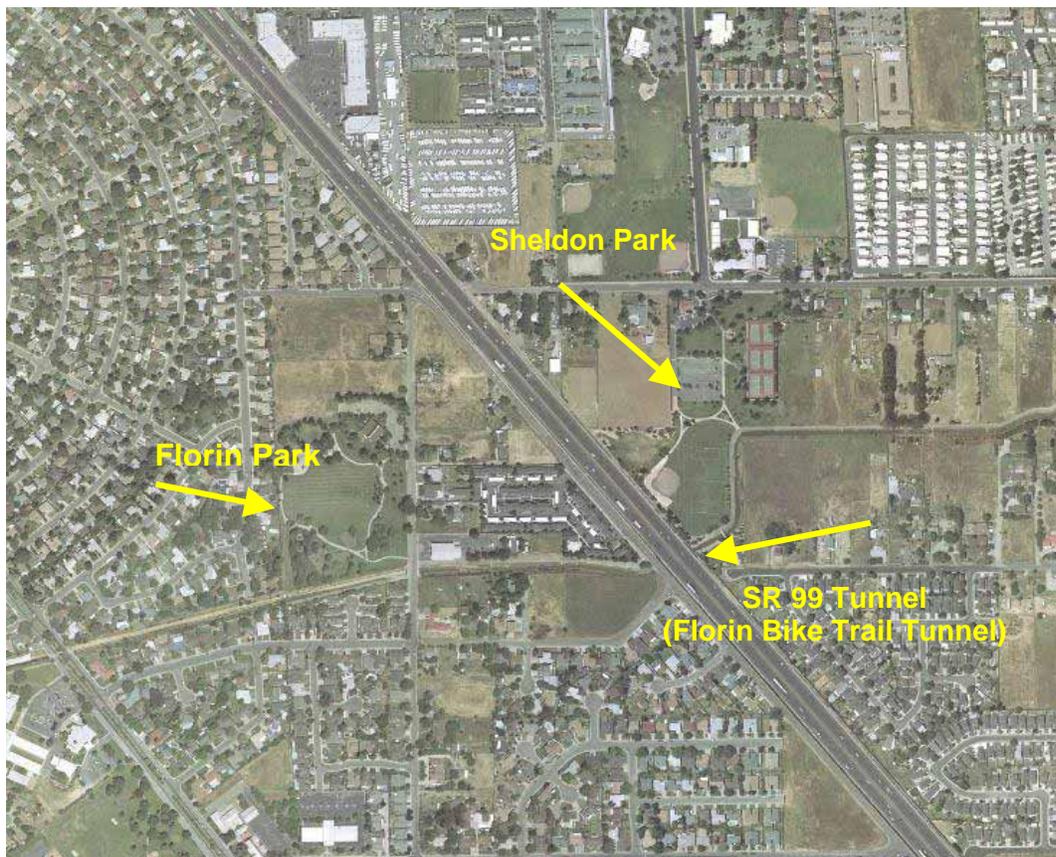
*SUBJECT* • Commitments for Southgate Recreation and Parks District

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The October 20, 2004 letter from the Southgate Recreation and Parks District (District) to the Army Corps of Engineers identified several concerns associated with the construction and implementation of the South Sacramento Streams Project. Specifically, the District expressed concern about potential effects of the project on recreational uses at Florin Park, Sheldon Park, and the Florin Creek Bike Trail.

This memorandum summarizes the concerns expressed in the District's letter and identifies a response for ameliorating, mitigating, or otherwise avoiding the potential concerns. While the concerns expressed by the District are not considered significant environmental impacts requiring mitigation, they are issues that can be addressed through commitments to modify proposed project features or methods of construction.

The following figure illustrates the location of the two parks, bike trail and adjacent SR 99 Tunnel.



## **Concern 1 – Construction of flood improvements will interfere with use of Florin Bike Trail between Persimmon Avenue and Orange Avenue (4,000 feet).**

The retrofitting of the SR 99 tunnel, to convey 100-year flood flows, will require restricting public use of the tunnel during the six month construction period. Construction activities will also require restricting public use of the bike trail between Persimmon Avenue and SR 99, and SR 99 to Orange Avenue to avoid conflict with construction equipment and public safety.

### **Commitment 1 – Coordinate construction activities to minimize bike trail disruption .**

To the extent feasible, construction of stream channel widening, floodwall installation and bike trail realignment should be completed in coordination with SR 99 Tunnel retrofit activities. Realigned bike trail routes would be installed and operational, including signage and public notice, prior to construction of creek widening and floodwall installation.

### **Commitment 2 – Retain SR 99 Tunnel access during the project construction period.**

Except during special periods or with use of certain construction equipment, public accessibility of the SR 99 Tunnel will be maintained 5 days per week, including weekends. Limited closure of the Tunnel may be required but would not exceed 2 days per week, except under special circumstances. Notice will be provided to the District and posted in the Tunnel vicinity that will include a schedule for Tunnel access with a minimum 10-days advance notification.

## **Concern 2 – Construction activities will pose a public safety concern to users of Florin Park and Sheldon Park.**

Construction of flood improvements will require use of heavy equipment including haul trucks, backhoes, concrete delivery trucks, and other excavation and grading equipment. Their use will require cordoning off the construction area from areas of public use and access to avoid accidents and reduce potential liabilities.

