

**DRAFT
ENVIRONMENTAL ASSESSMENT**

**SOUTH SACRAMENTO COUNTY STREAMS PROJECT
DESIGN REFINEMENTS**

Sacramento County, California

September 2004

TABLE OF CONTENTS

1.0	PURPOSE AND NEED FOR THE ACTION	1
1.1	PROPOSED ACTION	1
1.2	PROJECT LOCATION	1
1.3	BACKGROUND.....	1
1.4	PROJECT AUTHORITY.....	2
1.5	PREVIOUS ENVIRONMENTAL DOCUMENTS.....	2
1.6	PURPOSE OF THE EA	4
1.7	DECISIONS THAT MUST BE MADE	5
2.0	ALTERNATIVES.....	5
2.1	ALTERNATIVE 1 – NO ACTION.....	5
2.2	ALTERNATIVE 2 – PROPOSED DESIGN REFINEMENTS	5
2.2.1	Design Refinement Measures	5
2.2.2	Design Refinements by Stream Reach.....	7
2.2.3	Construction Details.....	16
2.2.4	Operation and Maintenance	17
3.0	AFFECTED ENVIRONMENT	17
3.1	RESOURCES NOT EVALUATED IN DETAIL	18
3.1.1	Land Use	18
3.1.2	Esthetics and Visual Resources	18
3.1.3	Socioeconomics	19
3.1.4	Hazardous, Toxic, and Radiological Waste.....	20
3.1.5	Noise	20
3.1.6	Fisheries	20
3.2	AFFECTED ENVIRONMENT	21
3.2.1	Recreation	21
3.2.2	Transportation.....	21
3.2.3	Air Quality	22
3.2.4	Water Resources and Quality.....	28
3.2.5	Vegetation and Wildlife.....	30
3.2.6	Special Status Species.....	31
3.2.7	Cultural Resources.....	32
4.0	ENVIRONMENTAL CONSEQUENCES	33
4.1	EFFECTS ON RECREATION	33
4.1.1	Alternative 1 – No Action.....	34
4.1.2	Alternative 2 – Proposed Design Refinements	34
4.1.3	Mitigation.....	34
4.2	EFFECTS ON TRANSPORTATION.....	35
4.2.1	Alternative 1 – No Action.....	35
4.2.2	Alternative 2 – Proposed Design Refinements	35
4.2.3	Mitigation.....	36
4.3	EFFECTS ON AIR QUALITY	37
4.3.1	Alternative 1 – No Action.....	38

4.3.2 Alternative 2 – Proposed Design Refinements 38

4.3.3 Mitigation..... 39

4.4 EFFECTS ON WATER RESOURCES AND QUALITY 40

4.4.1 Alternative 1 – No Action..... 40

4.4.2 Alternative 2 – Proposed Design Refinements 41

4.4.3 Mitigation..... 41

4.5 EFFECTS ON VEGETATION AND WILDLIFE..... 43

4.5.1 Alternative 1 – No Action..... 43

4.5.2 Alternative 2 – Proposed Design Refinements 43

4.5.3 Mitigation..... 44

4.6 EFFECTS ON SPECIAL STATUS SPECIES..... 44

4.6.1 Alternative 1 – No Action..... 44

4.6.2 Alternative 2 – Proposed Design Refinements 45

4.6.3 Mitigation..... 46

4.7 EFFECTS ON CULTURAL RESOURCES..... 47

4.7.1 Alternative 1 – No Action..... 47

4.7.2 Alternative 2 – Proposed Design Refinements 47

4.7.3 Mitigation..... 47

5.0 CUMULATIVE AND GROWTH-INDUCING EFFECTS 47

5.1 CUMULATIVE EFFECTS..... 47

5.2 GROWTH-INDUCING EFFECTS 48

6.0 COMPLIANCE WITH APPLICABLE LAWS, POLICIES, AND PLANS..... 48

6.1 FEDERAL REQUIREMENTS 48

6.2 STATE LAWS, REGULATIONS, AND POLICIES 51

6.3 LOCAL PLANS, POLICIES, AND PERMITS 52

7.0 COORDINATION AND REVIEW OF THE DRAFT EA 52

8.0 FINDINGS 53

9.0 LIST OF PREPARERS..... 53

10.0 REFERENCES 53

LIST OF TABLES

Table 1. Comparison of Design Refinement Features to Original Design Features..... 9

Table 2. Equipment and Personnel Needs per Construction Task..... 17

Table 3. 2004 Average Daily Traffic Volumes and Levels of Service on Project Roadways..... 25

Table 4. Ambient Air Quality Standards 27

Table 5. Federal General Conformity *de minimis* Thresholds..... 37

Table 6. SMAQMD Mass Emission Thresholds 37

Table 7. Summary of “Worst Case” Annual Emissions 38

Table 8. Additional Areas Affected by Design Refinements 43

Table 9. Area of Permanent Loss of Giant Garter Snake Habitat..... 46

LIST OF FIGURES

Figure 1. Project Vicinity Map	3
Figure 2. 1998 Feasibility Study Index Areas	8
Figure 3. Project Roadways and Streams	23
Figure 4. Stream Crossing/Access Point Locations	24

PLATES

1. Project Area and Features Map
2. Plan and Profile Views of the Project Features by Creek
3. Unionhouse Creek Conceptual Cross Section Between Franklin Blvd and Center Parkway
Alternative 1

APPENDIXES

- Appendix A. Supplemental CAR from the U.S. Fish and Wildlife Service
- Appendix B. Correspondence with the U.S. Fish and Wildlife Service Regarding Special Status Species
- Appendix C. Record of Non-Applicability for Clean Air Act General Conformity, South Sacramento County Streams Project
- Appendix D. Correspondence with the State Historic Preservation Officer

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.

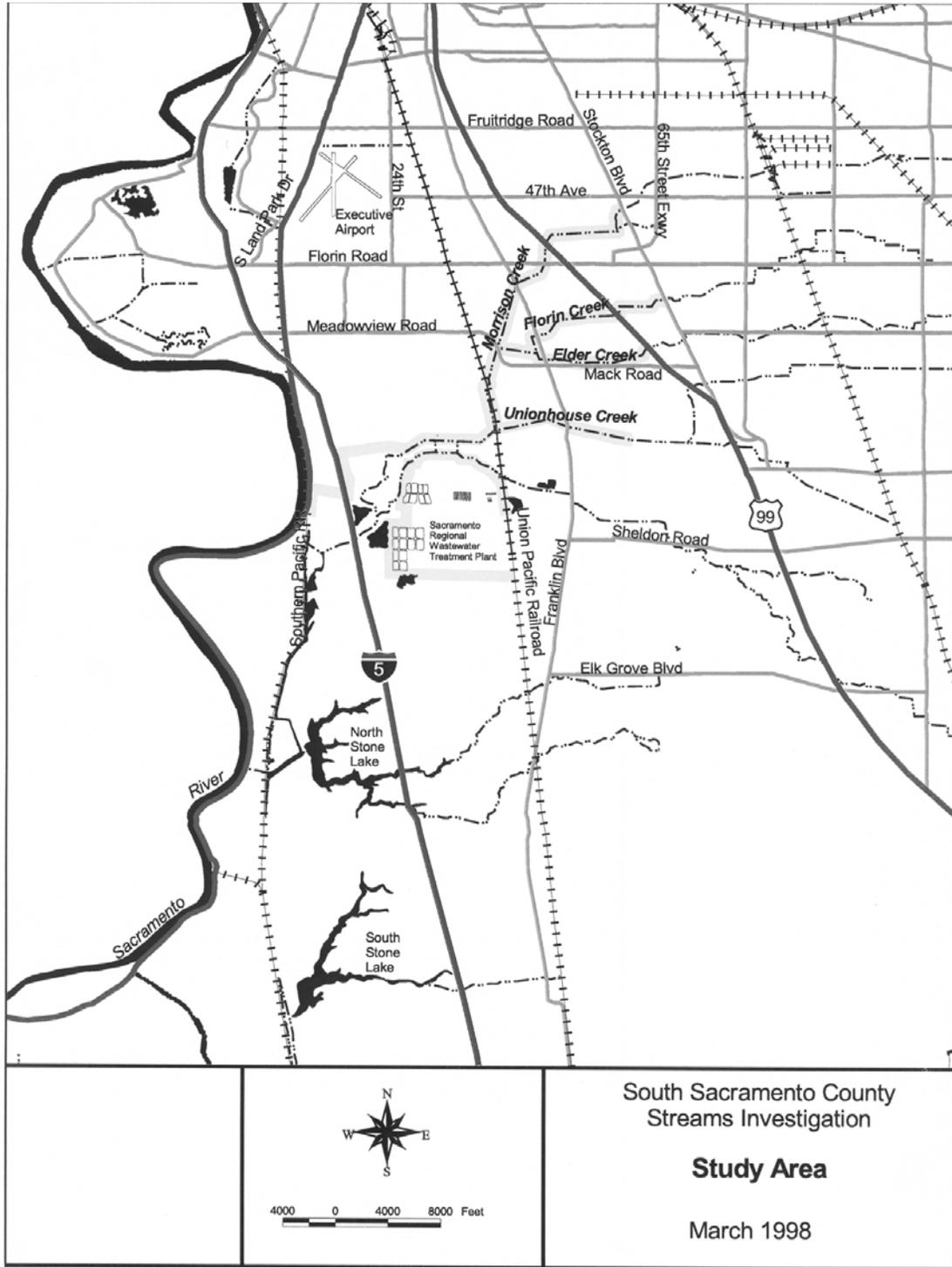
The reanalysis of the hydraulic design for the Phase II portion of the project was completed in December 2003. Based on this reanalysis, design refinements were proposed to the Phase II design in order to meet the minimum FEMA certifiable 100-year level of flood protection. These design refinements are 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 will obtain an updated list of species from the USFWS, evaluate any potential effects of the proposed design refinements, and consult with the USFWS, if necessary. No Federally listed species are expected to 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 will conduct a field visit and then consult with the California State Historic Officer regarding cultural resources. Results of additional field visits and consultation with USFWS and SHPO will be included in the final EA.

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. 3J.

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.

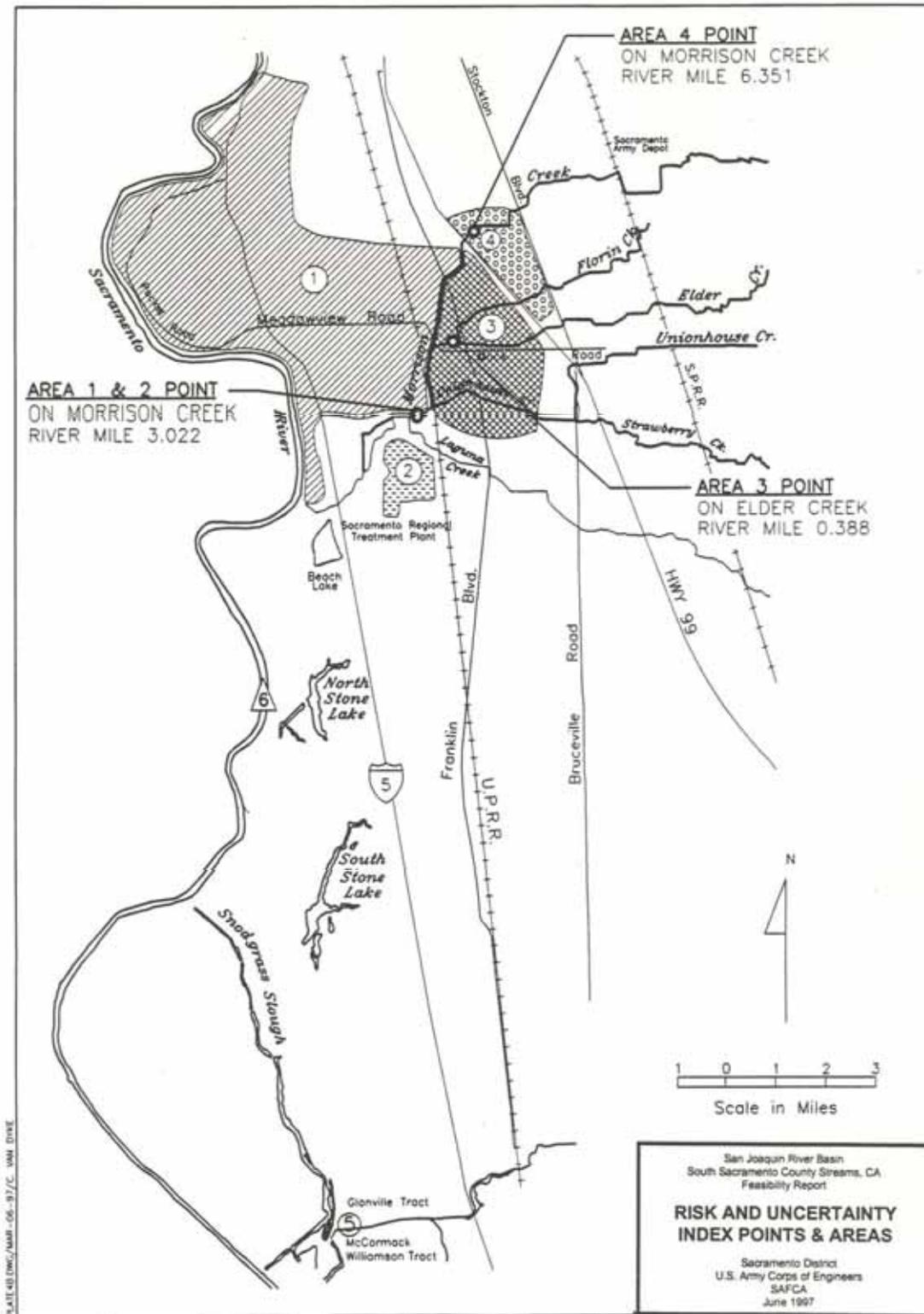


Figure 2. 1998 Feasibility Study Index Areas

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

Creek Reach and Feature	Original Design	Refined Design
Index Area 1 – Pocket Area (Morrison Creek right bank)		
<i>Morrison Creek (right/west bank only)</i>		
Sacramento River to UPRR Bridge stream reach	No Refinements	
UPRR Bridge to Highway 99 stream reach ¹		
Bridge Retrofit-Below Deck (unit) ²	0	9
Bridge Retrofit-Above Deck (unit) ³	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.)
Index Area 2 – Sacramento Regional Wastewater Treatment Plant		
No Refinements		
Index Area 3 – Morrison Creek Stream Group Below Highway 99		
<i>Morrison Creek (left/east bank only)</i>		
Unionhouse Creek to UPRR Bridge stream reach ⁴		
Channel Excavation – depth (feet)	0	0 – 1.1
Channel Excavation – increase in top width (feet) ⁵	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) ⁵	0	0
Bridge Retrofit-Below Deck (unit) ²	Included in Area 1	Included in Area 1
Bridge Retrofit-Above Deck (unit) ³	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 ⁶		
Channel Excavation – depth (feet)	0	2.6 – 3.3
Channel Excavation – increase in top width (feet) ⁵	0	0
Bridge Retrofit-Below Deck (unit) ²	Included in Area 1	Included in Area 1
Bridge Retrofit-Above Deck (unit) ³	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 ⁷		
Channel Excavation – depth (feet)	0	0.1 – 4.8 (Avg 2.5)
Channel Excavation – increase in top width (feet) ⁵	0	20 – 135
Bridge Retrofit-Below Deck (unit) ²	0	2
Bridge Retrofit-Above Deck (unit) ³	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 ⁸		
Channel Excavation – depth (feet)	0	1.2 – 1.9

