Wolfsen Road Rehabilitation

On State Route 165 from Henry Miller Road to State Route 140

10-MER-165 PM 11.7-26.9
10-279800
SCH No. 2007011106

Initial Study
with Mitigated Negative Declaration

Prepared by the
State of California Department of Transportation

March 2007

Caltrans

General Information About This Document

What's in this document?

This document contains a Mitigated Negative Declaration, which examines the environmental effects of a proposed project on State Route 165 in Merced County.

The Initial Study and proposed Mitigated Negative Declaration was circulated to the public from January 25, 2007 to February 23, 2007. Responses to the circulated document are shown in the Comments and Responses section of this document. Throughout this document, a line in the margin indicates changes from the draft document.

What happens after this?

The proposed project has completed environmental compliance after the circulation of this document. When funding is approved, the California Department of Transportation can design and construct all or part of the project.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Lance Brangham, San Joaquin Valley Analysis Branch, 2015 E. Shields Avenue, Fresno, CA 93726; 559-243-8161 Voice, or use the California Relay Service TTY number, 1-800-735-2929.

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) and the Federal Highway Administration propose to rehabilitate the roadway on State Route 165 from Henry Miller Road to State Route 140 in Merced County, California. Work would include replacing the San Joaquin River Bridge, widening two other bridges, and realigning two roads that intersect with State Route 165.

Determination

Caltrans has prepared an Initial Study for this project and, following public review, has determined from this study that the project would not have a significant effect on the environment for the following reasons:

- The proposed project would have no effect on land use or growth, farmland, residences or businesses, local or regional air quality, water quality, floodplains, noise receptors, traffic levels, hazardous wastes, visual resources, emergency services, or pedestrian facilities.
- The proposed project would have no effect on archaeological, historical, or paleontological sites of record.
- The proposed project would have no effect on endangered species or special-status species and their habitat

In addition, the proposed project would have no significantly adverse effect on wetlands or Waters of the U.S. because the following mitigation measures would reduce potential effects to insignificance:

- To mitigate for temporary impacts, wetlands would be graded and revegetated to reflect their pre-existing state. All permanent impacts would be mitigated for by purchasing credits at a conservation bank approved by the U.S. Army Corps of Engineers during the Section 404 permit process.

3-5-07

Christine Cox-Kovacevich
Office Chief
Central Region - North
California Department of Transportation

Date

Section 1 Project Information

Project Title

Wolfsen Road Rehabilitation

Lead Agency Name and Address

California Department of Transportation (Caltrans)
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

Contact Person and Phone Number

Lance Brangham, Branch Chief, San Joaquin Valley Analysis Branch
559-243-8161

Project Location

The proposed project is located within Merced County on State Route 165 from Henry Miller Road to State Route 140 (see Figures 1 and 2).

Project Sponsor's Name and Address

Same as lead agency

General Plan Description

Agricultural and Open Land Use (State Wildlife Areas, Federal Wildlife Refuges, and privately held wetlands)

Zoning

Agricultural and Open Land Use

Description of Project

The California Department of Transportation (Caltrans) and the Federal Highway Administration propose to rehabilitate the roadway of State Route 165 in Merced County. The proposed project begins at Henry Miller Road and ends at State Route 140. The total length of the project is 15.2 miles (see Figures 1 and 2). The proposed project would overlay the roadway with new asphalt concrete, replace the San Joaquin River Bridge, widen the San Joaquin River Overflow and Salt Slough bridges, and realign Santa Fe Grade Road and Wolfsen Road where they intersect State Route 165. Work would be limited to the right-of-way except where Santa Fe Grade Road and Wolfsen Road would be realigned.

Surrounding Land Uses and Setting

The proposed project area consists of agricultural land, duck club land, and public land. Public lands include both state wildlife areas and federal wildlife refuges that are adjacent to both sides of State Route 165. The agricultural land is located primarily at the south and north ends of the proposed project areas. There are also several duck clubs west of State Route 165.

Other Public Agencies Whose Approval is Required

California Department of Fish and Game is a California Environmental Quality Act responsible agency and is responsible for a Section 1602 Permit. The Army Corps of Engineers is responsible for issuance of a Section 404 Nationwide Permit. The Central Valley Regional Water Quality Control Board is responsible for issuance of a 401 Permit as well as a National Pollution Discharge Elimination System Permit. The Air Resources Board is responsible for issuance of an Asbestos Removal and Disposal Permit. The National Oceanic and Atmospheric Administration consultation is required for Essential Fish Habitat recommendations.

The project has been found to be an encroachment on the State Adopted Plan of Flood Control in the vicinity of the San Joaquin River and San Joaquin River Overflow bridges. An encroachment permit from the Reclamation Board will be obtained during the final design phase for the project.

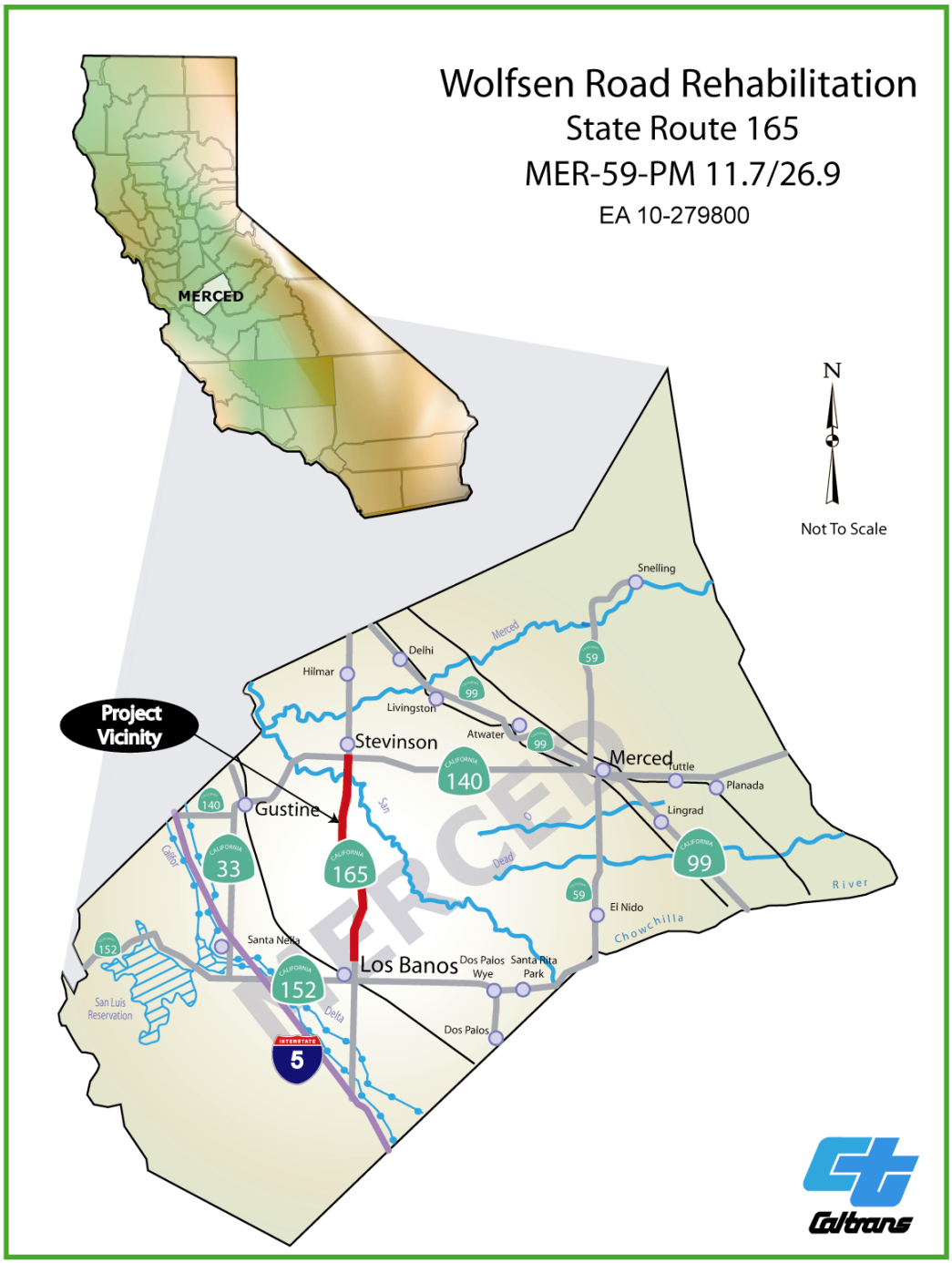


Figure 1 Project Vicinity Map

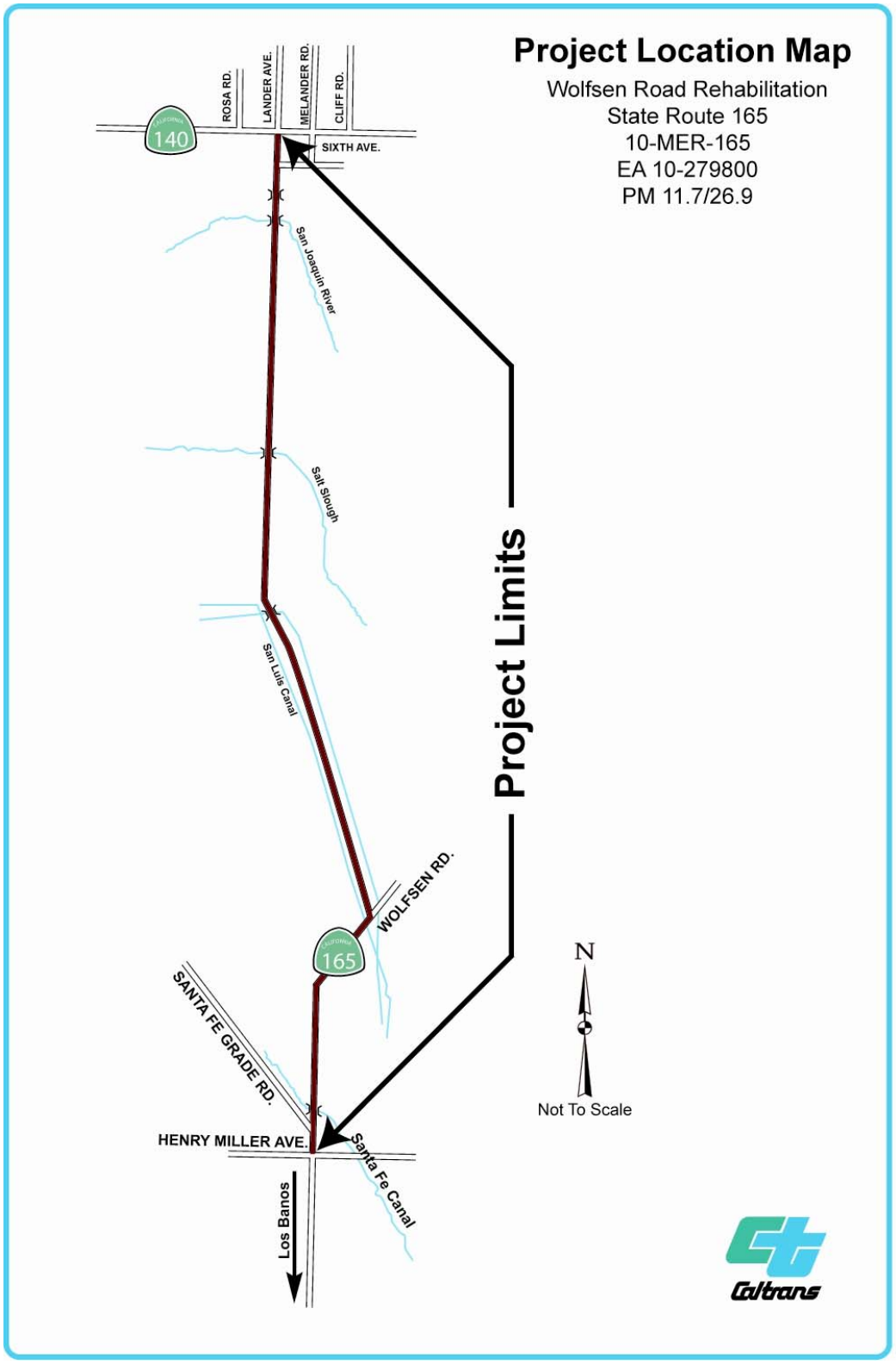


Figure 2 Project Location Map

Section 2 Environmental Factors Potentially Affected

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

- [ ] Aesthetics
- [ ] Agricultural Resources
- [ ] Air Quality
- [x] Biological Resources
- [ ] Cultural Resources
- [ ] Geology/Soils
- [ ] Hazards and Hazardous Materials
- [ ] Hydrology/Water Quality
- [ ] Land Use/Planning
- [ ] Mineral Resources
- [ ] Noise
- [ ] Population/Housing
- [ ] Public Services
- [ ] Recreation
- [ ] Transportation/Traffic
- [ ] Utilities/Service Systems
- [ ] Mandatory Findings of Significance

Section 3 Determination

On the basis of this determination:

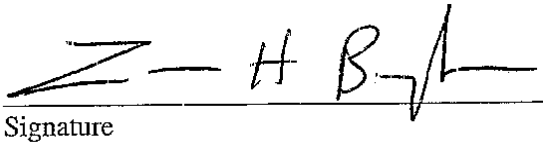
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

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

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



Signature

1/19/07

Date

Lance Brangham
Branch Chief
San Joaquin Valley Analysis Branch
Central Region Environmental Planning
California Department of Transportation

Section 4 Impacts Checklist

The impacts checklist starting on the next page identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

A brief explanation of each California Environmental Quality Act checklist determination follows each checklist item. Lengthy explanations, if needed, are provided after the checklist.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
I. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	X
Explanation: There are no scenic vistas affected by the project (Scenic Resource Evaluation, June 13, 2006).				
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	X
Explanation: There are no scenic resources affected by the project (Scenic Resource Evaluation, June 13, 2006).				
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	X	☐
Explanation: There is a potential for the removal of a few riparian trees that would result in minimal visual impact due to the fact that the remaining riparian trees would provide a similar visual character in the area. Disturbed soil areas would receive erosion control and storm runoff measures (Scenic Resource Evaluation, June 13, 2006).				
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	X
Explanation: The project would not substantially change the existing lighting conditions (Scenic Resource Evaluation, June 13, 2006).				
II. AGRICULTURE RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	X	☐
Explanation: The project requires approximately 2.20 acres of farmland. Impacts are considered less than significant per the use of the Farmland Conversion Impact Rating System, Form AD-1006 (Farmland Conversion Impact Rating, February 2001).				
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	X

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

Explanation: No affected parcels are under Williamson Act contract (Merced County Assessor Office, 2005).

c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	X	☐

Explanation: Land use is not expected to change. Acquisition would be limited to one edge of the parcels (2.09 acres) that border Santa Fe Grade Road (Design Staff, July 2006).

III. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	X

Explanation: According to 40 Code of Regulations, Section 93.126, the project is exempt from regional emissions analysis requirements. Current ozone and particulate matter pollutants are in compliance with state and federal regulations, the Regional Transportation Plan, the Transportation Improvement Program, and the appropriate State Implementation Plan (Air Quality Assessment Report, May 25, 2006).

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	X

Explanation: Please refer to III(a).

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	X

Explanation: Please refer to III(a).

d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	X	☐

Explanation: The project is in a rural area and would not cause substantial pollutants. Caltrans Standard Specifications pertaining to dust control and dust palliative requirement should effectively reduce and control emissions impacts to sensitive receptors during construction (Air Quality Assessment Report, May 25, 2006).

e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	X

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

Explanation: The project is a roadway rehabilitation project located in a rural area with very few residences living along State Route 165. The project does not propose any activity that would introduce new objectionable odors.

IV. BIOLOGICAL RESOURCES — Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	X	☐	☐

Explanation: The project would not have a substantial adverse effect on any species identified as a candidate, sensitive, or special-status (Natural Environment Study, May 5, 2006). Please see Additional Explanations for further information.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	X	☐

Explanation: The project would not have a substantial adverse effect on riparian habitat (Natural Environment Study, May 5, 2006). Please see Additional Explanations for further information.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	X	☐	☐

Explanation: The project would impact wetlands and Waters of the U.S. at a less than significant level (Natural Environment Study, May 5, 2006). Please see Additional Explanations for further information.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	X	☐

Explanation: The project area has been designated as Essential Fish Habitat. With the use of special provisions, the project would not impact Essential Fish Habitat (Natural Environment Study, May 5, 2006). Please see Additional Explanations for further information.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	X

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

Explanation: The project would not conflict with local policies or ordinances (Merced County 2000 General Plan).

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	X

Explanation: The project would not conflict with the provisions of any Habitat Conservation Plans. There are no Habitat Conservation Plans for western Merced County (Natural Environment Study, May 5, 2006).

V. CULTURAL RESOURCES — Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	X

Explanation: The project would not cause adverse changes to historical resources (Historic Property Survey Report, June 2, 2006).

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	X	☐	☐

Explanation: The project would not cause adverse changes to archaeological resources (State Historic Preservation Officer (SHPO) Concurrence Letter, August 21, 2006).

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	X

Explanation: The project would not cause direct or indirect destruction of paleontological resources (Initial Paleontology Study of Wolfsen Road Rehab, May 25, 2006).

d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	X	☐	☐

Explanation: There are three archaeological sites that have been identified outside the project area. Although the project is limited to working within the right-of-way, special provisions would be included in the specifications provided to the contractor in order to avoid possible disturbance to human remains. Prior to construction, five environmentally sensitive areas would be delineated and the construction contractor would be informed of these locations during a pre-construction meeting. Archaeologists and Native American monitors would be present during construction to make certain environmentally sensitive areas are not breached (Historic Property Survey Report, June 2, 2006).

VI. GEOLOGY AND SOILS — Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X

Explanation: The project would rehabilitate an existing highway. It does not include adding any new features to the current highway that would increase seismic risk (Project Scope Summary Report, February 2007).

ii) Strong seismic ground shaking?				X

Explanation: Please see VI(a)(i).

iii) Seismic-related ground failure, including liquefaction?				X

Explanation: Please see VI(a)(i).

iv) Landslides?				X

Explanation: Please see to VI(a)(i).

b) Result in substantial soil erosion or the loss of topsoil?			X	

Explanation: The project is expected to disturb more than one acre of soil. The incorporation of proper engineering practices, Best Management Practices, standard erosion control, and storm water runoff control measures would result in less than significant impacts (Water Quality Assessment Report, November 14, 2006).

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?		X		

Explanation: At the San Joaquin River Bridge and the San Joaquin River Overflow, the foundation would be made deeper in order to prevent liquefaction (Headquarters Geotechnical Design, January 2007).

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.				X

Explanation: The project is not located on expansive soil (Headquarters Geotechnical Design, January 2007).

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

Explanation: This question is not applicable for a roadway rehabilitation project.

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

VII. HAZARDS AND HAZARDOUS MATERIALS —
Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ☐ ☐ X ☐

Explanation: The use of a health and safety plan (California Code of Regulations, Title 8, Section 1532.1, *Lead in Construction*) would address the contaminants of concern (asbestos and lead), routes of exposure, monitoring techniques, and other regulatory criteria. The project would not create a significant hazard to the public through disposal of hazardous material (Asbestos and Lead-Based Paint Survey Report, December 8, 2000).

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ☐ ☐ ☐ X

Explanation: The project is a rehabilitation project and would reduce the potential for accidents and a spill or release of hazardous materials. Please see VII(a).

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ☐ ☐ ☐ X

Explanation: There are no schools located within one-quarter mile of the project area (Field Visit, July 2006).

d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? ☐ ☐ ☐ X

Explanation: The project is not located on a listed hazardous materials site (Initial Site Assessment for Hazardous Waste, August 7, 2000).

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ X

Explanation: The project is not located within an airport land use plan or within two miles of an airport (Field Visit, July 2006).

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ X

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

Explanation: The project is not located within the vicinity of a private airstrip (Field Visit, July 2006).

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	X	☐

Explanation: During construction, Caltrans special provisions Traffic Management Plan would be implemented to handle traffic management and emergency services. One travel lane would remain open, including at the bridge, in order to avoid extensive detouring of traffic (Project Scope Summary Report, February 2007).

h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	X

Explanation: The project would not expose nearby residences to wildland fires (Field Visit, July 2006).

VIII. HYDROLOGY AND WATER QUALITY —
Would the project:

a) Violate any water quality standards or waste discharge requirements?	☐	☐	X	☐

Explanation: The project would involve construction work within rivers and has the potential of having short-term but less than significant surface water quality impacts. Long-term impacts, including a change in erosion patterns and surface water velocity are anticipated. However, minimization measures like installing a retard fence designed to slow the water velocity would reduce the impacts to less than significant. No groundwater impacts are expected from the project. By incorporating proper and accepted engineering practices and Best Management Practices, the project would not violate any water quality standards or waste discharge requirements (Water Quality Assessment Report, November 14, 2006). The implementation of Best Management Practices through a Water Pollution Control Program or a Storm Water Prevention Plan would effectively prevent surface water runoff impacts in order to comply with the Regional Water Quality Control Board's regulations.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	X

Explanation: The project would not deplete groundwater supplies or interfere with groundwater recharge (Water Quality Assessment Report, November 14, 2006).

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or offsite?	☐	☐	☐	X

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

Explanation: The project would not alter the existing drainage pattern or cause erosion or siltation (Location Hydraulic Study/Floodplain Evaluation Report Summary, March 3, 2005).

d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite?	☐	☐	☐	X

Explanation: Please see VIII(c).

e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	X

Explanation: Please see VIII(c).

f) Otherwise substantially degrade water quality?	☐	☐	X	☐

Explanation: Please see VIII(a).

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	X

Explanation: The project would not place housing within a flood zone (Location Hydraulic Study/Floodplain Evaluation Report Summary, March 3, 2005).

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	X	☐

Explanation: The replacement bridge at the San Joaquin River would be built within the same design perimeter as the existing bridge and the floodway openings would not be reduced, thus the project would not significantly impact the floodplain (Location Hydraulic Study/Floodplain Evaluation Report Summary March 3, 2005).

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	X

Explanation: Please see VIII(c) and (h).

j) Result in inundation by a seiche, tsunami, or mudflow?	☐	☐	☐	X

Explanation: The project would not result in an inundation by a seiche, tsunami, or mudflow.

IX. LAND USE AND PLANNING — Would the project:

a) Physically divide an established community?	☐	☐	☐	X

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

Explanation: The area surrounding the project consists of agricultural and duck club land as well as state wildlife areas and federal wildlife refuges (Field Visit, July 2006).

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	X

Explanation: The project is consistent with the 2006 State Highway Operations and Protection Program as well as the 2006 State Highway Operations and Protection Program list for Merced County as a roadway preservation project.

c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	X

Explanation: The project would not conflict with any habitat conservation plans (Natural Environment Study, May 5, 2006). There are no habitat conservation plans for western Merced County.

X. MINERAL RESOURCES — Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	X

Explanation: This question is not applicable for a roadway rehabilitation project.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	X

Explanation: Please see X(a).

XI. NOISE — Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	X

Explanation: The project would not result in additional traffic. Noise impacts would not occur as a result of the rehabilitation work (Noise Study Report, May 25, 2006).

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	X

Explanation: Please see XI(a).

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
levels in the project vicinity above levels existing without the project?	☐	☐	☐	X

Explanation: Please see XI(a).

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	X	☐

Explanation: Short-term noise impacts that may occur during construction would conform to Caltrans Standard Specifications Section 7-1.01I (Noise Study Report, May 25, 2006).

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	X

Explanation: The project is not located within an airport land use plan or within two miles of an airport (Field Visit, July 2006).

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	X

Explanation: Please see XI(e).

XII. POPULATION AND HOUSING — Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	X

Explanation: This question is not applicable for a roadway rehabilitation project.

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X

Explanation: Please see XII(a).

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X

Explanation: Please see XII(a).

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

XIII. PUBLIC SERVICES —

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	X
Police protection?	☐	☐	☐	X
Schools?	☐	☐	☐	X
Parks?	☐	☐	☐	X
Other public facilities?	☐	☐	☐	X

Explanation: The project would not impact fire or police protection, schools, parks, or other public facilities. Caltrans special provisions would provide for emergency service access (Project Scope Summary Report, February 2007).

XIV. RECREATION —

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	X

Explanation: The project is a rehabilitation project with the majority of work contained to the right-of-way. The project would not increase the use of regional wildlife areas (Project Scope Summary Report, February 2007).

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	X

Explanation: The project would not include recreational facilities (Project Scope Summary Report, February 2007).

XV. TRANSPORTATION/TRAFFIC — Would the project:

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	X

Explanation: The project is a rehabilitation project and is not capacity increasing (Project Scope Summary Report, February 2007).

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	X

Explanation: Please see XV(a).

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	X

Explanation: There are no airports within the project vicinity (Field Visit, July 2006).

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	X

Explanation: The project would correct roadway deficiencies and address safety issues (Project Scope Summary Report, February 2007).

e) Result in inadequate emergency access?	☐	☐	☐	X

Explanation: The project would not change emergency access. Caltrans special provisions would provide for emergency services access during construction (Project Scope Summary Report, February 2007).

f) Result in inadequate parking capacity?	☐	☐	☐	X

Explanation: No parking is required (Project Scope Summary Report, February 2007).

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	X

Explanation: The project is consistent with all general planning for the area (Merced County Association of Governments, 2002 Regional Bicycle Plan).

XVI. UTILITY AND SERVICE SYSTEMS — Would the project:

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	X

Explanation: This question is not applicable for a roadway rehabilitation project.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	X

Explanation: Please see XVI(a).

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	X

Explanation: Please see XVI(a).

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	X

Explanation: Please see XVI(a).

e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	X

Explanation: Please see XVI(a).

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	X

Explanation: Please see XVI(a).

g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	X

Explanation: Please see XVI(a).

XVII. MANDATORY FINDINGS OF SIGNIFICANCE —

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		

Explanation: The rehabilitation project would be contained within Caltrans' right-of-way except for a small amount of farmland. Effects to wetlands include temporary impacts to 0.292 acre and permanent impacts to 0.101 acre. Permanent impacts to Waters of the U.S. are approximately 268.4 square feet or 0.006 acre. Impacts are unavoidable due to the placement of bridge piles at the San Joaquin River, San Joaquin River Overflow, and Salt Slough for bridge replacement and widening. For all temporary impacts to wetlands, they would be graded and revegetated to reflect their pre-existing state. All permanent impacts would be mitigated for by purchasing credits at a U.S. Army Corps of Engineers approved conservation bank through the Section 404 permit process (Natural Environment Study, May 5, 2006). The project would not degrade the quality of any remaining biological or historical resources.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	

Explanation: The project would rehabilitate an existing roadway in a rural area. The amount of farmland the project would acquire is minor (2.20 acres) and would not contribute to farmland conversion cumulative impacts (Farmland Conversion Impact Rating, February 2001). Any ongoing or foreseeable work within the project area is neither dependent nor part of the proposed project. There would be no cumulative impacts from this project to other sensitive environmental resources (Natural Environment Study, May 5, 2006; Water Quality Assessment Report, November 14, 2006).

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?				X

Explanation: On the basis of this evaluation, the project would not have substantial or adverse effects to human beings.

Additional Explanations

Biological Environment

The California Department of Transportation (Caltrans) and the Federal Highway Administration propose to rehabilitate the roadway of State Route 165 in Merced County. The proposed project begins at Henry Miller Road and ends at State Route 140. The total length of the project is 15.2 miles (see Figures 1 and 2). The proposed project would overlay the roadway with new asphalt concrete, replace the San Joaquin River Bridge, widen the San Joaquin River Overflow and Salt Slough bridges, and realign Santa Fe Grade Road and Wolfsen Road where they intersect State Route 165.

The proposed project area consists of agricultural land, duck club land, and public land (see Figure 3). Public lands include both state wildlife areas and federal wildlife refuges that are adjacent to both sides of State Route 165. Portions of privately held land adjacent to State Route 165 and throughout the area are part of the San Luis Wildlife Refuge Complex. Land use on private lands includes private duck clubs and agriculture. Duck club-held lands adjacent to State Route 165 include approximately 2,088 acres of land. The agricultural land is located primarily at the south and north ends of the proposed project area. The terrain is relatively flat.

Rehabilitation work would be done within the Caltrans' right-of-way, except for the realignment of Santa Fe Grade Road and Wolfsen Road where the roadways intersect with State Route 165. The Santa Fe Grade Road realignment would require approximately 2.09 acres of farmland along the south side of Santa Fe Grade Road from two parcels. This land is currently used primarily for grazing. Realignment of Wolfsen Road would require approximately 4,790 square feet or 0.11 acre of state wildlife land. No use of or impacts to any state wildlife areas, federal wildlife refuges, or private lands that are a part of the San Luis Wildlife Refuge Complex are anticipated.

Natural Communities

Affected Environment

The biological setting at the project site consists of three upland vegetation habitat types and four wetland habitat types (Non-native Grassland, Valley Sacaton Grassland, disturbed, Alkali Playa, Great Valley Mixed Riparian Forest, Freshwater Marsh, and Alkali Marsh). The Wolfsen Road Rehabilitation project impacts would

be primarily to habitat depicted as disturbed. Disturbed areas are characterized by bermuda grass, ripgut brome, wild oats, spikeweed, and Johnson grass. The habitats in the project area are as follows:

- **Non-native Grassland:** found at the Great Valley Grasslands State Park, and merges with the disturbed areas within the Caltrans' right-of-way at the project site.