### **Commitment 3 – Develop plan to minimize public safety concerns and disruption to park uses.**

In coordination with Southgate Recreation and Parks District, develop a plan to minimize potential conflict with existing park uses and recreation users in the area. Measure to be included in the plan should:

- Delineate temporary areas of restricted public access/use within the parks,
- Define selection of fencing materials consistent with publicly used areas
- Define lighting and security requirements
- Provide signage and other public notice procedures
- Define areas for equipment and materials storage
- Identify routes for equipment ingress and egress into park property
- Measures for replacing park landscaping or facilities that may be damaged during project construction
- Identify specific restricted construction days that would interfere with periods of peak park uses
- Provide mechanism for future communications with construction personnel and park managers, including routine and emergency communications

### **Concern 3 – Installation of 5 foot + high may pose a security hazard to bike trail users**

As noted by the Southgate Recreation and Parks District, the presence of a 5.5 foot high floodwall may pose a security risk and increase potential vandalism along the existing bike trail.

### **Commitment 4 – Realign Bike Trail west between Persimmon Avenue and SR 99**

In consultation with the Southgate Recreation and Parks District, approximately 1,050 foot segment of the Florin Bike Trail (as shown in the following photograph), currently located between Persimmon Avenue and the SR 99 Tunnel, should be realigned from Florin Park along a route which would use public streets and striped and signed for bike path use.

The following photograph illustrates the portion of the Florin Bike trail located between Persimmon Avenue and SR 99. This portion of bike trail would be abandoned from public use. Future access would be limited to floodway maintenance equipment



The replacement bike route would extend south on Persimmon Avenue about 350 feet to Pomegranate Way; then extend east about 1,300 feet to the intersection with La Mancha Way. Provisions would then be provided to allow public access from La Mancha Way to the SR 99 Tunnel.

The following aerial photograph illustrates this route. As a result, the existing segment of bike trail could be abandoned and the floodwalls would pose no security risk along this trail segment.



**Commitment 5 – Temporary Realignment of Florin Creek Bike Trail west between SR 99 and Orange Avenue**

In consultation with the Southgate Recreation and Parks District, approximately 3,300 foot segment of the Florin Bike Trail (as shown in the following photographs), currently located between the SR 99 Tunnel and Orange Avenues, should be realigned along a route which would use existing park pathways/roadways, and public streets that are striped and signed for bike path use.



The route would extend from the existing bike trail north through Sheldon Park to the intersection with Orange Avenue. The route would then extend east on Orange Avenue about 1,800 feet until the intersection with Florin Creek. This route is shown in the following aerial photograph.

Upon completion of project construction, the existing bike path route would be placed back into service and the temporary realignment would be abandoned.

## **Concern 4 – Floodwalls within parklands may pose increased security risk and vandalism**

The presence of 5.5 foot high floodwalls within Florin and Sheldon Parks may pose an increased security risk and encourage vandalism by limiting visibility on parklands and providing cover.

### **Commitment 6 – Install earthen berms or landscaped floodwalls on public parklands, as feasible.**

In consultation with the Southgate Recreation and Parks District, employ the use of earthen berms in lieu of floodwalls/sheetpile, where feasible. In areas where earthen berms with a typical width of up to 35 feet cannot be readily accommodated without substantial disturbance to existing park features, suitable vegetative landscaping will be placed along the floodwall to prevent and/or discourage public encroachment onto the flood control feature. The specific alignment and setback of the berms or floodwalls would be selected in consultation with the District where located on parklands.

The following photograph illustrates portions of Florin Park located adjacent to the creek zone and likely location of flood control improvements.





**From:** ckelley@co.san-joaquin.ca.us [mailto:ckelley@co.san-joaquin.ca.us]  
**Sent:** Tuesday, November 02, 2004 12:00 PM  
**To:** Artho, Daniel F  
**Subject:** South Sacramento Streams Project

Gentlemen,

Attached are San Joaquin County's comments on the above referenced projects Draft EA.

San Joaquin County objected to increasing the capacity of this stream project in the initial 1998 review of this project.

A series of meetings were held involving Sacramento County, San Joaquin County, the USACOE, State DWR, and State Senator Machado. It was the consensus agreement that the capacities of the streams would not be increased and that new developments would need to construct detention facilities to mitigate run off rates.

If you have further questions please call me at (209) 468-3062

Charles Kelley  
Senior Engineer

## **NOT FOR CENTRAL FILES**

TO: Wendy Johnson, Environmental Coordinator

FROM: Charles Kelley

DIVISION: Storm Water Management  
Flood Control

DATE: 11/01/2004

COMMENTS DUE DATE: October 29, 2004

PROJECT: SOUTH SACRAMENTO COUNTY STREAMS PROJECT DESIGN REFINEMENTS

TYPE: DRAFT EA/FONSI

### COMMENTS:

1. As a result the proposed project, peak flood stages could potentially increase in the downstream areas. Therefore, this Document is inadequate because it failed to address the effect of the proposed project on these areas and the mitigation measures taken to protect them flooding. Consequently, a hydraulic analysis must be conducted to discuss these impacts on Lambert Road, Point Pleasant, and the Mokelumne River system and the mitigation measures that shall be taken to protect these areas from flooding.

*Response to San Joaquin County Comment: The effects of the project on downstream peak flood stages were evaluated in detail in the 1998 EIS/EIR and found to be less than significant. The current 100-year peak flows have not changed significantly from the flows evaluated in the 1998 EIS/EIR. Therefore, a reevaluation of the effects of the 1998 plan would have the same findings. The proposed design refinements in the EA would not change these findings.*