Creek Reach and Feature	Original Design	Refined Design
Channel Excavation – increase in top width (feet) ⁵	0	0
Bridge Retrofit-Below Deck (unit) ²	0	1
Bridge Retrofit-Above Deck (unit) ³	0	0
Levee height increase (feet)	1.9 - 2.2	0.1 – 4.8 (Avg 2.2)
Franklin Boulevard to Highway 99 stream reach		
Channel Excavation – depth (feet)	0	1.6 – 1.2
Channel Excavation – increase in top width (feet) ⁵	0	0
Bridge Retrofit-Below Deck (unit) ²	0	5
Bridge Retrofit-Above Deck (unit) ³	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>		
Elder Creek to Highway 99 stream reach⁹		
Channel Excavation – depth (feet)	0	0.5 – 2.4
Channel Excavation – increase in top width (feet) ⁵	0	10 – 60
Bridge Retrofit-Below Deck (unit) ²	0	4
Bridge Retrofit-Above Deck (unit) ³	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
Franklin Boulevard to Center Parkway stream reach¹⁰		
Channel Excavation – depth (feet)	0	2.1 – 2.5
Channel Excavation – increase in top width (feet) ⁵	0	40 – 50
Bridge Retrofit-Below Deck (unit) ²	0	1
Bridge Retrofit-Above Deck (unit) ³	0	0
Drop Structures (unit)	0	1
Floodwall/Sheetpile height (feet)	1.0 - 6.7	0.1 – 4.8 (Avg 2.2)
Index Area 4 – Morrison Creek Stream Group between Highway 99 and Stockton Boulevard		
<i>Morrison Creek</i>		
Highway 99 to Stockton Boulevard stream reach¹¹		
Channel Excavation – depth (feet)	0	2.5 – 3.3
Channel Excavation – increase in top width (feet) ⁵	0	0
Bridge Retrofit-Below Deck (unit) ²	0	4
Bridge Retrofit-Above Deck (unit) ³	0	3
Drop Structures (unit)	0	3
Floodwall/Sheetpile height (feet)	3	0.4 – 6.7 (Avg 2.3)
<i>Florin Creek</i>		
Highway 99 to Stockton Boulevard stream reach¹¹		
Channel Excavation – depth (feet)	0	0.0 – 2.4
Channel Excavation – increase in top width (feet) ⁵	0	30 – 45
Bridge Retrofit-Below Deck (unit) ²	0	1

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

¹ Includes the UPRR Bridge and all bridges to Highway 99.

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

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

⁴ Excludes the UPRR Bridge.

⁵ 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.

⁶ Excludes Franklin Boulevard and includes all bridges including Highway 99.

⁷ Includes all bridges to and including Franklin Boulevard.

⁸ Includes Franklin Boulevard.

⁹ Includes all bridges including Highway 99.

¹⁰ Excludes Franklin Boulevard and includes all bridges including Center Parkway.

¹¹ Excludes Highway 99 and includes all bridges including Stockton Boulevard.

- 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.
- 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 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 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 removed or breached up to UPRR. This would 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 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 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 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 equipments 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 the 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

Construction Task	Equipment to be used	Number of Personnel
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.

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_{2.5}), 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 (PM₁₀).

In 2003, the Sacramento region's air quality had attained the Federal ambient air quality standards for CO and PM₁₀, but exceeded the Federal and State ambient standards for ozone (SMAQMD, 2004). The State standards for PM₁₀ were also exceeded. The U.S. Environmental Protection Agency plans to finalize PM_{2.5} designations by December 15, 2004, using data for 2001 through 2003. The California Air Resources Board (CARB) has recommended an unclassified designation on PM_{2.5} 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_x) – and PM₁₀.

Ground-level ozone, a primary ingredient in smog, is formed when VOC's and NO_x 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.

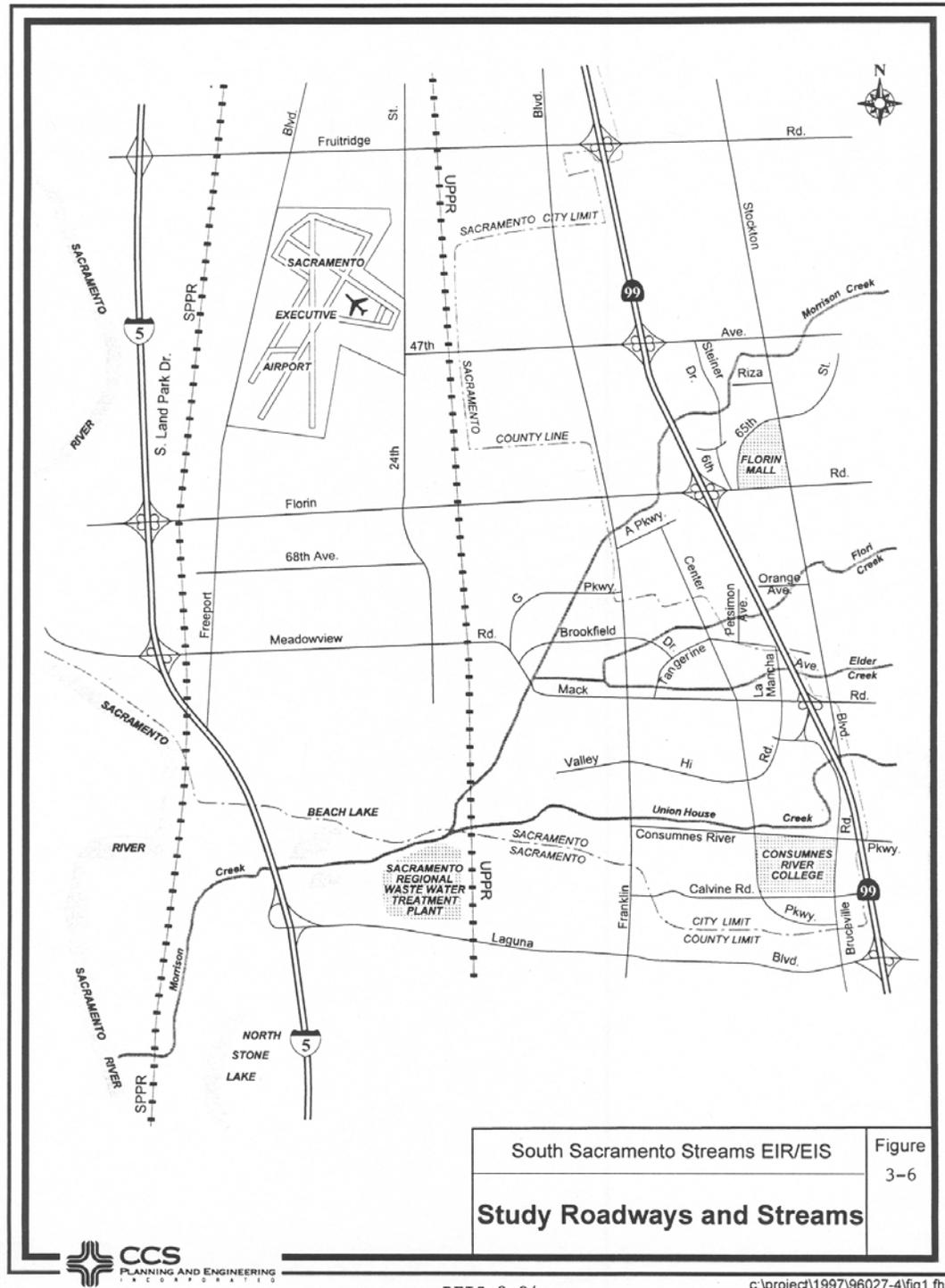


Figure 3. Project Roadways and Streams

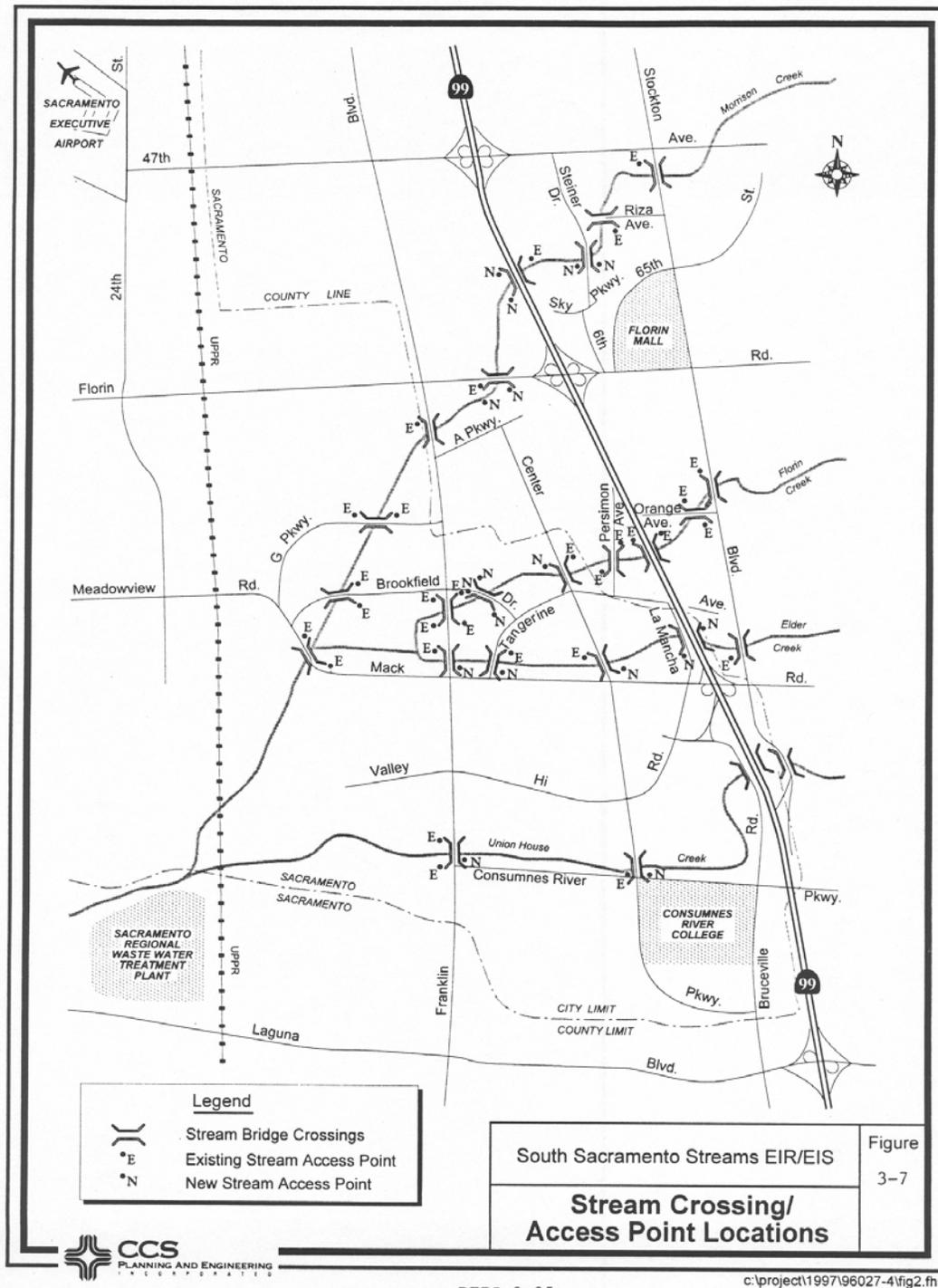


Figure 4. Stream Crossing/Access Point Locations

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

Roadway	Lanes	Capacity	ADT ¹	LOS
Franklin Boulevard				
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
Stockton Boulevard				
North of Elsie Ave.	4	36,000	41,245	C
South of Florin Road	4	36,000	30,597	D
48 th Ave. to Jimolene Dr.	4	36,000	28,014	C
Center Parkway				
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
Florin Road				
East of Franklin Blvd.	6	54,000	46,330	C
47th Avenue				
West of 47 th Street	4	36,000	37,014	A
East of SR 99	4	36,000	43,041	E
Mack Road				
Brooke Meadow Dr. to Archean Way	4	36,000	29,326	D
Center Pkwy. to Tangerine Ave.	4	36,000	33,718	D
Cosumnes River Blvd.				
Franklin Blvd. to Center Pkwy.	4	36,000	12,120	A
Brookfield Drive				
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 ¹	LOS
Orange Ave.				
East of Florin Mall Dr.	2	15,000	4,101	A
Pomegranate Ave.				
West of Florin Crk. Ct.	2	15,000	807	A
SR 99				
Stockton Boulevard Crossing	4	---	236,000	E
Mack Rd. crossing	4 + HOV	---	275,000	E
Florin Rd. crossing	6 + HOV	---	332,000	E
47 th Ave. crossing	6 + HOV	---	353,000	E

¹All 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
Ozone (O₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³)	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	—		0.08 ppm (157 µg/m ³)		
Respirable Particulate Matter (PM₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		50 µg/m ³		
Fine Particulate Matter (PM_{2.5})	24 Hour	No Separate State Standard		65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	
Nitrogen Dioxide (NO₂)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m ³)		—		
Sulfur Dioxide (SO₂)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	—
	1 Hour	0.25 ppm (655 µg/m ³)		—	—	—
Lead	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	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.		No Federal Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Source: California Air Resources Board, 2003.