- **Valley Sacaton Grassland:** is characteristic of the Great Valley Grasslands State Park, and merges with the disturbed areas within the Caltrans' right-of-way at the project site.

- **Disturbed:** is found immediately adjacent to State Route 165 throughout most of the project length.

- **Alkali Playa:** found on the wildlife refuges adjacent to the project site, and in some places merges with the disturbed areas within the Caltrans' right-of-way at the project site.

- **Great Valley Mixed Riparian Forest:** a degraded remnant of a pre-Friant Dam larger riparian forest is present along the San Joaquin River at the project site. This habitat merges with the disturbed areas of the Caltrans' right-of-way at the project site.

- **Freshwater Marsh:** is present in areas of long-term inundation with little or no water current. At the project site this habitat type was found along areas of the salt water sloughs and canals.

- **Alkali Marsh**: some of the roadside ditches along the project site exhibit this habitat type.

- Valley Sacaton Grassland, Alkali Playa, and Great Valley Riparian Forest habitats are on the *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (DFG, 2005). These three habitat types are present intermittently along the project site. They merge with non-native grasslands and disturbed vegetative associations throughout the Caltrans' right-of-way.

Impacts

The project would not have an adverse effect on natural communities as a whole. The placement of shoulder backing would occur immediately adjacent to those areas that are characterized as disturbed. These disturbed areas may include vegetation merging in slightly from the Valley Sacaton Grassland, Alkali Playa, and Great Valley Riparian Forest habitats. Individual plant species typically found in these three sensitive habitats may be affected by the shoulder backing if found within the disturbed area. However, the habitats as a whole would not be affected.

Construction-related activities at the San Joaquin River, the San Joaquin River Overflow, and Salt Sough may affect a very small area of Great Valley Riparian Forest by possibly removing some trees to accommodate the bridge widening.

Avoidance, Minimization, and/or Mitigation Measures

In coordination with the Department of Fish and Game Section 1602 permit and the Army Corps of Engineers Section 404 permit, a revegetation program would be in place that would include trees and shrubs that are consistent with the riparian forest habitat, and would be replaced in-kind.

Wetlands and Other Waters of the United States

Affected Environment

Wetlands and Waters of the U.S. are distributed along the proposed project area with the most common being roadside ditches. Wetlands are those areas that meet the soil, hydrologic, and vegetation criteria as outlined by the U.S. Army Corps of Engineers *Field Guide for Wetland Delineation* (Wetland Training Institute, 1999). They are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

Alkali playa (found mixed with disturbed areas in the right-of-way) and alkali marsh (found in the roadside ditches) occur in the project area, as well as riparian forest (riparian refers to habitats such as those found on stream banks). A total of 98 wetlands and nine Waters of the U.S. were identified along the project site. Most of the wetlands are highly disturbed roadside drainage ditches.

In addition, the U.S. Army Corps of Engineers has defined non-wetland Waters of the U.S. as all waters, lakes, rivers, streams, mudflats, natural ponds, etc., used for

interstate or foreign commerce. Non-wetland Waters of the U.S. that were identified at the project site are the San Joaquin River, the San Joaquin River Overflow, and the Salt Slough.

Function and value of the types of wetlands found in the project vicinity were evaluated. Wetland functions are related to the physical, chemical, and biological characteristics of the wetland.

Impacts

The proposed project would impact wetlands and Waters of the U.S. at a less than significant level with mitigation (see Figure 4 for locations of wetlands and Waters of U.S. in the project area and see Figures 5, 6, and 7 for enlarged maps of these areas). These impacts are unavoidable due to the placement of bridge piles at the San Joaquin River, San Joaquin Overflow, and Salt Slough bridges for bridge widening and replacement. The Salt Slough and San Joaquin Overflow bridges would be widened while the San Joaquin River Bridge would be replaced due to structural deficiencies in the existing bridge piles. Wolfsen Road, which crosses over canals in the project area, would be realigned to current design standards. Impacts to wetlands include temporary impacts to 0.292 acre and permanent impacts to 0.101 acre, as shown on Table 1. Permanent impacts to Waters of the U.S. are approximately 268.4 square feet or 0.006 acre, as shown on Table 2.

Table 1 Wetland Impacts

Approximate wetland location	Permanent impacts (acres)	Temporary impacts (acres)
San Joaquin River	0.021	0.056
San Joaquin River Overflow	0.011	0.107
Salt Slough	0.002	0.015
Wolfsen Road	0.067	0.114
Totals:	0.101	0.292

Source: Wolfsen Road Rehabilitation Natural Environment Study, 2006

Table 2 Non-Wetland Waters of the U.S. Impacts

Non-Wetland Waters of the U.S. location	Permanent impacts (square feet)
San Joaquin River*	219.6
San Joaquin River Overflow*	12.2
Salt Slough*	36.6
Totals:	268.4

Source: Wolfsen Road Rehabilitation Natural Environment Study, 2006
*Numbers are based on preliminary bridge design

Avoidance, Minimization, and/or Mitigation Measures

Temporary impacts to wetlands would be minimized by revegetation and grading to reflect their pre-existing state. All permanent impacts would be mitigated for by purchasing credits at a conservation bank approved by the U.S. Army Corps of Engineers during the Section 404 permit process.

Plant Species

Affected Environment

Much of the right-of-way surrounding the project site has been identified as a disturbed biological community. Disturbed areas are characterized by bermuda grass, ripgut brome, wild oats, spikeweed, and Johnson grass. The rehabilitation work would be done within the right-of-way except for the realignment of Santa Fe Grade Road and Wolfsen Road. The area that would be used to realign Santa Fe Grade Road is agricultural land primarily used for grazing. The area that would be used to realign Wolfsen Road is primarily canal banks and the existing road. Within the project location, most of the plant communities present exhibit varying degrees of disturbance. Most of this disturbance was caused by routine maintenance activities that included disking, blading, and scraping of ditches.

Heartscale (*Atriplex cordulata*), an annual plant found in scrub habitats in low-lying valleys and grasslands with alkaline soils, was observed in the Caltrans' right-of-way during surveys. This plant is listed as a Federal Species of Concern and as a California Native Plant Society 1B listing, meaning that the plant is rare, threatened, or endangered in California or elsewhere. Approximately 400 heartscale plants were observed in May 2000 within the right-of-way near post mile 20.0 adjacent to the project site.

Impacts

The high level of disturbance in the project area resulted in a reduction of the abundance and diversity of native plant species and instead has encouraged the growth of weedy and non-desirable species. Construction-related activities in the vicinity of the heartscale population would be confined to the existing pavement and shoulder backing. With the use of avoidance measures, the project would not affect heartscale.

Avoidance, Minimization, and/or Mitigation Measures

In order to avoid impacting heartscale, an environmentally sensitive area would be designated for the area where heartscale was identified. Fencing would be placed

approximately 50 feet from the edge of the population to prevent impacts to the plants and to provide a buffer area. A qualified biologist would locate and flag the area during the blooming season just prior to construction to assure accuracy in fence placement.

Animal Species

Affected Environment

The general region surrounding the project area consists of land that is managed to protect natural resources and land used for agricultural purposes. Adjacent to the project site are state wildlife areas, federal wildlife refuges, and private wetlands. The area is considered part of the Pacific Flyway, a migratory "highway" for birds that stretches from Alaska to South America.

Impacts

Portions of the project area are located adjacent to state wildlife areas, federal wildlife refuges, and private wetlands where special-status migratory birds may be found. Also, the undersides of the bridges in the project area provide nesting habitat for swallows.

Avoidance, Minimization, and/or Mitigation Measures

There are several occurrences of special-status migratory birds on the San Luis National Wildlife Refuge Complex located adjacent to the project site. During the nesting season, migratory birds, their nests, and their eggs are provided protection through the Migratory Bird Treaty Act. To avoid impacting migratory birds, the construction contract would include special provisions that would allow appropriate measures to be taken to protect birds from construction activities. In addition, Swallow Contract Provisions would be included to prevent swallows from nesting on the bridges in the project area between February 15 and September 1.

Threatened and Endangered Species

Affected Environment

The general region surrounding the project area consists of land managed to protect natural resources, as well as land used for agricultural purposes. Adjacent to the project site are state wildlife areas, federal wildlife refuges, and private wetlands. Biological studies for the project began with background research, continued with field reconnaissance-level surveys, and concluded with protocol-level field surveys for vernal pool branchipods, California tiger salamander, western spadefoot toad,

giant garter snake, western burrowing owl, Swainson's hawk, and San Joaquin kit fox.

On the San Joaquin River, the California Department of Fish and Game maintains a barrier downstream that prevents Central Valley Fall/Late Fall-Run Chinook Salmon from moving upstream to the proposed project site. However, the project area has been designated as Essential Fish Habitat. Essential Fish Habitat is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and 'spawning, breeding, feeding, or growth to maturity' covers a species' full life cycle." Caltrans conducted informal technical assistance with the National Oceanic and Atmospheric Administration in 2003 and received a list of comments and recommendations.

Impacts

The project would not have a substantial adverse effect on any species identified as a candidate, sensitive, or special-status. A summary for the special-status species is shown below:

- **Vernal pool branchiopods** – Although there are occurrences of fairy shrimp species on the wildlife refuges adjacent to the project site, none were identified in the 25 locations at the project site that were sampled using protocol-level surveys (two consecutive wet season surveys). The project would not affect any special-status vernal pool branchiopods.

- **California tiger salamander** – Construction-related activities are not expected to occur in the drainage ditches or any other potential breeding habitat. The upland areas to be disturbed are within or immediately adjacent to the riparian areas, or are agricultural fields, neither of which are considered to be suitable upland refuge for California tiger salamander. For these reasons, construction-related activities would not affect the California tiger salamander.

- **Western spadefoot toad** – Construction-related activities are not expected to occur in the drainage ditches or any other potential breeding habitat. The upland areas to be disturbed are within or immediately adjacent to the riparian areas, or

are agricultural fields, neither of which are considered to be suitable upland habitat. Construction-related activities would not affect the Western spadefoot toad.

- **Giant garter snake** – Construction-related activities are not expected to occur in the drainage ditches or other sloughs with the required habitat components. This project would not affect the giant garter snake.

- **Western burrowing owl** – With the avoidance measures discussed in the next section, construction-related activities would not affect Western burrowing owls.

- **Swainson's hawk** - With the avoidance measures discussed in the next section, construction-related activities would not affect Swainson's hawk.

- **San Joaquin kit fox** – Most construction-related activities would be confined to the existing pavement, shoulder backing, and the bridges. The intersection upgrade at Santa Fe Grade Road would permanently fill approximately 0.8 acre of agricultural land mixed with dirt driveways, which might be considered marginally suitable foraging habitat. However, this area is not suitable for potential kit fox denning. Construction-related activities would not affect the San Joaquin kit fox.

- **Essential Fish Habitat** - The placement of falsework, pile driving, equipment access, and other in-stream activities required for the bridge replacement would occur in Essential Fish Habitat. With the use of special provisions, the project would not affect Essential Fish Habitat.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance measures would be included for special-status species:

- **Western burrowing owl** – Surveys should be conducted by a Caltrans biologist approximately one month prior to construction. The surveys would consist of walking the length of the project to identify potential occupied burrows. If nesting owls are observed during the surveys, the California Department of Fish and Game may need to be contacted to coordinate additional avoidance efforts. A memo should be included in the Caltrans Resident Engineer project file stating that these pre-construction surveys should take place.

- **Swainson's hawk** – Surveys for the presence of Swainson's hawk and nesting migratory birds should be conducted approximately one month prior to construction. If a nesting Swainson's hawk is observed within ¼ mile of construction-related activities, the California Department of Fish and Game may need to be contacted to coordinate additional avoidance efforts. A memo should be included in the Caltrans Resident Engineer project file stating that these pre-construction surveys should take place.

- **Central Valley Fall/Late Fall-Run Chinook Salmon Essential Fish Habitat** – In order to avoid impacting Central Valley Fall/Late Fall-Run Chinook Salmon Essential Fish Habitat, special provisions would be included in the construction contract that would require in-stream construction activities to occur between the months of April and September.

Coordination

Table 5 illustrates the biology coordination for the proposed project.

Table 5 Biology Coordination

Agency/Person	Date	Comments
U.S. Fish and Wildlife Service - Maryann Owens	11/8/2000	Field meeting – Discussed potential impacts and mitigation measures.
California Department of Fish and Game – Mike Mulligan	11/16/2000	A brief synopsis of project was given and necessary permits and mitigation measures were discussed.
U.S. Army Corps of Engineers – Kathy Norton	12/13/2000	A brief synopsis of project was given and options for permits were discussed.
San Luis Wildlife Refuge Complex – Mike Chouinard	12/7/2000	Discussed the possibility of purchasing conservation easements on private lands.
National Marine Fisheries Service	8/14/2003	Field meeting to look at San Joaquin River area.
California Department of Fish and Game – Clarence Mayott	8/27/2003	Phone conversation about Swainson's Hawk nest.

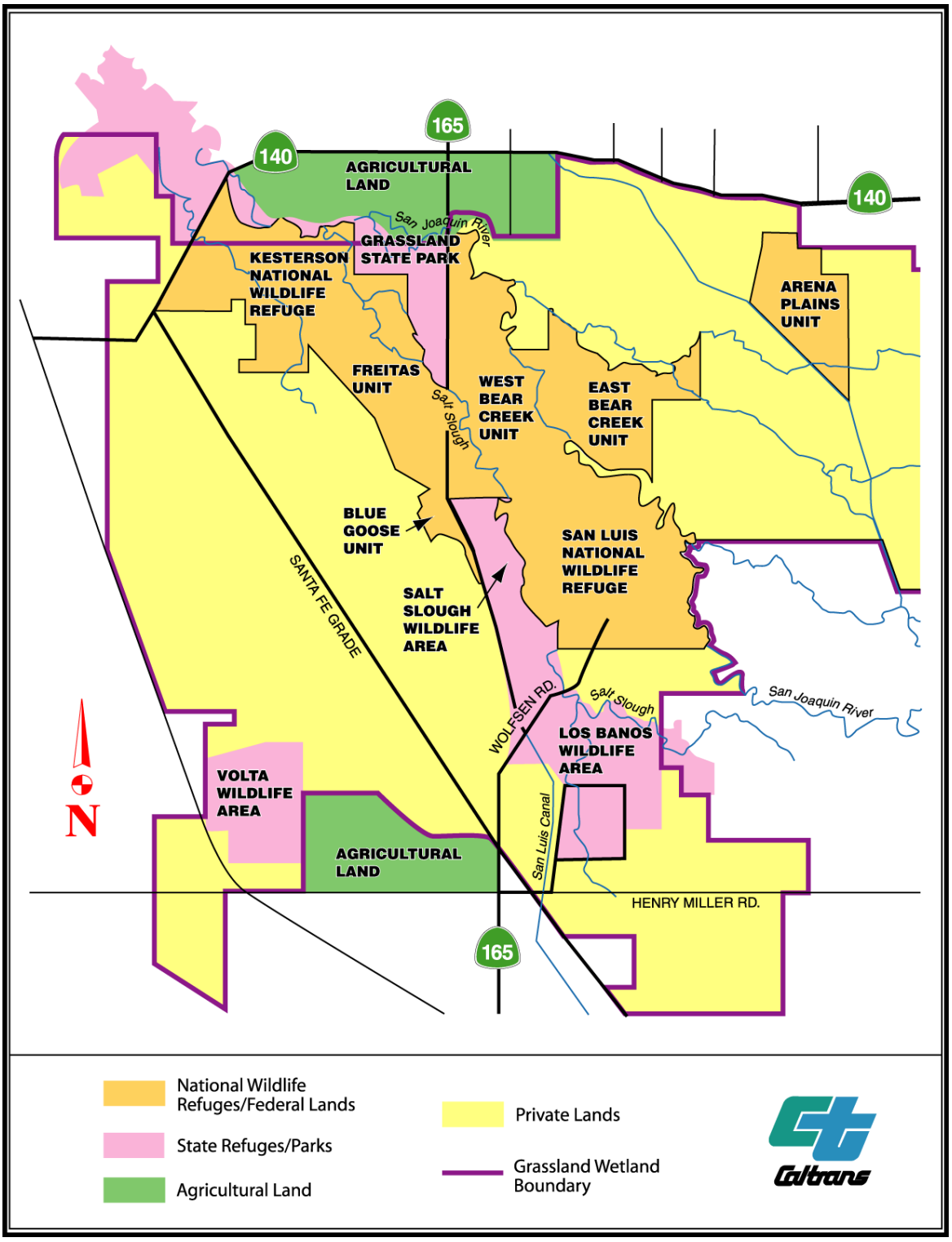
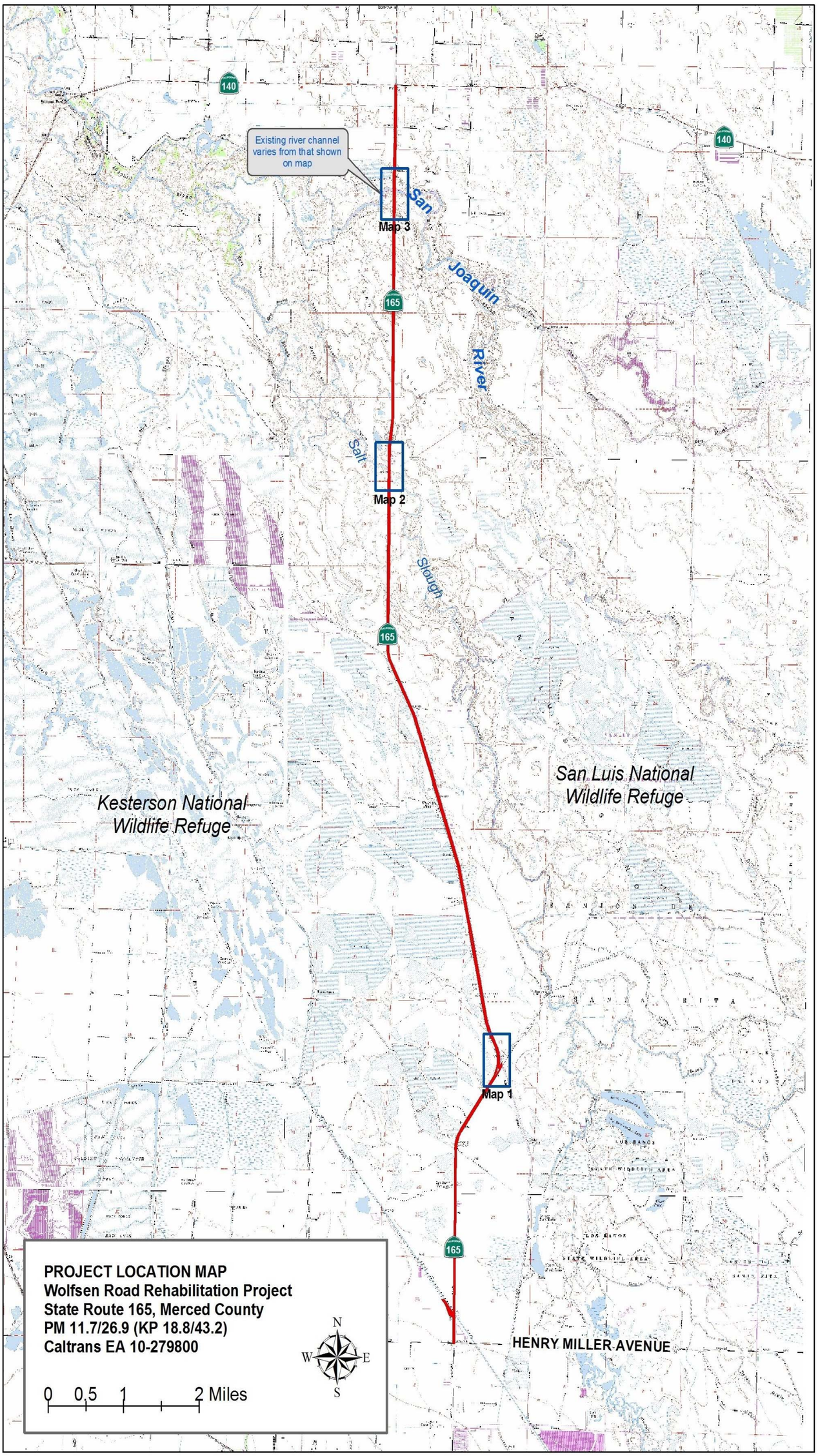


Figure 3 Grasslands Wetland

Figure 4 Map of Project Location with Reference Points



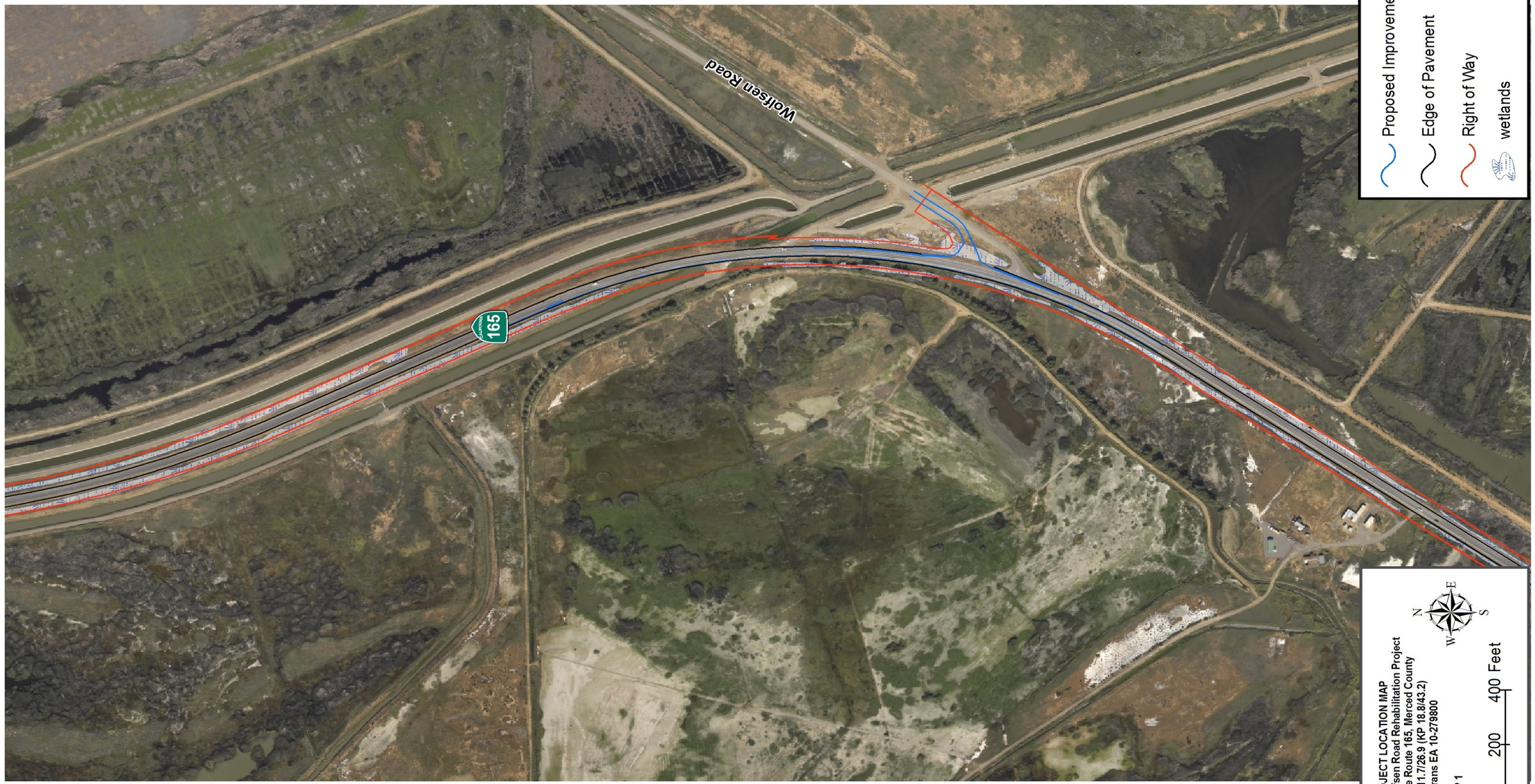


Figure 5 Map 1-Wetland Impacts at Wolfsen Road

Figure 6 Map 2-Wetland and Waters of the U.S. Impacts at the Salt Slough

Figure 7 Map 3-Wetland and Waters of the U.S. Impacts at the San Joaquin River and the San Joaquin River Overflow

Attachment A Comments and Responses

The public comment period for this project's Initial Study with Proposed Mitigated Negative Declaration began on January 25, 2007 and ended February 23, 2007. A public notice of Caltrans' intent to adopt a Mitigated Negative Declaration for this project and provide an opportunity for a public hearing was published in the Merced Sun-Star on January 25, 2007. A copy of the notice and two copies of the environmental document were placed at the Merced County Library, Los Banos Branch.

Copies of the public notice and environmental documents were sent to local planning agencies and local public officials: The Merced County Association of Governments; Merced County Planning Department; Merced County Public Works; Jerry O'Banion, Merced County Supervisor, District 5; Barbara Boxer and Dianne Feinstein, U.S. Senators; Dennis Cardoza, U.S. House of Representatives, 18th District; Jeff Denhan, California State Senate, District 12; and Cathleen Galgiani, California State Assembly, District 17. Copies of the public notice and environmental documents were also sent to Native American representatives: the Tachi Yokut Tribe, Santa Rosa Rancheria; Anthony C. Brochini, American Indian Council of Mariposa County, Inc.; Neil Peyron, Tule River Reservation; Repatriation, Inc. Northern Valley Yokut Indians; American Indian Council of Mariposa County, Inc.; and the Tribal Offices of the Tule Indian Reservation.

The State Clearinghouse distributed copies of the environmental document to the Air Resources Board, California Highway Patrol, Department of Conservation, Fish and Game Region #4, Office of Historic Preservation, Parks and Recreation, Regional Water Quality Control Board #5, State Water Resources Control Board, and the Department of Water Resources.

Other agencies that received copies of the public notice and environmental documents included: U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, United States of America Grassland Wildlife Management Area, Merced County Sheriff's Department, Merced County Fire Department, Housing Authority of Merced County, Central California Irrigation District, San Luis and Delta-Mendota Water Authority, Grassland Water District, and the California Native Plant Society. A Notice of Availability of Environmental Document and Opportunity for a Public Hearing letter was sent to all property owners adjacent to the project area.

No requests for a Public Hearing were received from agencies or the public. Only three comments were received during the comment period and these are discussed below. Copies of the comments submitted are included at the end of this document. A copy of the State Clearinghouse letter that included the Document Detail Report with two comment letters is also included. Caltrans had previously received one of these comment letters.

Ricky Sloan
<rsloan1947@yahoo.com>
02/07/2007 05:25 PM

To lance_brangham@dot.ca.gov
cc
Subject Changes Proposed for Route 165

Hi Lance,
I have a copy of your public notice and checked out the project information at our public library. I am concerned about the work that is to be done at Santa Fe Grade and Hwy 165.

I am a Realtor and have a client that has his property listed with me at the corner of Santa Fe Grade and Hwy 165. Looking at the maps that were at the Library it shows some of his land being used for the project. The information mentioned 2 + acres of farm land would be used, but it didn't mention what farm land.

If you could shed some light on this and let me know, I would very much appreciate it. I in turn would keep my client informed.

Thank you,

Ricky R. Sloan
Aldina Real Estate
Los Banos, Ca 93635
209-509-6400

1

An email request asked for additional information about how one parcel located at Santa Fe Grade Road would be affected. A map of the project in that area and information on acreage to be acquired was sent in response to the request.

STATE OF CALIFORNIA -- THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET P.O. BOX 942836
SACRAMENTO CA 942360001
(916) 653-5791

February 13, 2007

Lance Brangham
California Department of Transportation (Caltrans)
2015 East Shields Avenue, Suite 100
Fresno, California 93726

Wolfsen Road Rehabilitation
State Clearinghouse (SCH) Number: 2007011106

The project corresponding to the subject SCH identification number has come to our attention. The limited project description suggests your project may be an encroachment on the State Adopted Plan of Flood Control. You may refer to the California Code of Regulations, Title 23 and Designated Floodway maps at http://recbd.ca.gov/. Please be advised that your county office also has copies of the Board's designated floodways for your review. If indeed your project encroaches on an adopted food control plan, you will need to obtain an encroachment permit from the Reclamation Board prior to initiating any activities. The attached Fact Sheet explains the permitting process. Please note that the permitting process may take as much as 45 to 60 days to process. Also note that a condition of the permit requires the securing all of the appropriate additional permits before initiating work. This information is provided so that you may plan accordingly.

If after careful evaluation, it is your assessment that your project is not within the authority of the Reclamation Board, you may disregard this notice. For further information, please contact me at (916) 574-1249.

Sincerely,

Christopher Huitt
Staff Environmental Scientist
Floodway Protection Section

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

Encroachment Permits Fact Sheet

Basis for Authority
State law (Water Code Sections 8534, 8608, 8609, and 8710 – 8723) tasks the Reclamation Board with enforcing appropriate standards for the construction, maintenance, and protection of adopted flood control plans. Regulations implementing these directives are found in California Code of Regulations (CCR) Title 23, Division 1.