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 "PM₁₀." Fine particles are 2.5 microns or less in diameter (PM_{2.5}) and can contribute significantly to regional haze and reduction of visibility in California.

Extensive research indicates that exposure to outdoor PM₁₀ and PM_{2.5} 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.

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 A).

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 include the updated information in the final EA. 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.

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. With the proposed design refinements, this Biological Opinion must be reevaluated to determine whether changes in the project or changes in existing conditions, including listing status of species, will require reinitiation of consultation or merely confirmation that the incidental take statement adequately addresses potential take of listed species.

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 B). 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 will conduct a field survey of the detention basin area, which is disturbed and therefore not likely to contain cultural resources. If no prehistoric or historic archeological sites or historic structures are identified within the basin, 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, probably adjacent to the low-flow channel. 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 on 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 66th 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* Thresholds¹

Pollutant	Tons/year
VOC's	25
NO _x	25
PM ₁₀	100

¹Based on Sacramento County's current "severe" nonattainment Federal designation for ozone and "moderate" nonattainment designation for PM₁₀.
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 _x	
	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_x, and PM₁₀; 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 C. 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_x) or 100 tons per year for PM₁₀. 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 _x	PM ₁₀
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
Total Net Increase	1.93	12.59	66.28
Federal Conformity Determination Threshold (each pollutant)	25	25	100
SMAQMD Mass Emission Thresholds (construction)	None	13.85	–

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 PM₁₀ 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 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

Creek/Reach	Reach Length (feet)	Area Affected (acres)
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
TOTAL		21.2

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 Upper 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 will reinitiate 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 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
Total (square feet)				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 2002 Biological Opinion. 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, burrowing owl, and Sanford's arrowhead.

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. A field survey of the expanded APE was 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.).
Partial Compliance. In accordance with Section 106 of this Act (36 CFR 800), a letter dated February 12, 2004, was sent to the California State Office of Historic Preservation informing them of the project and asking for comments on the expanded APE (Appendix D). The Native American Heritage Commission provided a list of potential Native Americans who will be contacted via letter to inquire if they have knowledge of locations of archeological sites, or areas of traditional cultural interest or concern.

A field survey of the areas of the expanded APE not previously surveyed or included in the 1998 EIS/EIR will be conducted. If cultural resources are located within the project area, a

determination of eligibility to the National Register of Historic Places would be required in order to comply with the Act. If no new cultural resources are located, a letter would be sent to the California State Historic Preservation Officer seeking concurrence with the Corps' determination that the project as planned would have no effect on National Register eligible or listed properties. Then the project may proceed as planned.

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. The project would not have a significant adverse effect on air quality during construction following 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. The project would likely 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 permit would be followed during construction. Water quality certification to comply with Section 401 of the Clean Water Act would also be obtained prior to construction.

Endangered Species Act (16 U.S.C. 1531 et seq.). *Partial 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 will be initiated with USFWS. A biological opinion will be provided by the USFWS and included in the final EA.

Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). *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 A.

National Environmental Policy Act (42 U.S.C. 4321 et seq.). *Partial 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 will provide responses to public comments on the draft EA. A signed Finding of No Significant Impact will complete 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 will 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. 13000-131399.18; 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 will be 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 will be 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 will be considered and incorporated into the final EA, as appropriate.

8.0 FINDINGS

This draft 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 draft FONSI has been prepared and accompanies this EA.

9.0 LIST OF PREPARERS

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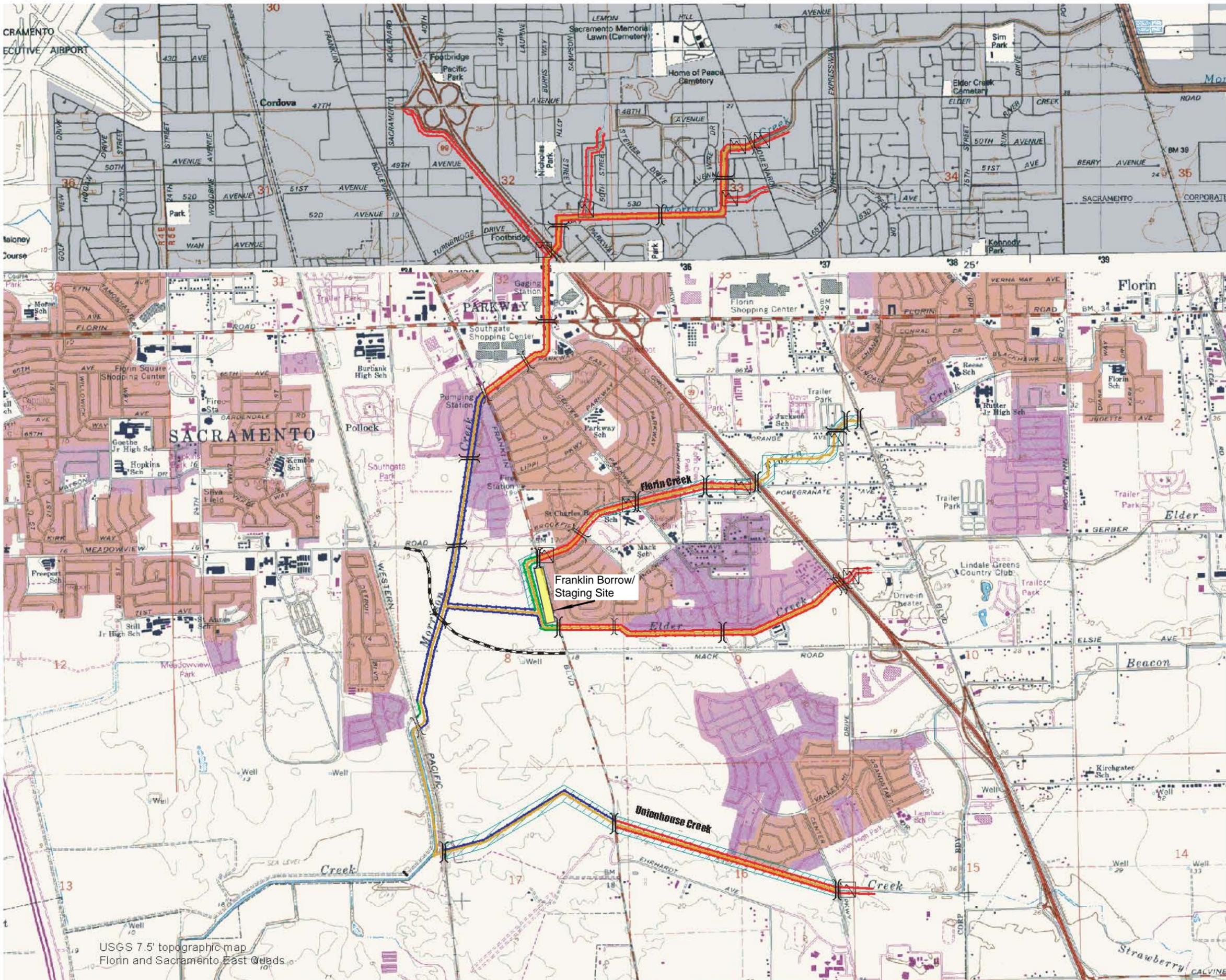
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PLATES



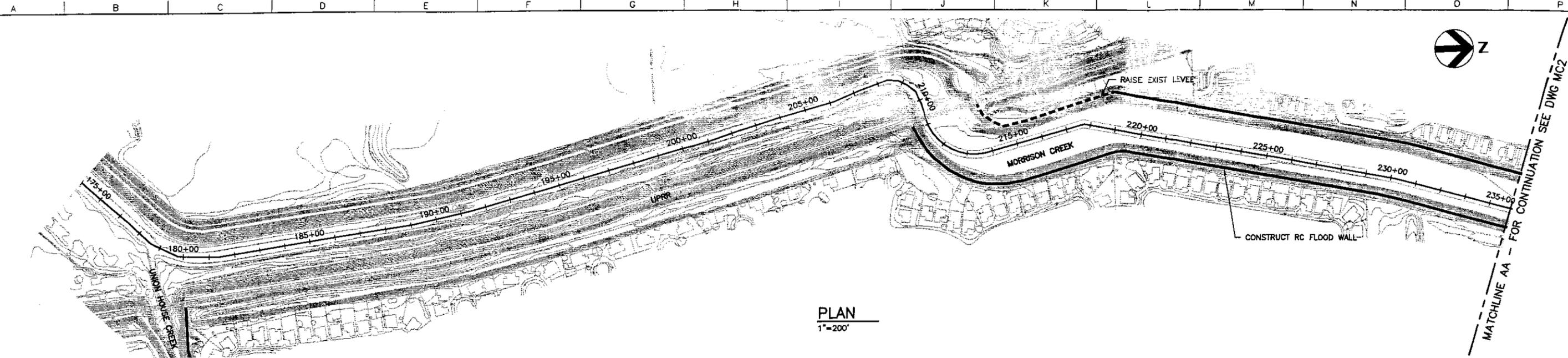
- Legend**
-  Drop Structure
 -  Sheetpile Floodwall
 -  Concrete Floodwall
 -  Channel Excavation
 -  Raise Levee
 -  Channel Widening
 -  Bridge Retrofit
 -  Mack Road
(approximate location -
constructed after latest
USGS quad map revision -
not a project feature)



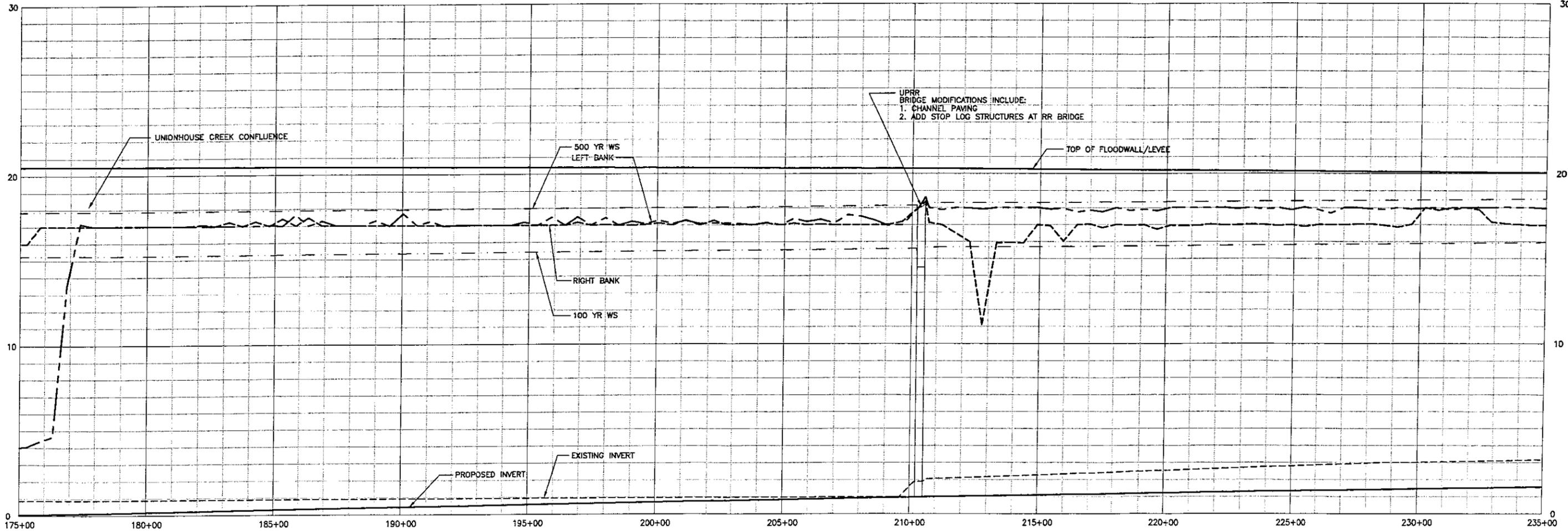
Not to Scale

Plate 1. Project Area and Features Map

USGS 7.5' topographic map
Florin and Sacramento East Quads.



PLAN
1"=200'



UPRR BRIDGE MODIFICATIONS INCLUDE:
1. CHANNEL PAVING
2. ADD STOP LOG STRUCTURES AT RR BRIDGE

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

S:\SAC-BDC\PROJECTS\10355\12808\PLANS\ONLY\12808-MC-1.DWG
06-14-04 AUPETERS 08:05:30

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



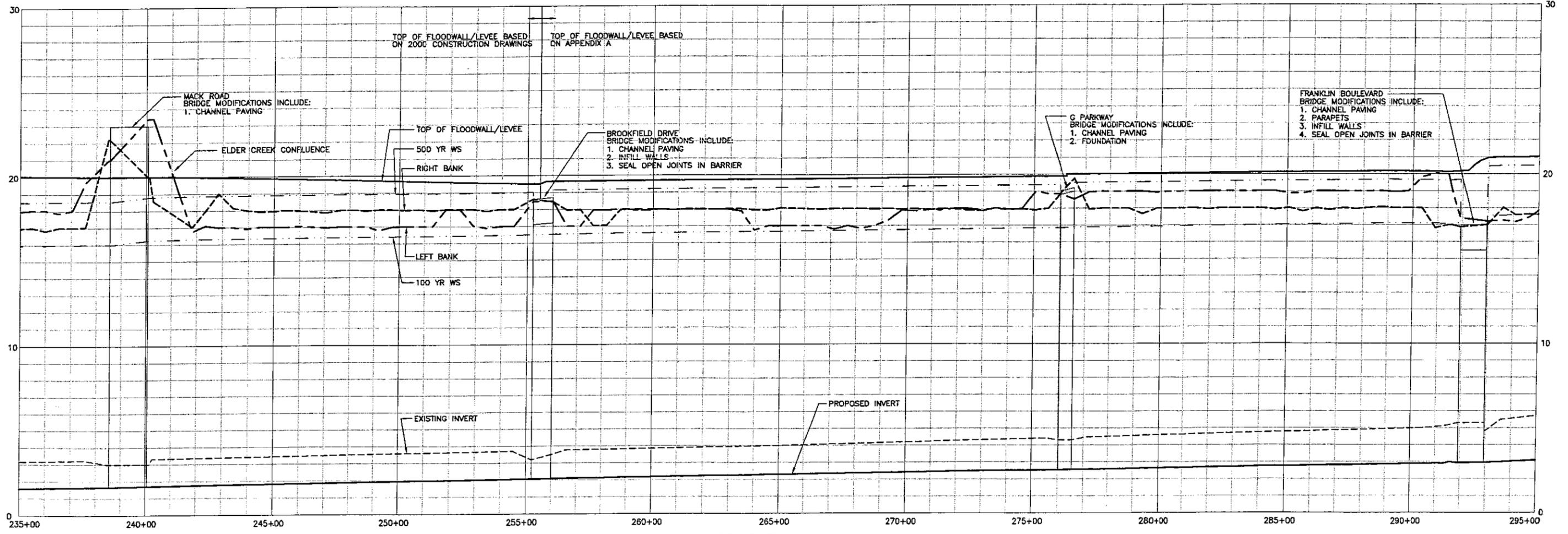
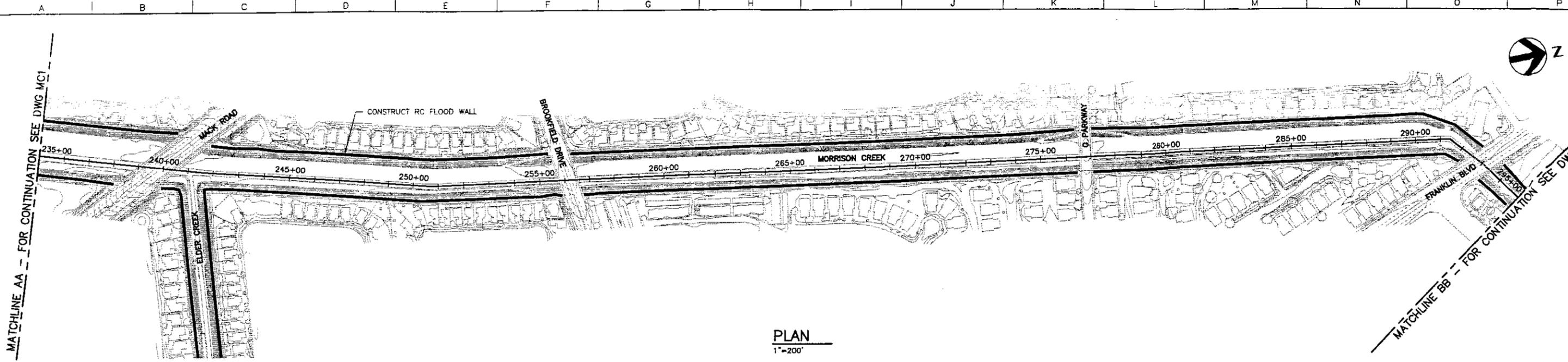
BY LENGTH OF DRAWING, DRAWING EQUALS ONE INCH, EXCEPT AS NOTED.

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**

**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				



/s/ [Signature] /PROJECT/10355/12808/PLANONLY/12808-MC-2.DWG
 06-14-04 AP/PE/ERS 06.02.29

Issue No.	Description	Date	Drawn	Checkd.	Resp. Engr.	Proj. Mgr.

HDR
HDR Engineering, Inc.

BY LENGTH ON GRAPH, DRAWING EQUALS ONE INCH, EXCEPT AS NOTED.

Project Manager
L. FREDERIKSEN

Designed
A. PETERSON

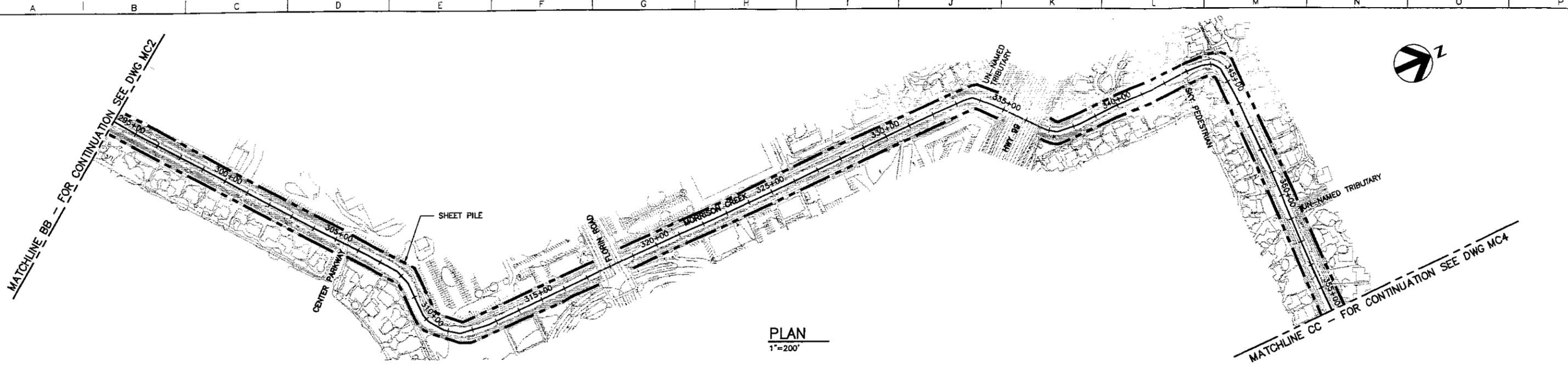
Designed
C. TADOKORO

Checked
T. GARSHASEBI

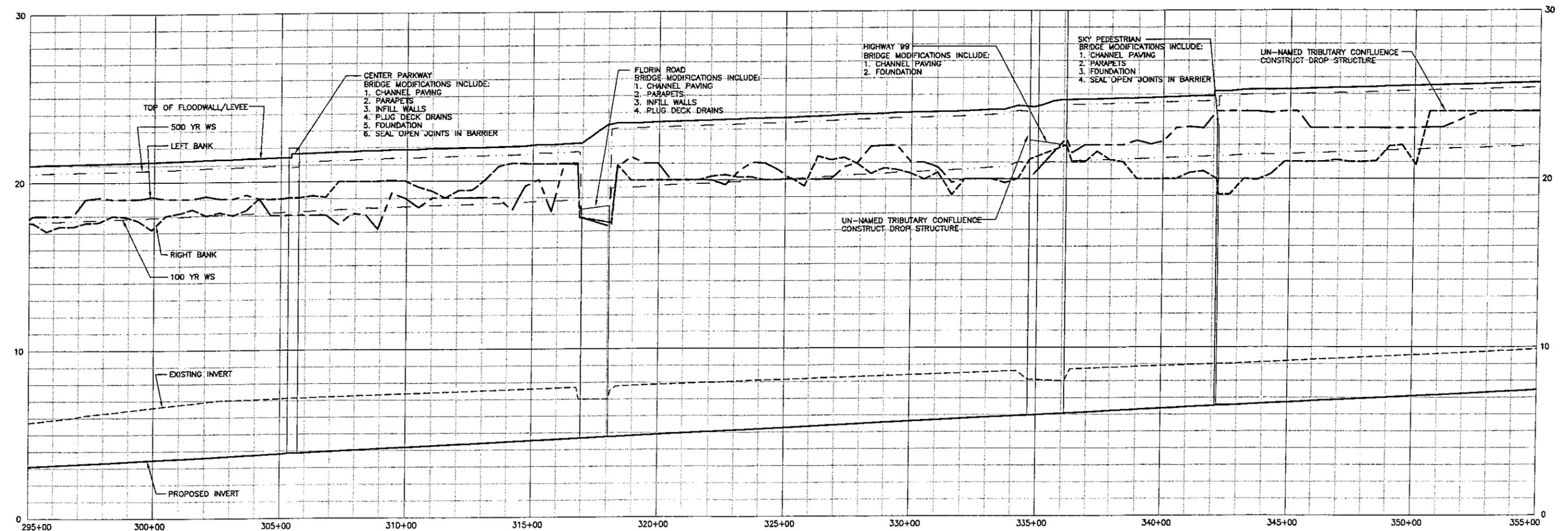
Drawn
T. GARSHASEBI

**SOUTH SACRAMENTO STREAMS
 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'

//SAC-BDCI/PROJECTS/10355/12808/PLANS/ONLY/12808-MC-3.DWG
 06-14-04 AUP/ETES 08:07:05

Issue No.	Description	Date	Drawn	Chkd.	Res. Eng.	Proj. Mgr.

HDR
HDR Engineering, Inc.

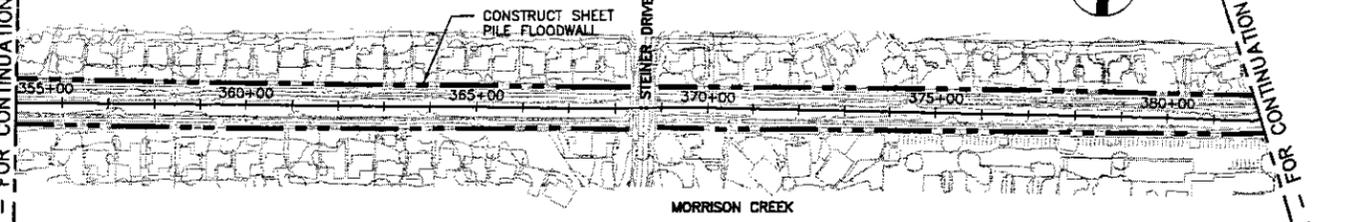
ONE INCH ON ORIGINAL DRAWING EQUALS ONE FOOT. ALL SCALE ADJUSTMENTS.