Area of Reclamation Board Jurisdiction
The adopted plan of flood control under the jurisdiction and authority of the Reclamation Board includes the Sacramento and San Joaquin Rivers and their tributaries and distributaries and the designated floodways.

Streams regulated by the Reclamation Board can be found in Title 23 Section 112. Information on designated floodways can be found on the Reclamation Board's website at http://recbd.ca.gov/designated_floodway/ and CCR Title 23 Sections 101 - 107.

Regulatory Process
The Reclamation Board ensures the integrity of the flood control system through a permit process (Water Code Section 8710). A permit must be obtained prior to initiating any activity, including excavation and construction, removal or planting of landscaping within floodways, levees, and 10 feet landward of the landside levee toes. Additionally, activities located outside of the adopted plan of flood control but which may foreseeable interfere with the functioning or operation of the plan of flood control is also subject to a permit of the Reclamation Board.

Details regarding the permitting process and the regulations can be found on the Reclamation Board's website at http://recbd.ca.gov/ under "Frequently Asked Questions" and "Regulations," respectively. The application form and the accompanying environmental questionnaire can be found on the Reclamation Board's website at http://recbd.ca.gov/forms.cfm.

Application Review Process
Applications when deemed complete will undergo technical and environmental review by Reclamation Board and/or Department of Water Resources staff.

Technical Review
A technical review is conducted of the application to ensure consistency with the regulatory standards designed to ensure the function and structural integrity of the adopted plan of flood control for the protection of public welfare and safety. Standards and permitted uses of designated floodways are found in CCR Title 23 Sections 107 and Article 8 (Sections 111 to 137). The permit contains 12 standard conditions and additional special conditions may be placed on the permit as the situation warrants. Special conditions, for example, may include mitigation for the hydraulic impacts of the project by reducing or eliminating the additional flood risk to third parties that may caused by the project.

Additional information may be requested in support of the technical review of

your application pursuant to CCR Title 23 Section 8(b)(4). This information may include but not limited to geotechnical exploration, soil testing, hydraulic or sediment transport studies, and other analyses may be required at any time prior to a determination on the application.

Environmental Review

A determination on an encroachment application is a discretionary action by the Reclamation Board and its staff and subject to the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code 21000 et seq.). Additional environmental considerations are placed on the issuance of the encroachment permit by Water Code Section 8608 and the corresponding implementing regulations (California Code of Regulations – CCR Title 23 Sections 10 and 16).

In most cases, the Reclamation Board will be assuming the role of a "responsible agency" within the meaning of CEQA. In these situations, the application must include a certified CEQA document by the "lead agency" [CCR Title 23 Section 8(b)(2)]. We emphasize that such a document must include within its project description and environmental assessment of the activities for which are being considered under the permit.

Encroachment applications will also undergo a review by an interagency Environmental Review Committee (ERC) pursuant to CCR Title 23 Section 10. Review of your application will be facilitated by providing as much additional environmental information as pertinent and available to the applicant at the time of submission of the encroachment application.

These additional documentations may include the following documentation:

- California Department of Fish and Game Streambed Alteration Notification (http://www.dfg.ca.gov/1600/),
- Clean Water Act Section 404 applications, and Rivers and Harbors Section 10 application (US Army Corp of Engineers),
- Clean Water Act Section 401 Water Quality Certification, and
- corresponding determinations by the respective regulatory agencies to the aforementioned applications, including Biological Opinions, if available at the time of submission of your application.

The submission of this information, if pertinent to your application, will expedite review and prevent overlapping requirements. This information should be made available as a supplement to your application as it becomes available. Transmittal information should reference the application number provided by the Reclamation Board.

In some limited situations, such as for minor projects, there may be no other agency with approval authority over the project, other than the encroachment permit by Reclamation Board. In these limited instances, the Reclamation Board

may choose to serve as the "lead agency" within the meaning of CEQA and in most cases the projects are of such a nature that a categorical or statutory exemption will apply. The Reclamation Board cannot invest staff resources to prepare complex environmental documentation.

Additional information may be requested in support of the environmental review of your application pursuant to CCR Title 23 Section 8(b)(4). This information may include biological surveys or other environmental surveys and may be required at anytime prior to a determination on the application.

California Department of Water Resources - Comment Letter February 13, 2007

Response

After further evaluation, it has been determined that an encroachment permit from the Reclamation Board would be needed prior to initiating activities for the project. During the final design phase, the encroachment permit would be obtained.

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov

Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4014

February 23, 2007

Lance Brangham, Branch Chief
San Joaquin Valley Analysis Branch
California Department of Transportation
2015 E. Shields Avenue, Suite 100
Fresno, California 93726

Dear Mr. Brangham:

Proposed Mitigated Negative Declaration (MND)
Wolfson Road Rehabilitation
SCH #2007011106

The California Department of Fish and Game (Department) has reviewed the Initial Study and proposed MND for the Wolfson Road / State Route 165 rehabilitation (Project). The Project is located in Merced County beginning at Henry Miller Road and ending at State Route 140 for a total length of 15.2 miles. The proposed Project would overlay the roadway with new asphalt concrete, replace the San Joaquin River Bridge, widen the San Joaquin River Overflow and Salt Slough bridges, and realign Santa Fe Grade Road and Wolfson Road where they intersect State Route 165.

The Department has concerns about the Project-related impacts that could result from construction activities occurring in close proximity to the San Joaquin River and Salt Slough, riparian habitat, wetlands, vernal pools as well as the associated impacts to species that utilize these habitat types. In order to adequately assess any potential impacts to biological resources, additional biological survey(s) may need to be conducted by a qualified wildlife biologist/botanist during the appropriate survey period(s) in order to determine whether or not any special status species may be present within the road rehabilitation and bridge widening construction areas. This information is necessary to identify any mitigation, minimization, and avoidance measures and/or the need for additional focused surveys.

1

Our specific comments follow pertaining to compliance with the California Endangered Species Act (CESA) and Section 1600 (Streambed Alteration) of the Fish and Game Code.

Conserving California's Wildlife Since 1870

Department Jurisdiction

Trustee Agency Authority: The Department is a Trustee Agency with responsibility under the California Environmental Quality Act (CEQA) for commenting on projects that could impact plant and wildlife resources. Pursuant to Fish and Game Code Section 1802, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for fish and wildlife resources, the Department is responsible for providing, as available, biological expertise to review and comment upon environmental documents and impacts arising from project activities, as those terms are used under CEQA (Division 13 (commencing with Section 21000) of the Public Resources Code).

California Endangered Species Act (CESA): The Department has regulatory authority over projects that could result in the "take" of any species listed by the State as threatened or endangered pursuant to Fish and Game Code Section 2081. If the project could result in the "take" of any species listed as threatened or endangered under CESA, the Department may need to issue an Incidental Take Permit for the Project. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (Sections 21001{c}, 21083, Guidelines Sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code Section 2080.

Vernal pool habitat, a rare and declining habitat type in California is known to occur adjacent to most of the roadway right-of-way (ROW) within the 15.2 mile Project area. This habitat type has a high likelihood of supporting state and federally listed plant and animal species such as the Federally listed endangered Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), longhorn fairy shrimp (*Branchinecta longiantenna*), and vernal pool tadpole shrimp (*Lepidurus packardi*).

Other species such as the State listed endangered delta button celery (*Eryngium racemosum*), the Federally listed endangered and State listed threatened San Joaquin kit fox (*Vulpes macrotis mutica*), the Federally listed threatened California tiger salamander (*Ambystoma californiense*), and the Federally and State listed threatened giant garter snake (*Thamnophis gigas*) are all known to occur within and adjacent to the Project area. The State threatened Swainson's hawk (*Buteo swainsoni*) is also known to forage and nest within the Project area.

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The following special status species may also be present in the Project area: California linderiella (*Linderiella occidentalis*), heartscale (*Atriplex cordulata*), vernal pool small scale (*Atriplex persistens*), brittlescale (*Atriplex depressa*), alkali milk-vetch (*Astragalus tener var. tener*), Sanford's arrowhead (*Sagittaria sanfordii*), western spadefoot toad (*Spea hammondii*), western pond turtle (*Emys marmorata*), northern harrier (*Circus cyaneus*), and tricolored blackbird (*Agelaius tricolor*). 3

Stream Alteration Notification: The Department also has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource. As currently proposed in the MND, the Project will involve construction work within the banks and channels of the San Joaquin River, the San Joaquin River Overflow, and Salt Slough. Generally, the Department requires minimization of impacts to waterways under the jurisdiction of Fish and Game Code Section 1600 et seq. We recommend contacting our Lake and Streambed Alteration Agreement staff at (559) 243-4593, to discuss the feasibility of waterway fill and rerouting and riparian vegetation removal, as well as for further information regarding notification requirements. 4

The issuance of both an Incidental Take Permit and a SAA is subject to CEQA review. The CEQA document prepared for this Project should identify the Department as a Responsible Agency and should describe and address the potential impacts to listed species, as well as riparian and stream resources. The CEQA document should also provide adequate avoidance, mitigation, monitoring, and reporting commitments. 5

Bird Protection: The Department also has jurisdiction over actions which may result in the disturbance or destruction of active nest sites or the unauthorized "take" of birds. Sections of the Fish and Game Code that protect birds, their eggs, and nests include Section 3503 (regarding unlawful take, possession, or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession, or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory non-game bird). 6

Water Pollution: Pursuant to Fish and Game Code Section 5650, it is unlawful to deposit in, permit to pass into, or place where it can pass into the "Waters of the State" any substance or material deleterious to fish, plant life, or bird life, including non-native species. The Regional Water Quality Control Board also has jurisdiction regarding discharge and pollution to "Waters of the State". 7

It is possible that without mitigation measures this Project could result in pollution of a "Waters of the State" from increased road traffic, stormwater runoff, heavy equipment usage and storage, fuel storage, or construction-related erosion. This could impact the

fish and wildlife resources associated with the San Joaquin River, Salt Slough, wetlands, and seasonal pools by causing: increased sediment input from bridge construction and road runoff; toxic runoff from heavy equipment storage sites; and impairment of wildlife movement along riparian corridors.

Potential Project Impacts and Recommendations

Listed Plant Species: There are several State listed and special status plant species known to occur in the vicinity of the Project area and could potentially occur within all or a portion of the Project area. In May of 2000, approximately 400 heartscale plants were observed within the ROW surrounding the Project site where construction activities related to the rehabilitation of Wolfson Road/State Route 165 are proposed to occur. Moreover, approximately 2.09 acres of farmland along the south side of Santa Fe Grade Road currently used for grazing and 0.11 acre of the State-owned Los Banos Wildlife Area will be impacted during the Santa Fe and Wolfson Road realignment. Therefore, the Department is recommending that the MND include the requirement that additional focused, repeated surveys be conducted multiple times during the appropriate floristic period(s) in any areas not currently in irrigated agriculture in order to adequately assess the potential Project-related impacts to listed plant species well in advance of any ground disturbance. If State-listed plants are detected during surveys, consultation with the Department is warranted to discuss the potential for take under CESA.

California tiger salamander (CTS): CTS is known to occur within the Project area, and a portion of the Project site is to be located within an area currently used for cattle grazing which has the likelihood of supporting CTS estivation habitat. Protocol biological surveys should be conducted by qualified biologists at the appropriate time of year to determine the existence and extent of wildlife resources and special status species on site, such as CTS. It is important to note that protocol surveys for CTS include both wetland and upland habitat surveys, and may require more than one survey season. The results of these surveys should be submitted to the Department and the United States Fish and Wildlife Service (USFWS). CTS use the upland (grassland) habitat associated with vernal pools during all times of year with the exception of the very brief breeding season. As a result, avoiding impacts to the vernal pools, and not the associated upland habitat, would not be adequately protective of CTS.

Take under the Federal Endangered Species Act (FESA) is more stringently defined than CESA; take under FESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with

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essential behavioral patterns such as breeding, foraging, or nesting. Consultation with USFWS in order to comply with FESA is advised well in advance of Project implementation. 10

Riparian Habitat and Wetlands: Riparian habitat and wetlands are of extreme importance to a wide variety of plant and wildlife species. Riparian habitat and wetlands (vernal pools and waterways) are known to exist throughout the proposed Project area. The Department considers projects that impact these resources as significant if they result in a net loss of acreage or habitat value. The Department has a no-net-loss policy regarding impacts to wetlands. Potential impacts to special status resources posed by wetland creation should also be considered. Wetlands that have been inadvertently created by leaks, dams or other structures, or failures in man-made water systems are not exempt from this policy.

A formal wetland delineation should be conducted by a qualified biologist to determine the location and extent of wetland habitat on-site, including vernal pools and swales. The wetland delineation should be submitted to the United States Army Corps of Engineers (ACOE) for verification. Wetlands should be designated on a site map and included in the final environmental documents. 11

In addition, we recommend delineating all surface waters and wetlands with a minimum 50-foot no-disturbance buffer around the outer edge of these areas, with the exception of necessary road crossings over drainages. A 250-foot no-disturbance buffer around vernal pools should be clearly identified. The riparian vegetation along ephemeral drainages or swales should also be protected with a 200-foot no-disturbance buffer delineated from the high water mark of each surface water body.

San Joaquin kit fox: San Joaquin kit fox is known to occur throughout the Project area and vicinity. The Department recommends that the USFWS's "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance," (1999) be followed prior to any ground disturbing activities occurring within the non-irrigated agriculture portion of the Project area. These surveys should also be conducted a maximum of 30 days prior to ground disturbing activities. In the event that this species is detected during the surveys, consultation with the Department is warranted to discuss how to implement the Project and avoid take. 12

Swainson's hawk: This State-threatened species is known to nest at multiple locations within 1 mile of the Project area, and it is highly probable that this species nests on or closer to the site than the observations currently reported in the California Natural Diversity Database (CNDDB), especially along the San Joaquin River and Salt Slough corridor. 13

Removal of mature trees and other riparian vegetation is a potentially significant impact that should be mitigated. The Department considers removal of known raptor nest trees, even outside of the nesting season, to be a significant impact under CEQA, and in the case of Swainson's hawk could also result in take under CESA. This is especially true with species such as Swainson's hawk that exhibit high site fidelity to their nest and nest trees year after year.

To avoid such impacts, surveys for nesting raptors should be conducted following the survey methodology developed by the Swainson's Hawk Technical Advisory Committee (SWHA TAC, 2000) prior to any disturbance within 5 miles of a potential nest tree (DFG, 1994). These surveys, the parameters of which were designed to optimize detectability, must be conducted to reasonably assure the Department that take of this species will not occur as a result of disturbance associated with Project implementation. In the event that this species is detected during protocol-level surveys, consultation with the Department is warranted to discuss how to implement the Project and avoid take. The MND indicates surveys for Swainson's hawk and other nesting raptors will occur one month before construction-related activities are expected to commence. This is consistent with the TAC survey methodology.