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

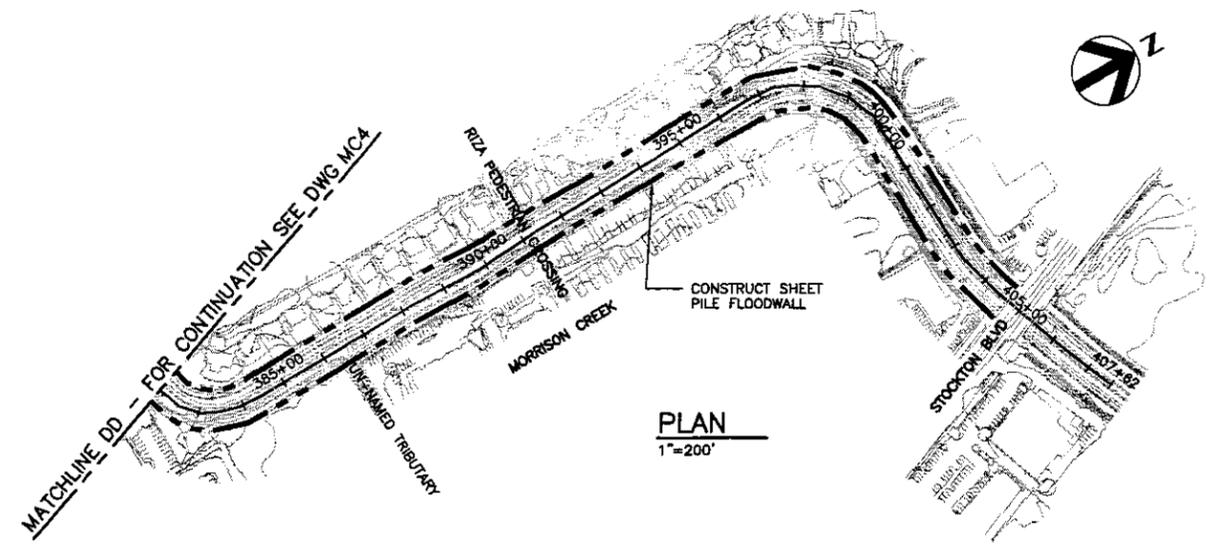
**SOUTH SACRAMENTO STREAMS
TECHNICAL MEMO
CITY OF SACRAMENTO
SACRAMENTO COUNTY, CA**

MORRISON CREEK STA 295+00 TO 355+00	
Date	JUNE, 2004
Project No.	10355-12808-141
Scale	AS NOTED
File Name	12808-MC-3.DWG
Drawing No.	MC3
Sheet	0

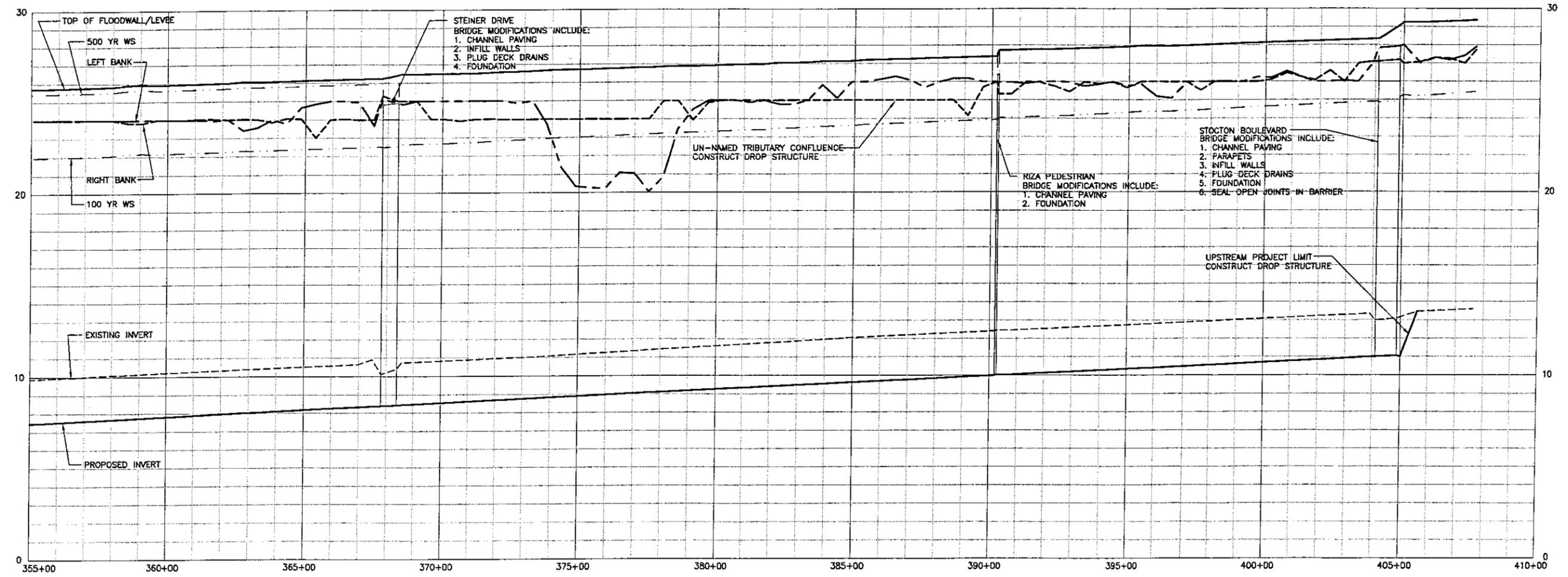
MATCHLINE CC - FOR CONTINUATION SEE DWG MC3



PLAN
1"=200'



PLAN
1"=200'



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

/S:\C-8001\PROJECTS\10355\12808\PLANS\MC4\12808-MC-4.DWG
06-14-04 ACP/ELB

Issue No.	Description	Date	Drawn	Checked	Rep. Engr.	Proj. Mgr.

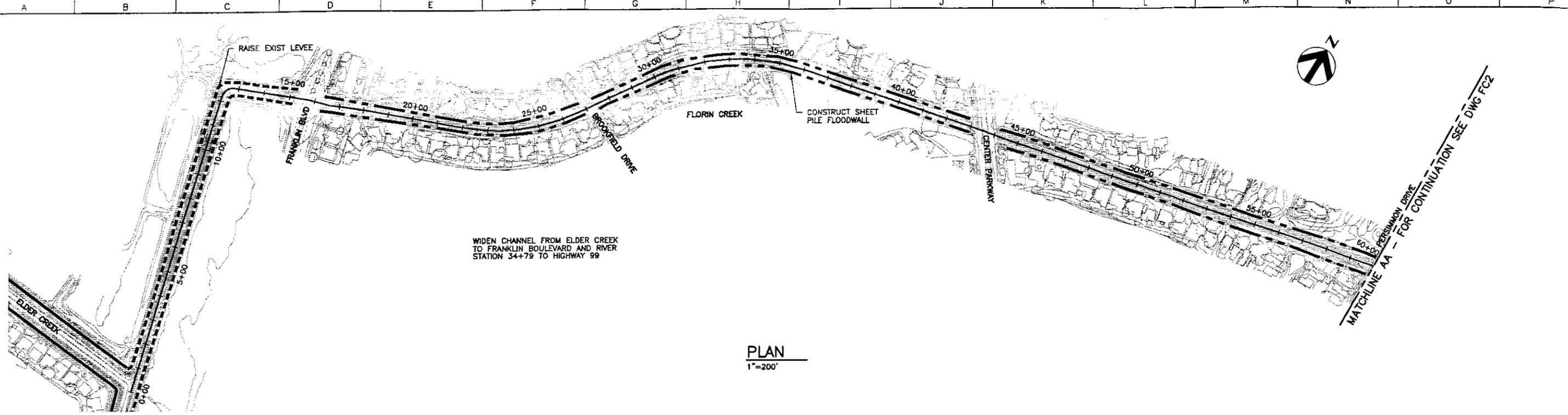


Project Manager	L. FREDERIKSEN
Designed	A. PETERSON
Designed	C. TADOKORO
Checked	
Drawn	T. GARSHASEBI

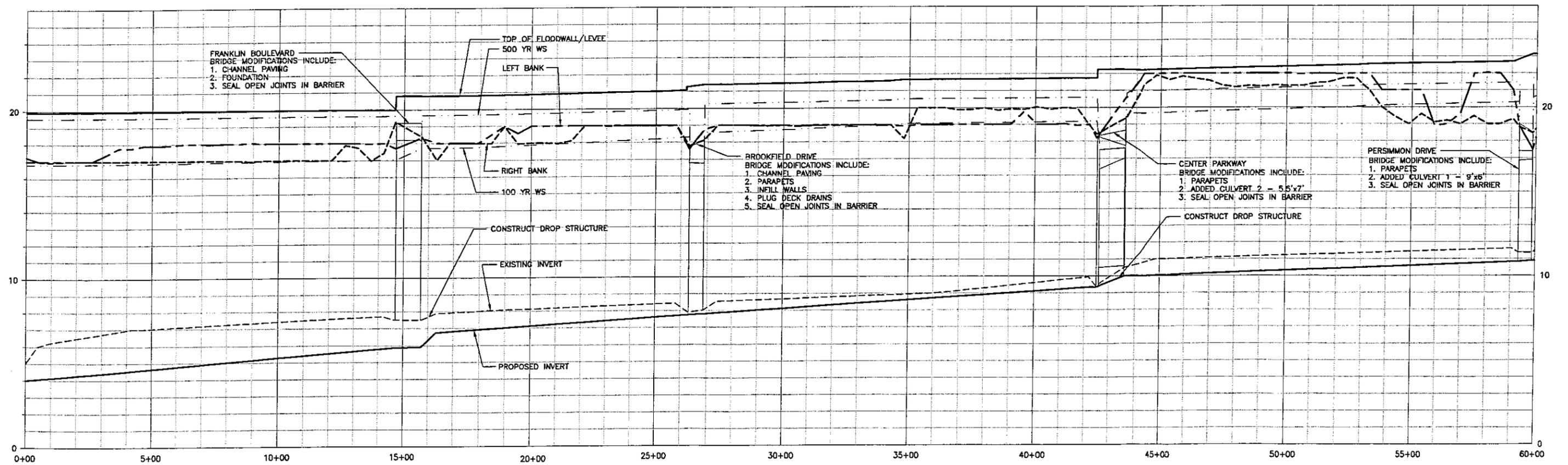
**SOUTH SACRAMENTO STREAMS
TECHNICAL MEMO
CITY OF SACRAMENTO
SACRAMENTO COUNTY, CA**

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

Date	JUNE, 2004	Project No.	10355-12808-141	Drawing No.	MC4	Issue	0
Scale	AS NOTED	File Name	12808-MC-4.DWG				



PLAN
1"=200'



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

//SAC-BDC/PROJECTS/10355/12808/PLANS/ONLY/12808-FC-1.DWG
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Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

HDR
HDR Engineering, Inc.

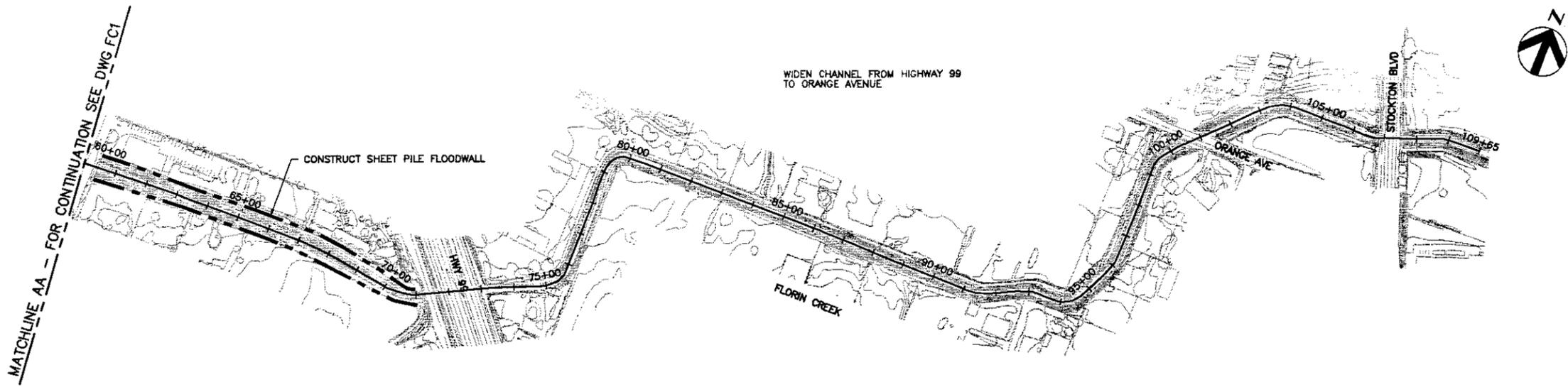
FOR LENGTH OF ORIGINAL DRAWING EQUALS THE INCH. ADJUST SCALE ACCORDINGLY.

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

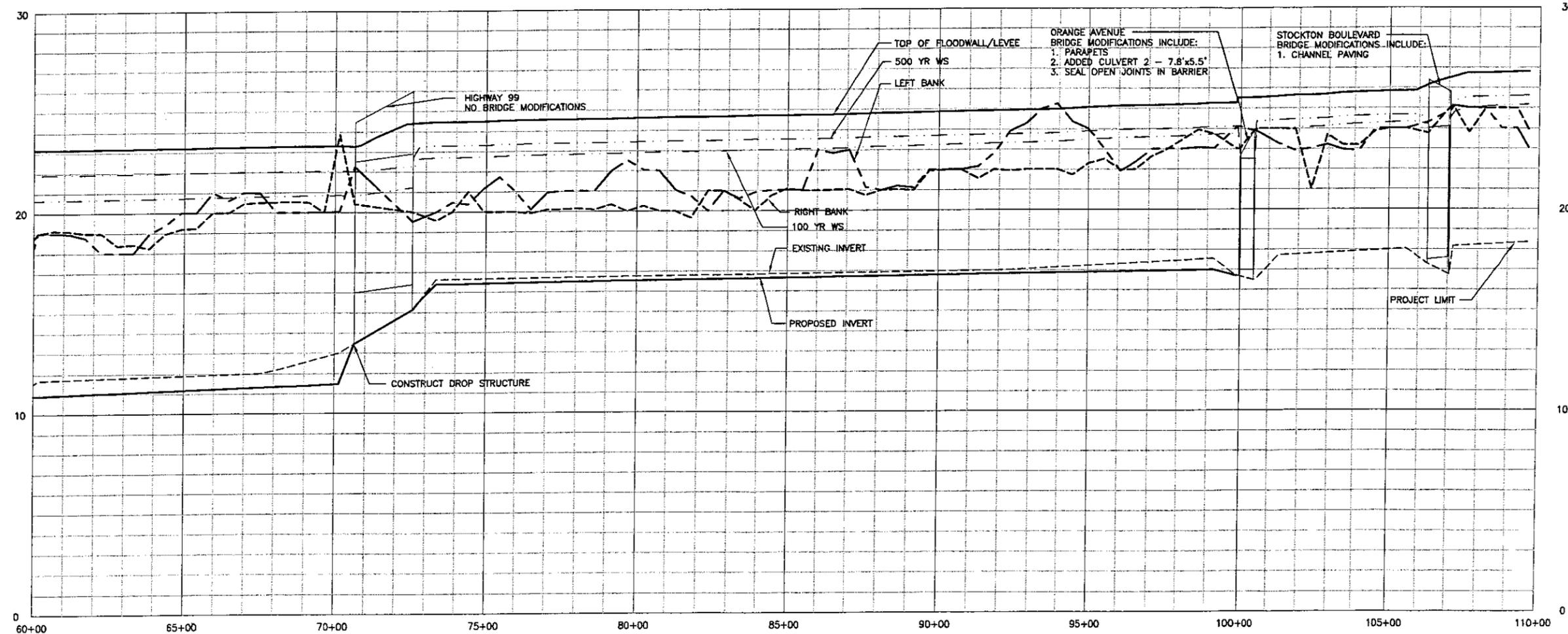
**SOUTH SACRAMENTO STREAMS
TECHNICAL MEMO
CITY OF SACRAMENTO
SACRAMENTO COUNTY, CA**

**FLORIN CREEK
STA 0+00 TO 60+00**

Date	JUNE, 2004	Project No.	10355-12808-141	Drawing No.	FC1	Issue	0
Scale	AS NOTED	File Name	12808-FC-1.DWG				



PLAN
1" = 200'



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

/SAC-BDC/PROJECTS/12808/PLANS/ONLY/12808-FC-2.DWG
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Issue No.	Description	Date	Drawn	Checkd.	Rev. Engr.	Proj. Mgr.