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Regardless of nesting status, trees that must be removed should be replaced with an appropriate native tree species planting at a ratio of 3:1 in an area that will be protected in perpetuity. This mitigation is needed to offset potential impacts to the loss of potential nesting habitat. Impacts to potential Swainson's hawk foraging habitat should be mitigated regardless of whether or not "take" will occur. Mitigation for impacts to Swainson's hawk foraging habitat should occur within 10 miles from nest trees. In addition to fee title acquisition of grassland habitat, mitigation could occur by the purchase of conservation or suitable agricultural easements. Suitable agricultural easements would include areas limited to production of crops such as alfalfa, dry land and irrigated pasture, and cereal grain crops. Vineyards, orchards, cotton fields, and other dense vegetation do not provide adequate foraging habitat.

CEQA Compliance: CEQA Guidelines Section 15378 defines "project" to mean the whole of an action that may result in either a direct or reasonably foreseeable indirect physical change in the environment. The CEQA document should adequately address all impacts to natural resources of the Project site.

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Depending upon the results of the previously mentioned biological surveys, we may have additional comments and recommendations regarding avoidance, minimization, and mitigation of Project impacts to habitat and special status species. If you have any

questions on these issues, please contact Annee Ferranti, Staff Environmental Scientist, at the address or telephone number (extension 227) provided on this letterhead.

Sincerely,

W. E. Loudermilk
Regional Manager

cc: United States Corps of Engineers
San Joaquin Valley Office
1325 J Street
Sacramento, California 95814-2922

California Regional Water Quality Control Board
Central Valley Region
1685 E Street
Fresno, California 93706-2020

Maryann Owens
United States Fish and
Wildlife Service
2800 Cottage Way, Suite W-2605
Sacramento, California 95825

John Beam
Department of Fish and Game

Wendy Cabrera
Department of Fish and Game

California Department of Fish and Game - Comment Letter February 23, 2007

Response

1. Below is a list of biological surveys conducted for the Wolfsen Road Rehabilitation project as reported in the Natural Environmental Study, which was available upon request. Discussion of impacts, avoidance, minimization, and/or mitigation measures for special-status species identified can be found in the Initial Study on pages 27 to 31.

    - Plants – project site was surveyed on foot at times to coincide with the flowering periods of potentially occurring special-status plants and surveys were conducted in a manner consistent with guidelines established by the California Native Plant Society and the California Department of Fish and Game.

    - Vernal pool branchiopods – two consecutive wet season surveys were conducted according to the U.S. Fish and Wildlife Service survey protocol *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (FWS 1996).

    - Fish – Wetlands, streams, and other bodies of water were sampled using an electro-fishing unit, a minnow trap, and dip-nets to capture and identify fish inhabiting those areas. Visual searches were used where appropriate.

    - California tiger salamander – Surveys were conducted primarily according to the California Department of Fish and Game guidelines *Survey Protocol for California Tiger Salamander (Ambystoma californiense)* (DFG, 1997), with slight modifications. These included three nocturnal surveys as opposed to five, and all three were consecutive days in the month of January as opposed to one survey in each of the months of December, January, and February.

    - Giant garter snake – Giant garter snake are known to exist on the wildlife refuges adjacent to the project area. Eight locations along the length of the project were designated for surveys and 97 spot surveys on 12 occasions where conducted at the eight locations.

- Swainson's hawk – weekly driving surveys were conducted from late March through late May for a total of 11 site visits. Eight of the 11 surveys were conducted during the recommended time, which was sunrise to two hours after sunrise.

- Small mammals – trapping locations were selected based on signs of activity. Thirty trapping locations, 15 on each side of State Route 165 were used for three consecutive nights.

- San Joaquin kit fox – the U.S. Fish and Wildlife Service survey protocol, *San Joaquin Kit Fox Survey Protocol* for the Northern Range (FWS, 1997) was used as guidance for this survey. The survey included transect surveys and 22 track stations placed along the length of the project. The track stations were checked each morning for five consecutive days. Spotlighting surveys were conducted for 10 nights.

- Bats – Bat calls were collected at eight locations, approximately two miles apart from dusk until about two hours after sunset. Each location was surveyed for one evening.

- Wetlands – Wetland delineations were conducted according to the *1987 Corps of Engineers Wetland Delineation Manual* (wetland Training Institute, 1999) to determine and differentiate wetlands, waters of the U.S., and upland areas. The *Wetland Evaluation Technique* (Adamus et al., 1987) was used to evaluate the functions and values of the areas delineated as wetlands.

2. As discussed in the Initial Study, two consecutive wet season surveys were conducted for vernal pool brachiopods (see page 29).

3. The Natural Environmental Study contained a table of Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

4. The Initial Study listed a Section 1602 Agreement as being required for the project (see page 3, Other Public Agencies Whose Approval is Required). Because construction work at the San Joaquin River, the San Joaquin River Overflow, and Salt Slough cannot be avoided for the project, Caltrans would

work with the California Department of Fish and Game Lake and Streambed Alteration Agreement staff on this permit.

5. It is Caltrans' determination that no impacts to special-status species or critical habitat are anticipated. Avoidance, minimization, and/or mitigation measures were presented after all impact discussions. An Incidental Take Permit would not be needed.

   Please see response #4 above concerning the Streambed Alteration Agreement. See page 26 of the Initial Study for information on impacts to Waters of the U.S.

   The California Department of Fish and Game is listed as a California Environmental Quality Act Responsible Agency on page 3 of the Initial Study.

6. Caltrans acknowledges the Department of Fish and Game jurisdiction as related to bird protection. The Initial Study (page 28) discussed occurrences of special-status migratory birds on the San Luis National Wildlife Refuge Complex that is adjacent to the project site. During the nesting season, migratory birds, nests, and eggs are protected through the Migratory Bird Treaty Act. Special provisions would be included in the construction contract that would allow appropriate measures to be taken to protect these birds. Swallow Contract Provisions would also be included.

7. Please see Section VIII. Hydrology and Water Quality (page 15) in Section 4, Impacts Checklist, in the Initial Study. Proper and accepted engineering practices, Best Management Practices, and a Water Pollution Control Program or a Storm Water Prevention Plan, in accordance with the Regional Water Quality Control Board's regulations, would effectively prevent surface water runoff impacts to Waters of the U.S./Waters of the State.

8. The project site was surveyed on foot two consecutive years during appropriate floristic periods to identify any special-status plant species within the study area. Only heartscale (*Atriplex cordulata*) was found (see page 27). The Initial Study also listed avoidance/minimization measures that would be taken prior to construction (see pages 27 and 28).

9. The California tiger salamander was not observed in the study area nor were the larvae observed incidental to the branchiopod surveys. Construction-related activities are not expected to occur in the drainage ditches or other potential breeding habitat. Rehabilitation work would be done within Caltrans' right-of-way, except for the realignment of Santa Fe Grade Road and Wolfsen Road. No use of, or impacts to any state wildlife areas, federal wildlife refuges, or private lands that are a part of the San Luis Wildlife Refuge Complex are anticipated (see page 23 of the Initial Study). It was concluded that construction-related activities would not affect the California tiger salamander.

10. The Federal Highway Administration has reviewed the technical studies for this project, including the Natural Environmental Study. They have concluded that a federal Categorical Exclusion is appropriate for the project. Caltrans, in coordination with the Federal Highway Administration, determined that formal consultation with U.S. Fish and Wildlife Service was not necessary for the project.

11. While riparian habitat and wetlands are known throughout the project area, the work would be done primarily within Caltrans' right-of-way (see response #9). The Initial Study included maps of the wetlands and waters of the U.S. that could potentially be affected by the project. Also included were impact information (page 26) and mitigation measures (page 27) that are planned. The impacts to these areas cannot be avoided due to the necessary work at the three rivers.

12. San Joaquin kit fox were not observed during surveys of the project area and most work would take place within the project right-of-way. Thus it was concluded that construction-related activities would not affect the San Joaquin kit fox (see page 30).

13. The Initial Study (page 31, Swainson's Hawk subtitle) reported that one nesting pair of Swainson's hawk was observed during surveys. That study also stated that if nesting Swainson's hawk is observed within ¼ mile of construction-related activities, the California Department of Fish and Game would be contacted to coordinate additional avoidance efforts. Pre-construction surveys would take place.

A re-vegetation program would be in place for the removal of riparian trees due to bridge widening. Riparian vegetation would be replaced in kind (see page 25).

14. Surveys were conducted prior to circulation of the Initial Study, and fully discussed in the Natural Environment Study. While the Initial Study did not list all the surveys conducted, the document summarized the information from that study. The Natural Environment Study was referenced in Section 4, Impact Checklist, IV, Biological Resources. Under Additional Explanations, the Biological Environment was discussed in greater detail, and included mapping, to address all impacts to natural resources of the project site. A copy of the Natural Environment Study will be sent to the Department of Fish and Game.

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Cynthia Bryant
Director

February 23, 2007

Lance Brangham
California Department of Transportation
2015 E Shields Avenue, Suite 100
Fresno, CA 93726-5428

Subject: Wolfsen Road Rehabilitation
SCH#: 2007011106

Dear Lance Brangham:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on February 22, 2007, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2007011106
Project Title Wolfsen Road Rehabilitation
Lead Agency Caltrans #6

Type MN Mitigated Negative Declaration
Description D

Caltrans and the Federal Highway Administration proposes to rehabilitate the roadway on State Route 165 from Henry Miller Road to State Route 140 in Merced County, California. Work would include replacing the San Joaquin River Bridge, widening two other bridges, and realigning two roads that intersect with State Route 165

Lead Agency Contact

Name Lance Brangham
Agency California Department of Transportation
Phone (559) 243-8161 **Fax**
email
Address 2015 E Shields Avenue, Suite 100
City Fresno **State** CA **Zip** 93726-5428

Project Location

County Merced
City Los Banos
Region
Cross Streets State Route 165, State Route 140, Henry Miller Avenue
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways 165, 140
Airports
Railways
Waterways San Joaquin River, San Joaquin River Overflow, Salt Slough
Schools
Land Use Agricultural and Open Land Use (State Wildlife Areas, Federal Wildlife Refuges, and privately held wetlands

Project Issues Vegetation; Wetland/Riparian; Wildlife

Reviewing Agencies Resources Agency; Regional Water Quality Control Bd., Region 5 (Fresno); Department of Parks and Recreation; Native American Heritage Commission; Department of Health Services; Department of Fish and Game, Region 4; Department of Water Resources; California Highway Patrol; Air Resources Board, Transportation Projects; Department of Toxic Substances Control

Date Received 01/24/2007 **Start of Review** 01/24/2007 **End of Review** 02/22/2007

Note: Blanks in data fields result from insufficient information provided by lead agency

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 942360001
(916) 653-5791

February 13, 2007

Lance Brangham
California Department of Transportation (Caltrans)
2015 East Shields Avenue, Suite 100
Fresno, California 93726

Clear
2-22-07

Wolfsen Road Rehabilitation
State Clearinghouse (SCH) Number: 2007011106

The project corresponding to the subject SCH identification number has come to our attention. The limited project description suggests your project may be an encroachment on the State Adopted Plan of Flood Control. You may refer to the California Code of Regulations, Title 23 and Designated Floodway maps at http://recbd.ca.gov/. Please be advised that your county office also has copies of the Board's designated floodways for your review. If indeed your project encroaches on an adopted food control plan, you will need to obtain an encroachment permit from the Reclamation Board prior to initiating any activities. The attached Fact Sheet explains the permitting process Please note that the permitting process may take as much as 45 to 60 days to process. Also note that a condition of the permit requires the securing all of the appropriate additional permits before initiating work. This information is provided so that you may plan accordingly.

If after careful evaluation, it is your assessment that your project is not within the authority of the Reclamation Board, you may disregard this notice. For further information, please contact me at (916) 574-1249.

Sincerely,

Christopher Huitt
Staff Environmental Scientist
Floodway Protection Section

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-5251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

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STATE CLEARING HOUSE

January 31, 2007

Clear
2-22-07
C

Mr. Lance Brangham
CALIFORNIA DEPARTMENT OF TRANSPORTATION
2015 East Shields Avenue, Suite 100
Fresno, CA 93726

200701116

Re: SCH#~~200701116~~; CEQA Notice of Completion; proposed Mitigated Negative Declaration **Wolfsen Road Rehabilitation; SR 165 at Henry Miller Rd. to SR 140**; California Department of Transportation; Fresno County, California

Dear Mr. Brangham:

Thank you for the opportunity to comment on the above-referenced document. The Native American Heritage Commission is the state's Trustee Agency for Native American Cultural Resources. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per CEQA guidelines § 15064.5(b)(c) In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS). The record search will determine:

- If a part or the entire APE has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

√ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

√ Contact the Native American Heritage Commission (NAHC) for:

- A Sacred Lands File (SLF) search of the project area and information on tribal contacts in the project vicinity that may have additional cultural resource information. Please provide this office with the following citation format to assist with the Sacred Lands File search request: USGS 7.5-minute quadrangle citation with name, township, range and section: .
- The NAHC advises the use of Native American Monitors to ensure proper identification and care given cultural resources that may be discovered. The NAHC recommends that contact be made with Native American Contacts on the attached list to get their input on potential project impact (APE).

√ Lack of surface evidence of archeological resources does not preclude their subsurface existence.

- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.
- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.

* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens.

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the CEQA Guidelines mandate procedures to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

√ Lead agencies should consider avoidance, as defined in § 15370 of the CEQA Guidelines, when significant cultural resources are discovered during the course of project planning.

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: List of Native American Contacts

California State Clearinghouse and Planning Unit – Comment Letter February 23, 2007

The letter from the State Clearinghouse acknowledges that Caltrans has complied with the California Environmental Quality Act environmental review process.

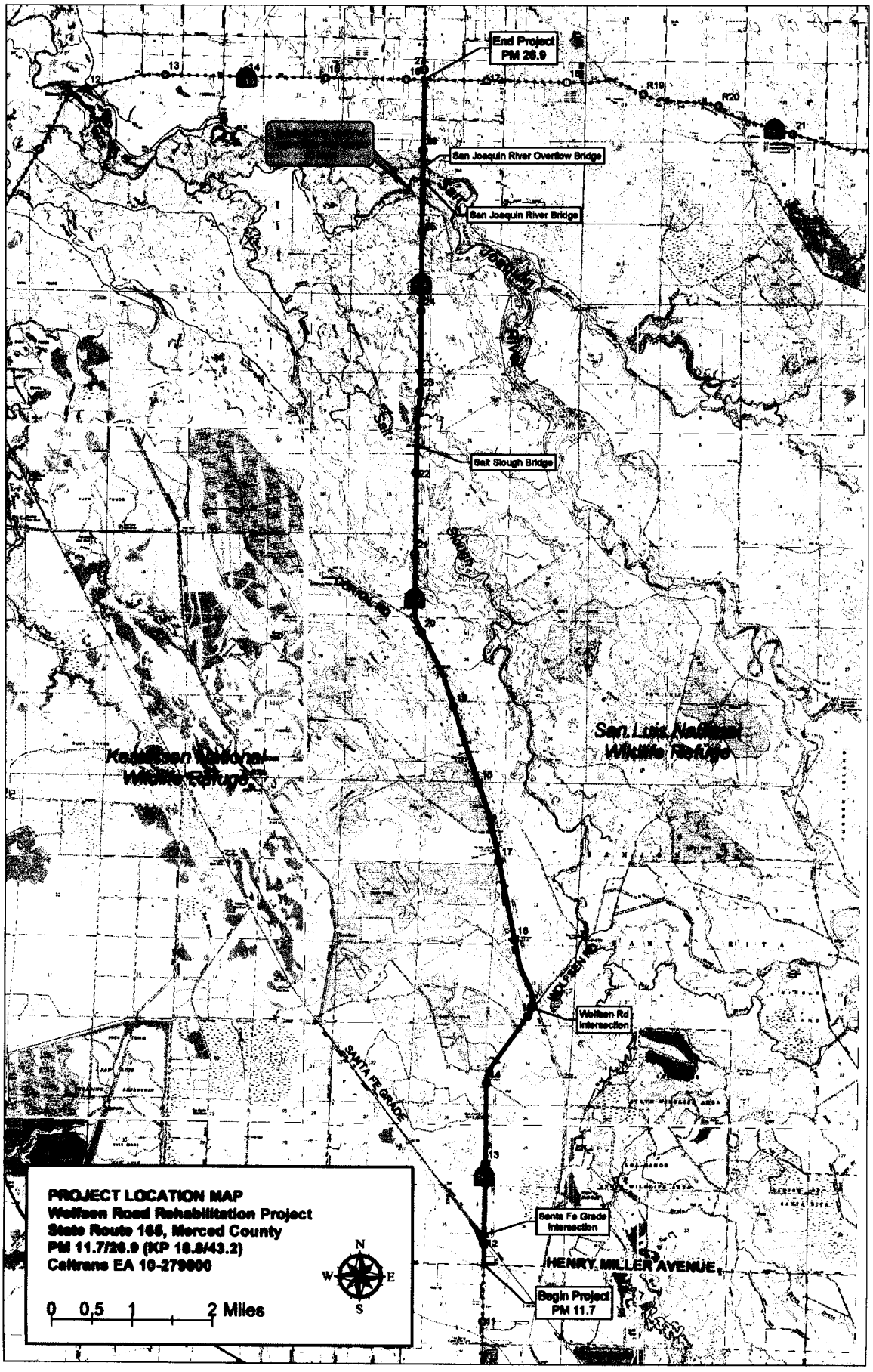
Department of Water Resources – Comment Letter February 13, 2007

See the response to comments by the Department of Water Resources on page 45.

Native American Heritage Commission - Comment Letter January 31, 2007

No response is required.

Appendix A Project Maps


End Project
PM 26.9
San Joaquin River Overflow Bridge
San Joaquin River Bridge
Salt Slough Bridge
San Luis National
Wildlife Refuge
Kesterson National
Wildlife Refuge
WOLFSEN RD
Wolfsen Rd
Intersection
SANTA FE GRADE
Santa Fe Grade
Intersection
HENRY MILLER AVENUE
Begin Project
PM 11.7
PROJECT LOCATION MAP
Wolfsen Road Rehabilitation Project
State Route 165, Merced County
PM 11.7/26.9 (KP 18.8/43.2)
Caltrans EA 10-279800
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Appendix B FWS Species List

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the STEVINSON (423D) U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: May 5, 2006

Document Number: 060619094333

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation becomes final on May 15, 2006. See our map index.

Listed Species

Invertebrates

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

Branchinecta longiantenna
Critical habitat, longhorn fairy shrimp (X)
longhorn fairy shrimp (E)

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

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

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

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central pppulation (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Mammals

Dipodomys nitratoides exilis
Fresno kangaroo rat (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Chamaesyce hooveri
Critical habitat, Hoover's spurge (X)

Candidate Species

Fish

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

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.

(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.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regard-less of whether they appear on a quad list.

Plants

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

Surveying

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

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

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 compen-sates 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.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 17, 2006.

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the SAN LUIS RANCH (403A) U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: May 5, 2006

Document Number: 060619094410

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

Red-Legged Frog Critical Habitat - The Service has designated final critical habitat for the California red-legged frog. The designation becomes final on May 15, 2006. See our map index.

Listed Species

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

Branchinecta longiantenna
Critical habitat, longhorn fairy shrimp (X)
longhorn fairy shrimp (E)

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

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central pppulation (T)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) sila
blunt-nosed leopard lizard (E)

Thamnophis gigas
giant garter snake (T)

Birds

Haliaeetus leucocephalus
bald eagle (T)

Mammals

Dipodomys nitratoides exilis
Fresno kangaroo rat (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Chamaesyce hooveri
Critical habitat, Hoover's spurge (X)

Key:

(E) *Endangered* - Listed (in the Federal Register) as being in danger of extinction.
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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.
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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

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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.

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  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 compen-sates for project-related loss of habitat. You should include the plan in any environmental documents you file.

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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

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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.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 17, 2006.

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the LOS BANOS (403D) U.S.G.S. 7 1/2 Minute Quad

Database Last Updated: May 5, 2006

Document Number: 060619094231

Species of Concern - The Sacramento Fish & Wildlife Office no longer maintaina a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. See www.fws.gov/sacramento/es/spp_concern.htm for more information and links to these sensitive species lists.

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longhorn fairy shrimp (E)

Branchinecta lynchi
vernal pool fairy shrimp (T)

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Lepidurus packardi
vernal pool tadpole shrimp (E)

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Hypomesus transpacificus
delta smelt (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Amphibians

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Rana aurora draytonii
California red-legged frog (T)

Reptiles

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blunt-nosed leopard lizard (E)

Thamnophis gigas
giant garter snake (T)

Birds

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bald eagle (T)

Mammals

Dipodomys nitratoides exilis
Fresno kangaroo rat (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

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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.

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

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Appendix C CNDDB Query Results

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
1	***Agelaius tricolor*** tricolored blackbird	ABPBXB0020			G2G3	S2	SC
2	***Ambystoma californiense*** California tiger salamander	AAAAA01180	Threatened		G2G3	S2S3	SC
3	***Anniella pulchra pulchra*** silvery legless lizard	ARACC01012			G3G4T3T4Q	S3	SC
4	***Ardea alba*** great egret	ABNGA05010			G5	S4	
5	***Ardea herodias*** great blue heron	ABNGA04010			G5	S4	
6	***Astragalus tener var. tener*** alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B/3-2-3
7	***Atriplex cordulata*** heartscale	PDCHE040B0			G2?	S2.2?	1B/2-2-3
8	***Atriplex depressa*** brittlescale	PDCHE042L0			G2Q	S2.2	1B/2-2-3
9	***Atriplex persistens*** vernal pool smallscale	PDCHE042P0			G2	S2.2	1B/2-2-3
10	***Branchinecta conservatio*** Conservancy fairy shrimp	ICBRA03010	Endangered		G1	S1	
11	***Branchinecta longiantenna*** longhorn fairy shrimp	ICBRA03020	Endangered		G1	S1	
12	***Branchinecta lynchi*** vernal pool fairy shrimp	ICBRA03030	Threatened		G3	S2S3	
13	***Branta hutchinsii leucopareia*** cackling (=Aleutian Canada) goose	ABNJB05035	Delisted		G5T4	S2	
14	***Buteo swainsoni*** Swainson's hawk	ABNKC19070		Threatened	G5	S2	
15	***Circus cyaneus*** northern harrier	ABNKC11010			G5	S3	SC
16	***Cismontane Alkali Marsh***	CTT52310CA			G1	S1.1	
17	***Coastal and Valley Freshwater Marsh***	CTT52410CA			G3	S2.1	
18	***Cordylanthus mollis ssp. hispidus*** hispid bird's-beak	PDSCR0J0D1			G2T2	S2.1	1B/2-3-3
19	***Coturnicops noveboracensis*** yellow rail	ABNME01010			G4	S1S2	SC
20	***Eleocharis quadrangulata*** four-angled spikerush	PMCYP091J0			G4	S1S2	2/3-2-1
21	***Emys (=Clemmys) marmorata*** western pond turtle	ARAAD02030			G3G4	S3	SC
22	***Eryngium racemosum*** Delta button-celery	PDAPI0Z0S0		Endangered	G2Q	S2.1	1B/2-3-3
23	***Lepidurus packardi*** vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
24	***Linderiella occidentalis*** California linderiella	ICBRA06010			G3	S2S3	

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS/R-E-D
25	***Navarretia prostrata*** prostrate navarretia	PDPLM0C0Q0			G2?	S2.1?	1B/2-3-3
26	***Sagittaria sanfordii*** Sanford's arrowhead	PMALI040Q0			G3	S3.2	1B/2-2-3
27	***Spea (=Scaphiopus) hammondii*** western spadefoot	AAABF01030			G3	S3	SC
28	***Taxidea taxus*** American badger	AMAJF04010			G5	S4	SC
29	***Thamnophis gigas*** giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
30	***Trichocoronis wrightii var. wrightii*** Wright's trichocoronis	PDAST9F031			G4T3	S1.1	2/3-3-1
31	***Valley Sacaton Grassland***	CTT42120CA			G1	S1.1	
32	***Valley Sink Scrub***	CTT36210CA			G1	S1.1	
33	***Vulpes macrotis mutica*** San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	

Appendix D Species Observed

Plants:

AIZOACEAE
- *Sesuvium verrucosum*

AMARANTHACEAE
- *Amaranthus albus*
- *A. blitoides*

APIACEAE
- *Conium maculatum*
- *Daucus pusillus*
- *Eryngium vaseyi*
- *Sanicula bipinnata*

APOCYNACEAE
- *Apocynum cannabinum*

ASCLEPIADACEAE
- *Asclepias fascicularis*

ASTERACEAE
- *Achillea millefolium var. pacifica*
- *Agoseris heterophylla*
- *Ambrosia acanthicarpa*
- *Anthemis cotula*
- *Artemisia douglasiana*
- *Aster subulatus*
- *Baccharis viminea*
- *B. douglasii*
- *Carduus tenuiflorus*
- *C. pycnocephalus*
- *Centaurea melitensis*
- *C. solistialis*
- *Chamomilla suaveolens*
- *Circium vulgare*
- *Conyza canadensis*
- *C. bonariensis*
- *Cotula coronopifolia*
- *Gnaphalium californicum*
- *G. luteo-album*
- *G. palustre*
- *Grindelia camporum*
- *Helianthus annuus*
- *Hemizonia pungens*
- *Heterotheca grandiflora*
- *Holocarpha heermani*
- *Hypochoeris glabra*
- *Lactuca serriola*
- *Lasthenia californica*
- *Lasthenia fremontii*
- *Picris echioides*

Senecio vulgaris
Silybum marianum
Solidago californica
Sonchus oleraceus
S. asper
Xanthium spinosum
X. strumarium var.canadense

AZOLLACEAE
Azolla ficuloides

BORAGINACEAE
Amsinckia intermedia var. *menziesii*
Heliotropium curassavicum
Plagiobothrys nothofulvus

BRASSICACEAE
Armoracia rusticans
Brassica nigra
Cardaria draba
Capsella bursa-pastoris
Hirschfeldia incana
Lepidium nitidum
Rorripa nasturtium-aquaticum
Raphanus sativus
Sisymbrium altissimum
S. irio

CARYOPHYLLACEAE
Cerastium glomeratum
Spergularia rubra
S. salina
Stellaria media

CHENOPODIACEAE
Allenrolfea occidentalis
Atriplex cordulata
A. californica
A. lentiformis
A. triangularis
A. patula
Bassia hyssopifolia
Chenopodium album
Kochia californica
Salsola tragus
Salicornia virginica
Suaeda moquinii

CONVULVULACEAE
Convolvulus arvensis
Cressa truxilensis

CRASSULACEAE
Crassula connata

CUSCUTACEAE
Cuscuta californica
C. salina

CYPERACEAE

Carex senta
Cyperus alternifolia
Scirpus robustus
S. acutus

EQUISETACEAE
Equisetum arvense

EUPHORBIACEAE
Chaemaesyce ocellata
C. maculata
Eremocarpus setigerus

FABACEAE
Lotus corniculatus
Medicago polymorpha
M. sativa
Melilotus indica
M. alba
Vicia sativa
V. villosa

FAGACEAE
Quercus lobata

FRANKENIACEAE
Frankenia salina

GERANIACEAE
Erodium botrys
E. cicutarium

HYDROPHYLLACEAE
Phacelia tanacetifolia

JUNCACEAE
Juncus balticus
J. bufonius

LAMIACEAE
Marrubium vulgare
Mentha spicata
Stachys albens
Trichostema lanceolatum

LYTHRACEAE
Lythrum hyssopifolia

MALVACEAE
Eremalche parryi
Malva parviflora
Malvella leprosa

OLEACEAE
Fraxinus latifolia

ONAGRACEAE
Camissonia campestris
Epilobium brachycarpum
Ludwigia peploides

PLANTAGINACEAE
Plantago lanceolata

PLATANACEAE

Platanus racemosa

POACEAE

Arundo donax
Avena barbata
A. fatua
Briza minor
Bromus diandrus
B. hordeaceus
B. madritensis ssp.rubens
Crypsis schoenoides
Cynodon dactylon
Distichlis spicata
Echinochloa crus-galli
Hordeum marinum ssp.gussoneanum
H. murinum ssp. leporinum
Leptochloa uninervia
Leymus triticoides
Lolium multiflorum
L. perenne
Polypogon monspeliensis
Sorghum halapense
Sporobolus airoides

POLYGONACEAE

Polygonum amphibium
P. hydropiperoides
P. punctatum
P. persicaria
Rumex crispus

PORTULACACEAE

Claytonia perfoliata
Portulaca oleracea

RANUNCULACEAE

Ranunculus aquatilus

ROSACEAE

Rubus discolor
R. ursinus
R. californica

RUBIACEAE

Galium aparine

SALICACEAE

Populus fremontii
Salix goodingii
S. exigua

SCROPHULARIACEAE

Mimulus guttatus ssp. guttatus
Scrophularia californica
Verbascum blattaria

SOLANACEAE

Datura wrightii
Nicotiana glauca
Physalis wrightii

Solanum eleagnifolium
TAMARICACEAE
Tamarix ramossisima
TYPHACEAE
Typha latifolia
URTICACEAE
Urtica urens
U. dioica
VERBENACEAE
Verbena litoralis
ZYGOPHYLLACEAE
Tribulus terrestris