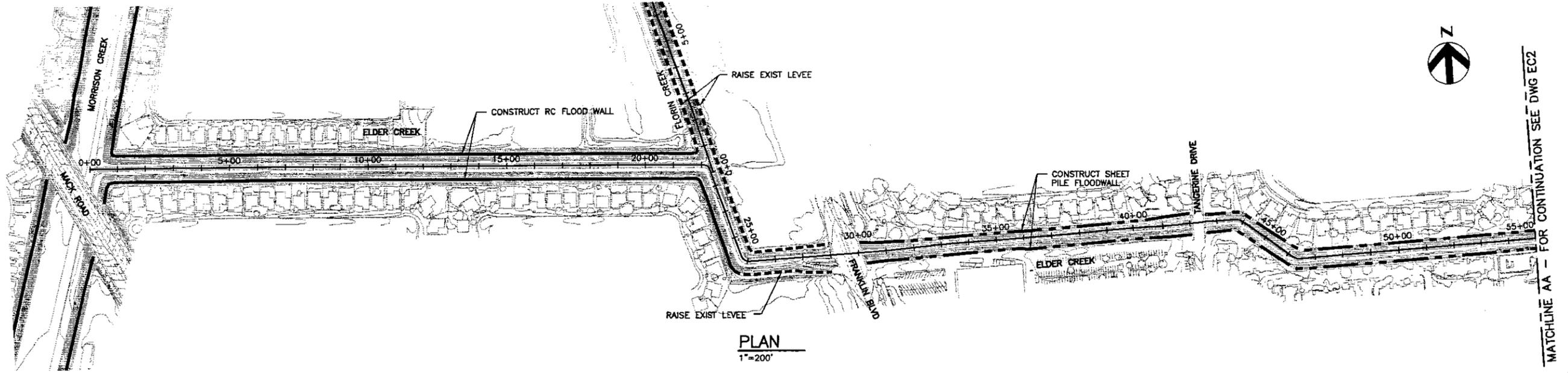
HDR
HDR Engineering, Inc.

NO LENGTH OR VERTICAL DIMENSIONS ON THIS DRAWING SHALL BE TAKEN AS INDICATED UNLESS SPECIFICALLY NOTED OTHERWISE.

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

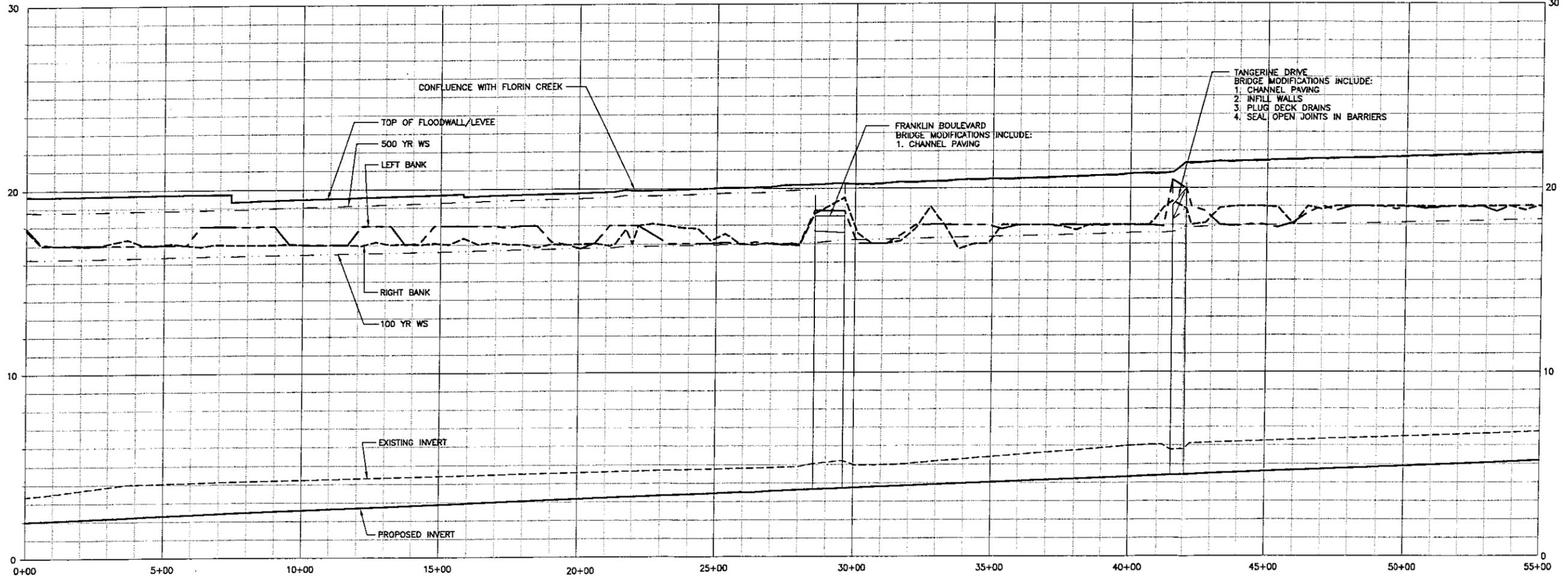
**SOUTH SACRAMENTO STREAMS
TECHNICAL MEMO
CITY OF SACRAMENTO
SACRAMENTO COUNTY, CA**

FLORIN CREEK STA 60+00 TO 109+65	
Date	JUNE, 2004
Project No.	10355-12808-141
Scale	AS NOTED
File Name	12808-FC-2.DWG
Drawing No.	FC2
Issue	0



PLAN
1"=200'

MATCHLINE AA - FOR CONTINUATION SEE DWG EC2



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

/SAC-BDC/PROJECTS/10355/12808/PLANS/ONLY/12808-EC-1.DWG
08-13-04 ADP/ERS 132380

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

HDR
HDR Engineering, Inc.

BE LENGTH ON ORIGINAL DRAWING. SCALE OF THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION.

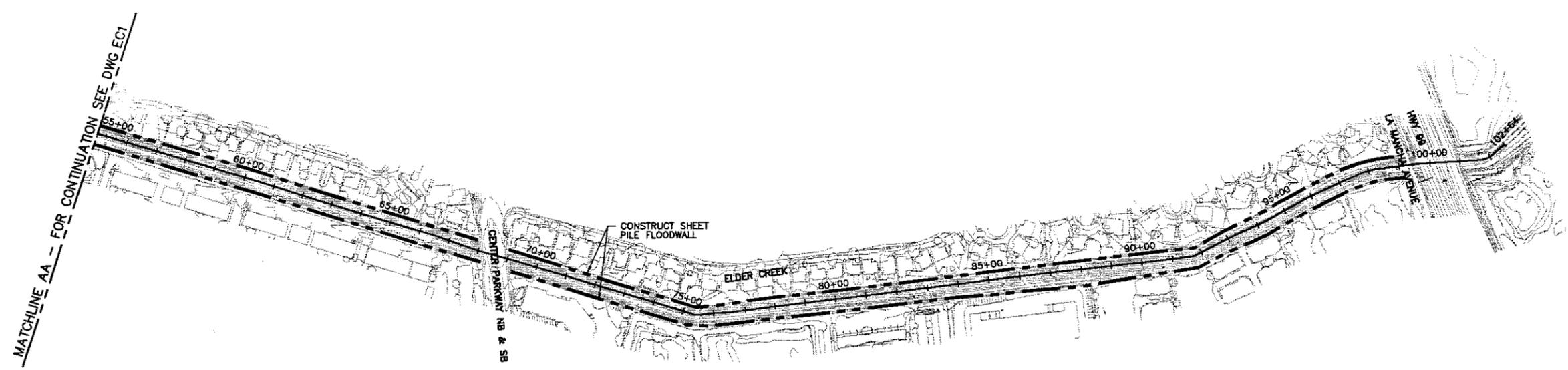
Project Manager	L. FREDERIKSEN
Designed	A. PETERSON
Designated	C. TADKORO
Checked	
Drawn	T. GARSHASEBI

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

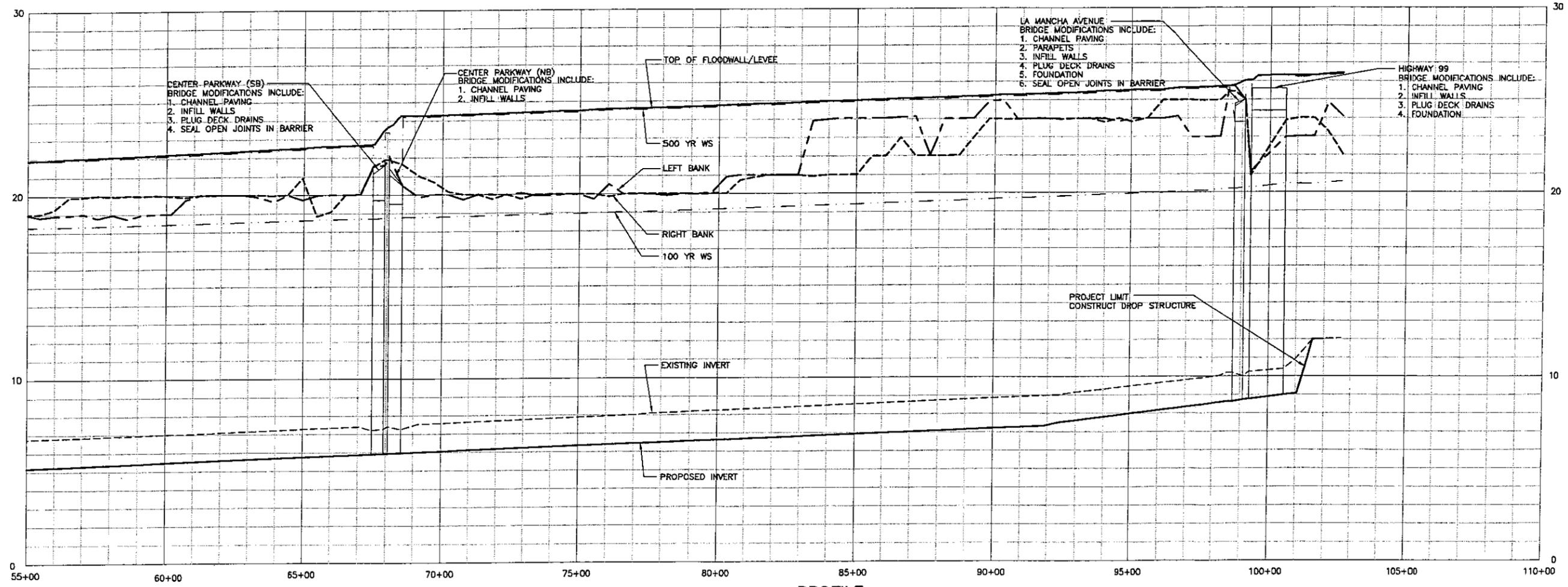
**ELDER CREEK
STA 0+00 TO 55+00**

Date	JUNE, 2004	Project No.	10355-12808-141	Drawing No.	EC1	Sheet	0
Scale	AS NOTED	File Name	12808-EC-1.DWG				

MATCHLINE AA - FOR CONTINUATION SEE DWG EC1



PLAN
1"=200'



PROFILE

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

/SAC-BDCI/PROJECTS/10355/12808/PLANS/ONLY/12808-EC-2.DWG
 06-11-04 AUPETERS 13:25:08

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

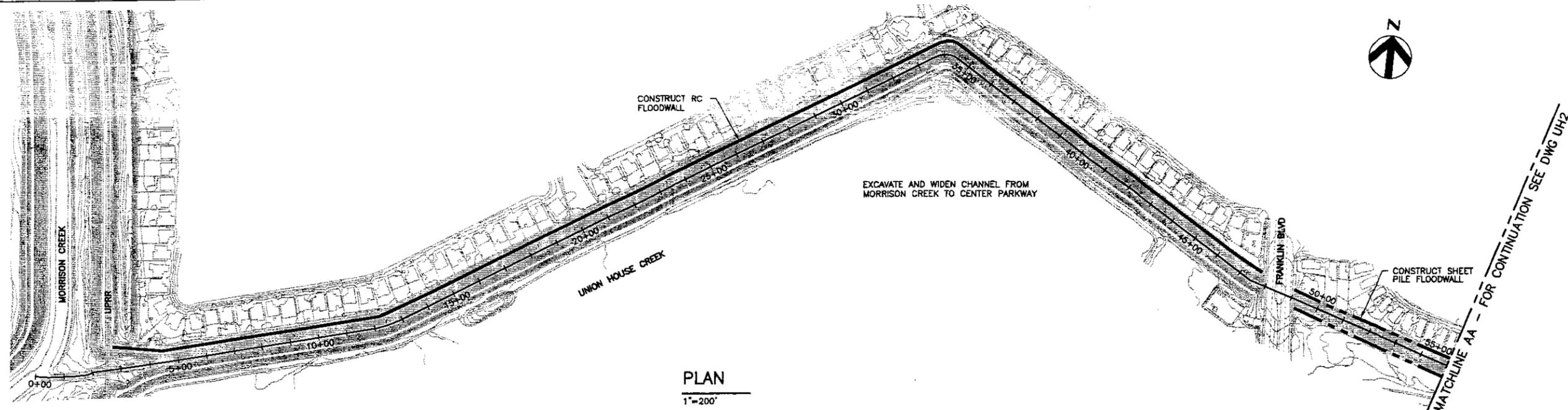
HDR Engineering, Inc.

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

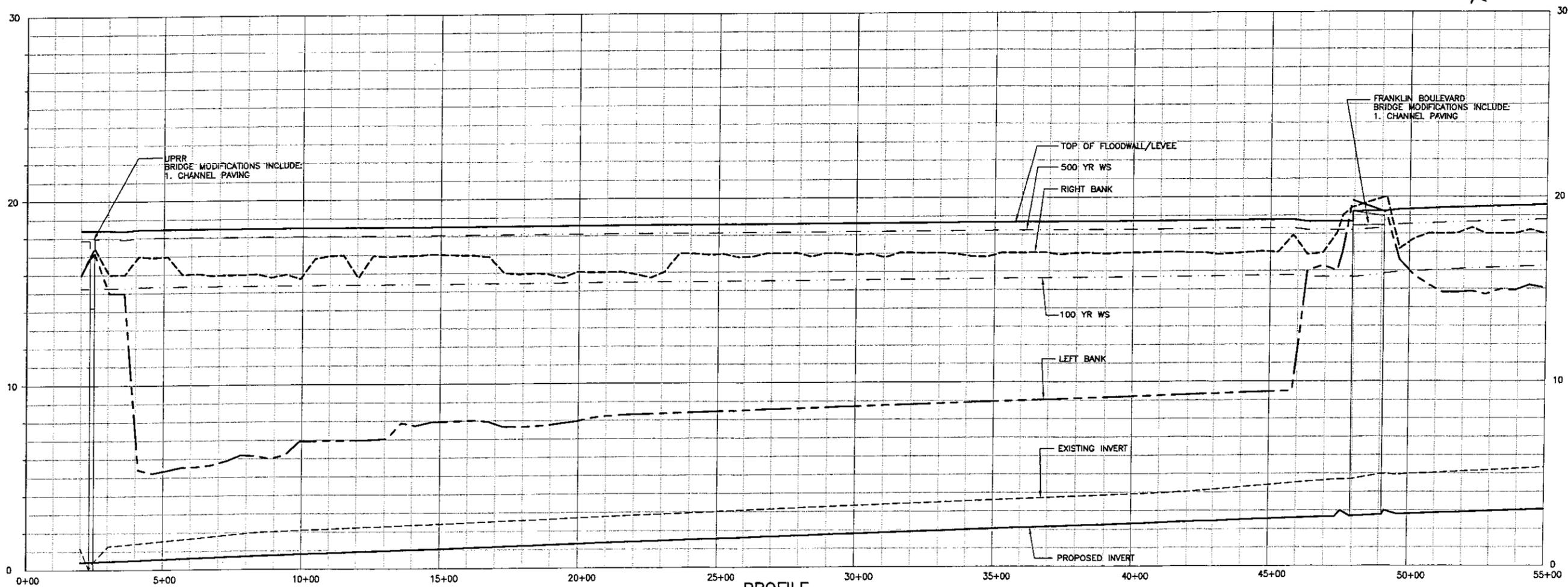
**SOUTH SACRAMENTO STREAMS
TECHNICAL MEMO
CITY OF SACRAMENTO
SACRAMENTO COUNTY, CA**

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

Date	JUNE, 2004	Project No.	10355-12808-141	Drawing No.	EC2	Issue	0
Scale	AS NOTED	File Name	12808-EC-2.DWG				



PLAN
1"=200'



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

/SAC-PROJ/PROJECTS/12808/12808-141/12808-UH-1.DWG
06-11-04 AUC/ERS 13:56:22

Issue No.	Description	Date	Drawn	Checked	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**

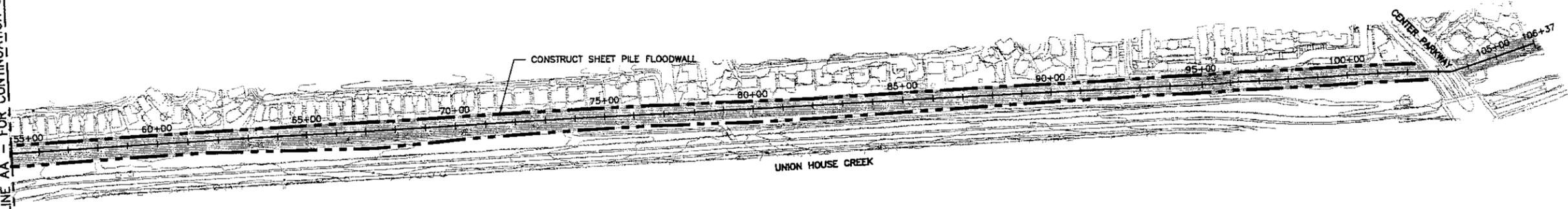
**UNION HOUSE
STA 0+00 TO 55+00**

Date JUNE, 2004	Project No. 10355-12808-141	Drawing No. UH1	Issue 0
Scale AS NOTED	File Name 12808-UH-1.DWG		

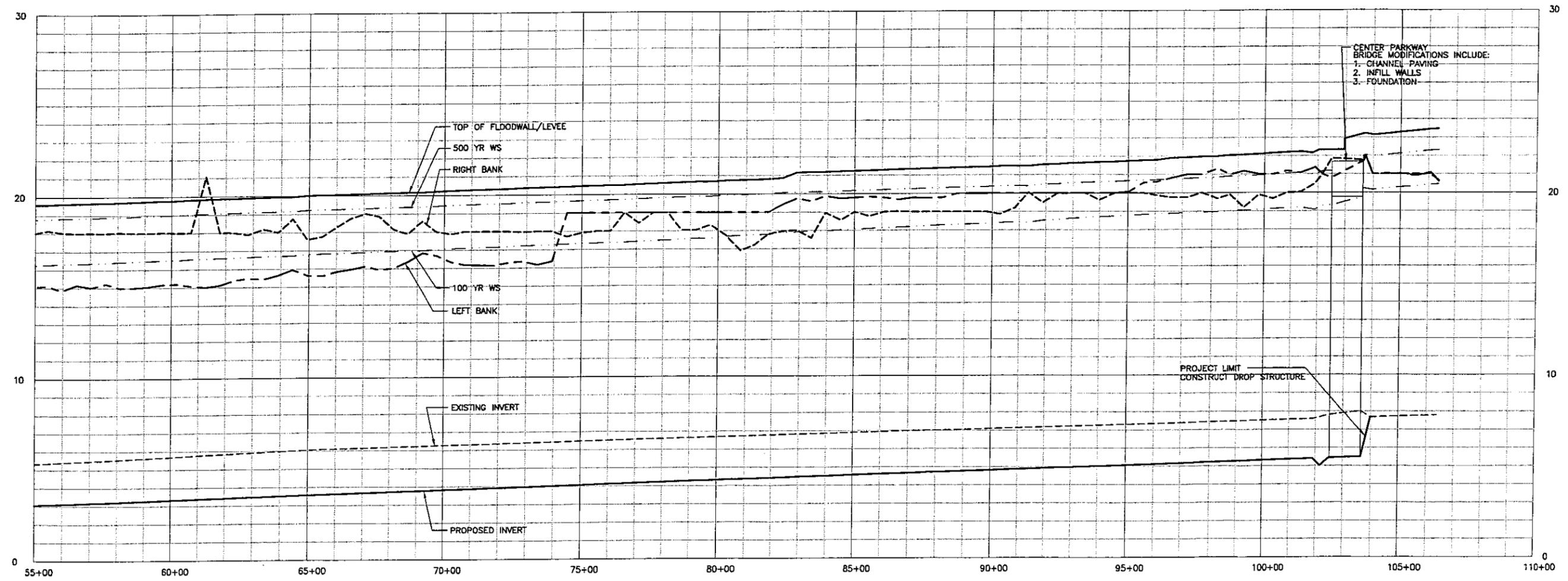


MATCHLINE AA - FOR CONTINUATION SEE DWG UH1

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/2808/PLANONLY/12808-UH-2.DWG
06-13-04 ALPETERS 13.7.19

Issue No.	Description	Date	Drawn	Cred.	Resp. Engr.	Proj. Mgr.



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**

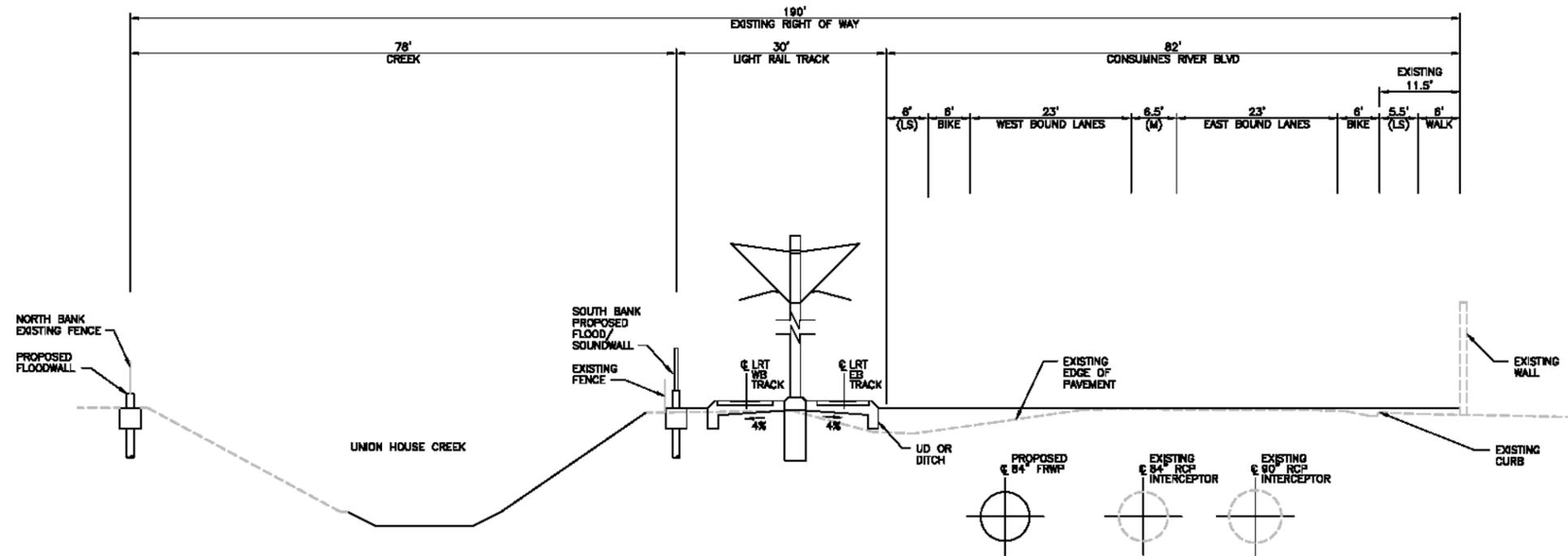
**UNION HOUSE
STA 55+00 TO 106+37**

Date	JUNE, 2004	Project No.	10355-12808-141	Drawing No.	UH2	Issue	0
Scale	AS NOTED	File Name	12808-UH-2.DWG				

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. 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

FEB 19 2004

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

Dear Colonel Conrad:

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 draft Supplemental FWCA report for the proposed modifications. This report is being coordinated with the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Game (CDFG). Their comments will be included in the final report. 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. The specific design modifications for each creek channel are summarized below.



Morrison Creek - UPRR bridge to Highway 99

In addition to placing floodwall/sheetpile walls along the channel as described in the 1998 project description, the creek channel would be lowered between 0 and 3 feet in this section of Morrison Creek. Excavation would be contained within the limits of the existing channel and all earth work would take place within the channel. Channel side slopes would be excavated to a minimum ratio of 1 vertical:2 horizontal. In areas where there is an existing concrete low-flow channel, the concrete would be removed during excavation and replaced in the newly deepened channel. A concrete low-flow channel would not be constructed if one is not currently in place. All existing vegetation on the channel slopes would be removed during construction.

There are five bridges in the reach. The existing concrete footings would be removed and reconstructed at a lower elevation. The area under the bridges is concrete.

Morrison Creek - Highway 99 to Stockton Boulevard

This reach of Morrison Creek would be excavated down 1.5 feet in the same manner as described above. In addition, a drop structure would be constructed in the channel due to grade breaks where the excavated channel merges with the existing channel. Construction of drop structures consists of shallow excavation, construction of concrete forms, and placement of reinforced concrete.

Four bridges in this reach would need to be retrofitted due to the project. As in the above description, the footings would be reconstructed at a lower elevation.

Elder Creek - Morrison Creek to Highway 99

The proposed work along Elder Creek would deepen the channel 1.5 feet. This work would be completed similar to the Morrison Creek description. Two bridges would need to be retrofitted along this reach. The work involved in these improvements is similar to work proposed on Morrison Creek.

Florin Creek - Elder Creek to Franklin Boulevard

In this section, the bottom width would be cut to 10 feet wide and excavated about 2 feet deep. The top width of the channel would be extended an additional 15 to 20 feet beyond the existing left bank. Disposal of material would occur at borrow site #2 which is discussed in the 1998 EIS/EIR. Excavation methods are the same as described under Morrison Creek.

Florin Creek - Franklin Boulevard to Persimmon Avenue

The upstream section of this reach has limited potential for bank modification because development has encroached. Therefore, the top channel width would remain unchanged. The bottom width would be excavated 0.5 foot and the width would be increased to 5 feet. Existing channel side slopes would be maintained.

Immediately upstream of this section, the creek's right-of-way increases so that the top width would be increased from 10 to 20 feet. Bottom depth would be excavated up to 1 foot. Two drop structures would be constructed in this reach and four bridge retrofits would be required. To increase the effectiveness of hydraulic flow at three crossings, additional box culverts are proposed. The new box culverts would be constructed by jacking and boring concrete box culverts under the road, or by traditional open cut construction using precast concrete box culverts.

Unionhouse Creek - Morrison Creek to Center Parkway

Channel deepening and widening occur along all of this stretch of creek. The creek would be deepened up to 2 feet and widened up to 100 feet up to Franklin Boulevard. A bench would be excavated into the left bank, about 7 feet above the channel bottom. The remaining section would be deepened up to 2 feet and widened an additional 10 to 15 feet toward the left bank. Two bridge retrofits would be necessary and one drop structure would be constructed in this section. Material excavated from Unionhouse Creek would be placed on 6.6 acres between Franklin Boulevard and Center Parkway for use by Sacramento Regional Transit as part of their light rail extension.

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.

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 effected 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.

An opportunity for habitat restoration exists in the section of Unionhouse Creek being widened up to 100 feet. This section would have a bench excavated 7 feet above the bottom of the channel. The bench provides an opportunity for vegetation planting. Further information would be needed to determine what types of vegetation to plant on this bench, including how often the bench would be inundated with water.

Recommendations

The Service recommends the Corps:

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.
4. Investigate doing some restoration activities on Unionhouse Creek downstream of Franklin Boulevard.
5. Complete the appropriate consultation with the Service, as required under section 7 of the Endangered Species Act, for potential effects on listed species.

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

Sincerely,



David L. Harlow
Acting Field Supervisor

cc:

AES, Portland, OR
CDFG, Region 2, Rancho Cordova, CA
USCOE, Sacramento, CA (Attn: Dan Artho)
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 B. 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



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.

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 packardii - 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)

Branchinecta mesovallensis - Midvalley fairy shrimp (SC)

Lindieriella occidentalis - California linderiella fairy shrimp (SC)

Fish

Lampetra ayresi - river 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)
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)

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

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 C. 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 12th Street, 3rd 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

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

SOUTH SACRAMENTO STREAMS PROJECT

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



TABLE OF CONTENTS

Section	Page
Introduction.....	1
General Conformity Rule.....	2
Applicability	2
Emissions Evaluation.....	3
Conclusions.....	4
References.....	5

TABLES

1	South Sacramento Streams Project Construction Component Schedule.....	1
2	General Conformity <i>de minimis</i> Thresholds.....	3
3	Construction Data Summary.....	3
4	Summary of "Worst Case" Annual Emissions	4

APPENDIX

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:

Table 1 South Sacramento Streams Project Construction Component Schedule	
Project Component	Scheduled Year(s) of Construction
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_x), and PM₁₀. The *de minimis* thresholds for these pollutants are identified in Table 2, below:

Pollutant	Tons/year
VOCs	25
NO _x	25
PM ₁₀	100

Based on Sacramento County's current "severe" nonattainment federal designation for ozone and "moderate" nonattainment designation for PM₁₀.
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 ¹	Number of Pieces	51	30
Soil Handled	Cubic Yards	494,020	10,000
"Worst-Case" Daily Area of Disturbance ²	Acres/Day	7.5	5
Workforce ¹	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.

¹ 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.

² 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) ^{1,2}		
	VOC	NO _x	PM ₁₀
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
Total Net Increase	1.93	12.59	66.28
Conformity Determination Threshold (each pollutant)	25	25	100

¹ Represents the estimated net increase in emissions associated with mobile, stationary, and area sources based on year 2003 construction schedule.
² 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_x, and 100 tons per year for PM₁₀). 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

AIR QUALITY GENERAL CONFORMITY DETERMINATION

EMISSION CALCULATIONS

EMISSIONS SUMMARY			
	Emissions (tons/year)		
UNCONTROLLED EMISSIONS	ROG	NOx	PM-10
Levee Construction & Improvements			
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
Subtotal:	1.85	14.80	138.40
Bufferlands Restoration			
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
Subtotal:	0.17	0.86	17.37
TOTAL (Uncontrolled):	2.03	15.66	155.77
CONTROLLED EMISSIONS			
Levee Construction & Improvements			
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
TOTAL	1.76	11.89	55.10
Bufferlands Restoration			
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
Subtotal:	0.16	0.70	11.18
Emissions Summary (Controlled)			
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
TOTAL (CONTROLLED):	1.93	12.59	66.28
General Conformity Thresholds	25	25	100
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.			
NOTE: 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	3600		
Flat Bed Truck	6	900		
Flat Bed Truck	6	360		
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

Activity	4	14	56	10	560	0.2	0.7	0.0	Pickup Truck	0.5	28
Bufferlands Restoration											
Mobilization & Demobilization											
Pickup Truck	4	14	56	10	560	0.2	0.7	0.0	Pickup Truck	0.5	28
Flatbed Truck	4	14	56	10	560	0.5	4.4	0.4	Flatbed Truck	0.5	28
Storm Water Pollution Prevention Measures											
Pickup Truck	4	10	40	10	400	0.2	0.5	0.0	Pickup Truck	0.5	20
Flatbed Truck	4	10	40	10	400	0.4	3.2	0.3	Flatbed Truck	0.5	20
Site Preparation											
Pickup Truck	4	20	80	10	800	0.4	1.0	0.0	Pickup Truck	0.5	40
Flatbed Truck	4	20	80	10	800	0.7	6.3	0.6	Flatbed Truck	0.5	40
Water Truck	4	20	80	10	800	0.7	6.3	0.6	Water Truck	0.5	40
Planting & Contractor Plant Acq.											
Pickup Truck	4	40	160	10	1600	0.7	1.9	0.1	Pickup Truck	0.5	80
Flatbed Truck	4	40	160	10	1600	1.4	12.6	1.1	Flatbed Truck	0.5	80
Contractor Plant Acq.											
Pickup Truck	4	10	40	10	400	0.2	0.5	0.0	Pickup Truck	0.5	20
Panel Truck	4	10	40	10	400	0.4	3.2	0.3	Panel Truck	0.5	20
Live Cutting Collection											
Pickup Truck	4	10	40	10	400	0.2	0.5	0.0	Pickup Truck	0.5	20
Plant Establishment											
Pickup Truck	4	36	144	10	1440	0.6	1.7	0.1	Pickup Truck	0.5	72
Flatbed Truck	4	36	144	10	1440	1.3	11.4	1.0	Flatbed Truck	0.5	72
Water Truck	4	36	144	10	1440	1.3	11.4	1.0	Water Truck	0.5	72
Irrigation System Installed											
Pickup Truck	4	30	120	10	1200	0.5	1.5	0.1	Pickup Truck	0.5	60
Flatbed Truck	4	30	120	10	1200	1.1	9.5	0.8	Flatbed Truck	0.5	60
Grass Seeding (Hydro Seeding)											
Pickup Truck	4	14	56	10	560	0.2	0.7	0.0	Pickup Truck	0.5	28
Water Truck	4	14	56	10	560	0.5	4.4	0.4	Water Truck	0.5	28
Earthwork for Water Control											
Pickup Truck	4	30	120	10	1200	0.5	1.5	0.1	Pickup Truck	0.5	60
					TOTAL UNCONTROLLED (lbs/year)	64.9	464.8	33.9			
					TOTAL UNCONTROLLED (tons/year)	0.03	0.23	0.02			

Emission factors include running exhaust, brake wear, tire wear, and evaporative emissions. Emfac7g; assumes 30 mph average speed, 75 deg. F.

Sources: SMACMD, 1994; SMACMD, 2002; CARB, 2001

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.				
Clearing & Grubbing, Development of Borrow Area	3.5	45	100000	AVG	10 acres				
Keyway Excavation & Levee Embankment	1.5	60	350000	AVG	100 days/year				
Final Well Construction	Minimal	30	Minimal						
Final Grading & Aggregate Base		15							
Fences & Gates		15							
Floodwall Construction		60							
Sheet Pile Wall		30							
Storm Protection		30							
Scrapor Trips	86400	VMT							
(Source: Artho, Daniel F. SPK, USACE, Personal Communications June-July, 2002.)									
Emission Sources									
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 EMISSIONS - Levee Construction & Improvements		
Grading:		
$E(\text{lbs/VMT})=0.051(S)^2(0.60)$		
Where:		
$S=\text{Average Speed of Grader:}$	4.00	(mph)
	0.49	lbs/VMT
Avg. Hrs/Day:	6.00	
Total VMT/Day:	24.00	
Days/Year:	195.00	
Number of Graders:	1.00	
Total PM-10/Day (Uncontrolled):	2,291.33	lbs/year
Total PM-10/Day (Controlled):	1,512.28	lbs/year
Bulldozing-Debris Pushing:		
$E(\text{kg/hr})=(0.45(s)^{1.5}(M)^{1.4})(.75)$		
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
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):	21,615.06	lbs/year
Scraping:		
$E(\text{lbs/VMT})=(6.2)(10)^{-6}(s)^{1.4}(W)^{2.5}(0.60)$		
Where:		
$W=\text{Avg. Weight:}$	25.00	(tons)
$s=\text{Silt Content of Material:}$	7.50	(percent)
	0.20	lbs/VMT
Total VMT/Day:	86,400.00	VMT/year
Total PM-10/Day (Uncontrolled):	18,865.24	lbs/year
Total PM-10/Day (Controlled):	11,131.06	lbs/year
Travel on Unpaved Haul Roads (Scrapers):		
$E(\text{lbs/VMT})=(k)(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}$		
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
Total VMT/Year:	86,400.00	
Total PM-10/Day (Uncontrolled):	168,655.36	lbs/year
Total PM-10/Day (Controlled):	55,656.27	lbs/year
Travel on Unpaved Haul Roads (Dump, Concrete, & Haul Trucks):		
$E(\text{lbs/VMT})=(k)(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}$		
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
Total VMT/Year:	14,490.00	
Total PM-10/Day (Uncontrolled):	48,990.90	lbs/year
Total PM-10/Day (Controlled):	16,167.00	lbs/year
Travel on Unpaved Haul Roads (Delivery & Pickup Trucks):		
$E(\text{lbs/VMT})=(k)(5.9)(s/12)(S/30)(W/3)^{0.7}(w/4)^{0.5}$		
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
Total VMT/Year:	5,085.00	
Total PM-10/Day (Uncontrolled):	1,980.51	lbs/year
Total PM-10/Day (Controlled):	653.57	lbs/year

Material Handling (Loading & Unloading)		
$E(\text{lb/ton of material})=(k) (0.0032) ((U/5)^{1.3}/(M/2)^{1.4})$		
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)		
Wind Erosion of Exposed Graded Surfaces (Keyway & Levee)		
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
Wind Erosion of Exposed Graded Surfaces (Borrow Sites)		
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
Wind Erosion of Active Storage Piles		
$E(\text{lbs/day/acre})=[(1.7) (G/1.5) (365+H/235) (I-15)] (J)$		
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)		
TOTAL UNCONTROLLED (Tons/Year):	137.6	
TOTAL CONTROLLED (Tons/Year):	54.7	
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).		

FUGITIVE EMISSIONS - Bufferlands Restoration		
Bulldozing-Debris Pushing:		
$E \text{ (kg/hr)} = (0.45)(s)^{1.5} / (M)^{1.4} (.75)$		
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
Travel on Unpaved Haul Roads (Water & Flatbed Trucks):		
$E \text{ (lbs/VMT)} = (k) (5.9) (s/12) (S/30) (W/3)^{0.7} (w/4)^{0.5}$		
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
Travel on Unpaved Haul Roads (Delivery & Pickup Trucks):		
$E \text{ (lbs/VMT)} = (k) (5.9) (s/12) (S/30) (W/3)^{0.7} (w/4)^{0.5}$		
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
Material Handling (Loading & Unloading)		
$E \text{ (lb/ton of material)} = (k) (0.0032) ((U/5)^{1.3} / (M/2)^{1.4})$		
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)		
Wind Erosion of Exposed Graded Surfaces (Nicolaus Pond)		
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):	61.84	lbs/year
Wind Erosion of Active Storage Piles		
$E \text{ (lbs/day/acre)} = (1.7) [(G/1.5) / (365-H/235) / (I-15)] (J)$		
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)		
TOTAL UNCONTROLLED (Tons/Year):	17.3	
TOTAL CONTROLLED (Tons/Year):	11.2	
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

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_x 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_x 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)

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 D. Correspondence With The State Historic Preservation Officer



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, or Mr. Richard Perry, Archeologist, at (916) 557-5218 or email: 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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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.

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

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

**OFFICE OF HISTORIC PRESERVATION
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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.

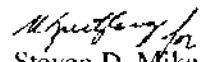
Ms. Montag's email provides the following additional details on the project that improve my understanding:

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.

Sincerely,


Steven D. Mikesell
Acting State Historic Preservation Officer