Fish

Cyprinus carpio	common carp
Ameiurus nebulosus	brown bullhead
Gambusia affinis	mosquito fish
Lepomis cyanellus	green sunfish

Amphibians

Bufo boreas	western toad
Hyla regilla	pacific tree frog
Rana catesbeiana	bullfrog

Reptiles

Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Coluber constrictor mormon	western yellow-bellied racer
Pituophis melanoleucus	gopher snake
Lampropeltis getulus	common kingsnake
Thamnophis elegans	western terrestrial garter snake
Thamnophis couchii	western aquatic garter snake

Birds

Podilymbus podiceps	pied-billed grebe
Anas platyrhynchos	mallard
Anas acuta	northern pintail
Anas clypeata	northern shoveler
Oxyura jamaicensis	ruddy duck
Fulica americana	American coot
Galinulla chloropus	common moorhen
Larus californicus	California gull
Pelecanus erythrorhyncos	American white pelican
Ardea herodias	great blue heron
Ardea albus	great egret
Egretta thula	snowy egret
Bubulcus ibis	cattle egret
Nycticorax nycticorax	black-crowned night heron

Botaurus lentiginosus	American bittern
Plegadis chihi	white-faced ibis
Grus canadensis tabida	greater sandhill crane
Himantopus mexicanus	black-necked stilt
Recurvirostra americana	American avocet
Charadrius vociferus	killdeer
Limosa fedoa	marbled godwit
Numenius americanus	long-billed curlew
Catoptrophorus semipalmatus	willet
Tringa flavipes	lesser yellowlegs
Gallinago gallinago	common snipe
Limnodromus scolopaceus	long-billed dowitcher
Phasianus colchicus	ring-necked pheasant
Alectoris chukar	chukar
Elanus caeruleus	black-shouldered kite
Circus cyaneus	northern harrier
Accipiter striatus	sharp-shinned hawk
Accipiter cooperii	Cooper's hawk
Buteo jamaicensis	red-tailed hawk
Buteo swainsoni	Swainson's hawk
Buteo lagopus	rough-legged hawk
Cathartes aura	turkey vulture
Falco columbarius	merlin
Falco sparverius	American kestrel
Falco mexicanus	prairie falcon
Tyto alba	barn owl
Bubo virginianus	great horned owl
Athene cunicularia hypugea	western burrowing owl
Zenaida macroura	mourning dove
Columba livia	domestic pigeon
Colaptes auratus	northern flicker
Tyrannus verticalis	western kingbird
Sayornis nigricans	black phoebe
Eremophila alpestris actia	California horned lark
Tachycineta thalassina	violet-green swallow
Hirundo pyrrhonota	cliff swallow
Hirundo rustica	barn swallow
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Pica nuttalli	yellow-billed magpie
Troglodytes aedon	house wren
Cistothorus palustris	marsh wren
Chamaea fasciata	wrentit
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
Lanius ludovicianus	loggerhead shrike
Sturnus vulgaris	European starling
Euphagus cyanocephalus	brewer's blackbird
Agelaius phoeniceus	red-winged blackbird
Agelaius tricolor	tricolored blackbird
Sturnella neglecta	western meadowlark

Molothrus ater	brown-headed cowbird
Zonotrichia leucophrys	white-crowned sparrow
Zonotrichia atricapilla	golden-crowned sparrow
Spizella passerina	chipping sparrow
Melospiza melodia	song sparrow
Passerculus sandwich	*ensis* savannah sparrow
Carpodacus mexicanus	house finch
Passer domesticus	house sparrow

Mammals

Didelphis virginiana	Virginia opossum
Procyon lotor	raccoon
Mustela frenata	long-tailed weasel
Taxidea taxus	American badger
Spilogale putorius	spotted skunk
Mephitis mephitis	striped skunk
Canis latrans	coyote
Canis domesticus	feral dog
Vulpes vulpes	red fox
Urocyon cinereoargenteus	gray fox
Felis familiaris	feral cat
Spermophilus beecheyi	California ground squirrel
Dipodomys spp.	unidentified kangaroo rat
Reithrodontomys megalotis	western harvest mouse
Mus musculus	house mouse
Peromyscus maniculatus	deer mouse
Ondatra zibethica	muskrat
Lepus californicus	black-tailed jackrabbit
Sylvilagus auduboni	desert cottontail

Appendix E Agency Coordination for Special-Status Fish

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
2015 E. Shields Ave., #100
FRESNO, CA 93726
TDD (559) 488-4066

September 3, 2003

Subject: State Route 165, Merced County
Post Miles 11.7 / 26.9
EA 10-279800

Mr. Rodney R. McInnis
Acting Regional Administrator
National Oceanic and Atmospheric Administration
650 Capital Mall, Suite 8-300
Sacramento, California 95814

Attn: Ms. Madelyn Martinez

Re: Request for technical assistance

Dear Mr. McInnis,

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) propose to rehabilitate a portion of State Route 165 (SR165) in Merced County from post mile 11.7 to 26.9. This runs north of the City of Los Banos, approximately from Henry Miller Road, north to the intersection with State Route 140. The project lies on the US Geological Surveys 7 ½ minute quadrangles Los Banos, San Luis Ranch, and Stevinson (See attached maps). Below is a description of the proposed construction activities.

- Rehabilitate the existing roadbed with asphalt concrete
- Replace the San Joaquin River Bridge, widen the San Joaquin River Overflow Bridge, and widen the Salt Slough Bridge
- Widen eleven box culverts and replace approximately 25 pipe culverts
- Realign the intersections at Santa Fe Grade Road and Wolfsen Road
- Construct turn lanes at four entrances to the San Luis National Wildlife Refuge Complex for the US Fish and Wildlife Service

There are currently two alternatives for the work at the San Joaquin River Bridge. Alternative 1 would have 8 larger "cast in place" steel piles and Alternative 2 would have 36 smaller "driven" piles (See attachment). It will be necessary to use coffer dams for the work at this bridge. Basic design mapping for the San Joaquin River Overflow Bridge and the Salt Slough Bridge are also attached. More detailed design mapping with hydrolic recommendations will not be available until after the environmental document is complete.

Madelyn Martinez of your office was informally contacted to discuss the potential impacts to Central Valley steelhead (*Oncorhyncus mykiss*) at the San Joaquin River, San Joaquin River Overflow, and Salt Slough. Ms. Martinez met with Caltrans biologist Carrie Blickenstaff at the project site on August 14, 2003. Ms. Martinez suggested the need for stormwater control, erosion control, construction work windows, and essential fish habitat measures. Tree replacement ratios and other details were discussed as well.

Caltrans would like to request technical assistance from your office regarding the avoidance of any potential impacts to Central Valley Steelhead.

If you have any questions or comments, please contact Carrie Blickenstaff, Caltrans Regional Biologist, at 559/243-8307 or myself at 559/243-8196.

Sincerely,

Terry Marshall
Biology Branch Chief

Enclosures

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Sacramento Area Office
650 Capitol Mall, Suite 8-300
Sacramento, California 95814-4706

October 7, 2003

In Reply Refer to:
SWR-01-SA-6036:MTM

Terry Marshall
Biology Branch Chief
CalTrans
2015 E. Shields Avenue, #100
Fresno, California 93726

Dear Mr. Marshall:

This is in response to your September 3, 2003 letter requesting National Marine Fisheries Service's (NOAA Fisheries) technical assistance regarding the rehabilitation of State Route 165 (SR 165) in Merced County (EA 10-279800). This response is provided as informal technical assistance to the California Department of Transportation (Caltrans) and is not intended to take the place of formal comments or consultation as required under the Endangered Species Act (ESA) of 1973, as amended [16 U.S.C. 1531 et seq] or pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for Essential Fish Habitat (EFH), as described in Amendment 14 of the Pacific Salmon Fishery Management Plan.

As described in your letter, additional information provided, and during a site visit on August 14, 2003, CalTrans and the Federal Highway Administration (FHWA) propose to rehabilitate a portion of SR 165 in Merced County from post mile 11.7 to 26.9. This runs north of the City of Los Banos, approximately from Henry Miller Road, north to the intersection with SR 140. The southbound portion of the Pacific Avenue Bridge to meet seismic safety concerns. The Pacific Avenue Bridge crosses over the Calaveras River. The proposed project activities are to rehabilitate the existing roadbed with asphalt concrete; replace the San Joaquin River Bridge; widen the San Joaquin River overflow bridge and the Salt Slough Bridge; widen eleven box culverts, replace approximately 25 pipe culverts; realign the intersections at Santa Fe Grade Road and Woldfsen Raod; and construct turn lanes at four entrances to the San Luis National Wildlife Refuge Complex for the U.S. Fish and Wildlife Service. Coffer dams will be used during the construction of the bridges. As your staff, Carrie Blickenstaff, indicated during the August 14, 2003 site visit, suggestions and recommendations provided from this response letter and future correspondence from NOAA Fisheries regarding this project will be considered.

NOAA Fisheries has reviewed the project proposal. Based on our review of information provided and obtained during site visit on March 6, 2003, we have the following comments:

1. Available information indicates that Federally listed candidate Central Valley fall/late fall-run Chinook salmon (*Onchorhynchus tshawytscha*) may occur within the proposed project area. Any biological assessment and/or environmental study prepared for this project should include the listed species mentioned above.

2. You should be aware that the proposed project area may affect Essential Fish Habitat (EFH) for Chinook salmon as described in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the MSA. Federal Action agencies are mandated by MSA (section 305 [b][2]) to consult with NOAA Fisheries on all actions that may adversely affect EFH, and NOAA Fisheries must provide EFH Conservation Recommendations (section 305[b][4][A]). Any biological assessment (BA) prepared for this project should also include an EFH Assessment for the species managed by the Pacific Salmon Fishery Management Plan. As with the ESA, it is the ultimate responsibility of the Federal Action agency for compliance with EFH consultation requirements of the MSA. Complete information on EFH and the Fishery Management Plan can be found on our website under Habitat Conservation Division (http://swr.nmfs.gov/efh.htm).

3. In your conceptual bridge designs, you proposed to place at least four piles in the active channel. We suggest that you consider the hydraulic patterns of the river during a 2-, 5-, 10-, 50-, and 100- year flood event. The effects of these changes should be incorporate in your construction plans. Without considering these effects, your designs may adversely affect aquatic habitats downstream and upstream of your project site by increasing bank erosion and degrading shaded riparian aquatic habitats.

4. A detailed description of the bridge construction activities should be included in your project description. This information will assist in the analysis of potential impacts and effects of the project activities.

5. Any pile driving work and other construction activities after the instream work window should occur only during daylight hours. This will allow listed species to migrate pass the project area during their peak hours of diel migration (twilight hours) and with minimal disturbance from the pile driving and construction activities.

6. Pressure treated or creosote treated wood products should not be used in the footings of the threstle or other instream construction. Compounds used for the treatment of these woods may leach into the aquatic environment and deleteriously affect listed species and salmonids. Acceptable alternatives for wood piles include steel, concrete, plastic, or a combination of these materials.

7. For further bridge construction activities entailing instream work and pile driving, we recommend the avoidance and protective measures described in Enclosure A to be

incorporated in your project proposal and/or BA. This will minimize impacts to listed species and EFH for Pacific salmon.

8. For the widening of eleven box culverts and replacement of 25 pipe culverts, we recommend to follow the design criteria for fish passage described in EnclosureB. This will fulfill the necessary requirements to provide adequate fish passage for listed species and EFH.

We appreciate your continued cooperation in the conservation of listed species and their habitat and look forward to working with you and your staff in the future. If you have any questions regarding this response, please contact Ms. Madelyn T. Martinez in our Sacramento Area Office, 650 Capitol Mall, Suite 8-300, Sacramento, CA 95814 at (916) 930-3605, or by FAX at (916) 930-3629.

Sincerely,

Michael E. Aceituno
Supervisor, Sacramento Area office

Enclosures

cc: NMFS-PRD, Long Beach, CA
Stephen A. Meyer, ASAC, NMFS, Sacramento, CA
Carrie Blickenstaff, CalTrans, 2015 E. Shields Ave., #100, Fresno, CA 93726

ENCLOSURE A

Potential Impacts from Bridge Repair, Removal and Replacement and Avoidance Measures

1. Removal of Riparian Vegetation

Impacts May Include:

- Increased water temperature.
- Decrease in leaf litter and aquatic invertebrates.
- Increase in sediment due to channel bank erosion or destabilization.
- Decrease in large woody debris into the channel which provides habitat for salmonids and other aquatic organisms.
- Decrease in water quality as runoff is not filtered by vegetation.
- Decrease in habitat for terrestrial organisms,.
- Loss of riparian area functions such as slowing flood waters and reducing volume of water through absorption by roots.

Avoidance or Minimization Measures Include:

- Ensure the amount of vegetation removed or disturbed is kept to a minimum.
- Site selection shall include consideration of the amount of riparian habitat disturbed with each alternative.
- Vegetation shall be replaced at a 3:1 ratio on-site or within the watershed using native riparian trees and/or vegetation.
- Revegetate all construction site access roads and implement erosion control best management practices (BMPs) prior to the rainy season.
- Close off access roads on weekends and after hours during construction and permanently after construction is complete to prevent use by off-road vehicles.
- Access to the river channel will be chosen to minimize the pruning or removal of vegetation.

2. Disturbance of Stream Channel and Banks and Encroachment into Floodplain

Impacts May Include:

- Destruction of spawning, rearing, or other habitat.
- Fish passage problems associated with instream structures or gravel build up under bridge.
- Disturbing fish during migration or adversely affecting habitat.
- Disruption of natural channel processes including migration, gravel recruitment, riparian vegetation propagation on alluvial bars.
- Altering hydrology by placing piers or other structures in the wetted channel.

Avoidance or Minimization Measures Include:

- For this project, instream work is during low flow conditions (June 30 -September 30) and/or in the dry.
- No fill material, including concrete, being allowed to enter the river.
- Channel disturbance should be kept to a minimum, no material should be left in the channel, and if bridge footings are to be protected by riprap, the channel bottom elevation must not be elevated above the natural channel bottom.
- For bridge removal, no portions of the old structure should be left in the channel and where abutments are removed, no depressions should be left, they should be filled in with clean gravel of an appropriate size (~½ in. - 4 in).
- If possible bridge design, should be full span and avoid impacting channel hydraulics.

3. Degradation of Water Quality

Impacts May Include:

- Road or bridge runoff entering channel directly may contain hydrocarbons and other pollutants.
- Fuel or oil leakage from construction activities and heavy equipment use near the channel.
- Sedimentation in water course caused by disturbance during construction, from use of access roads, or during flood flows into areas of bare soil.
- Uncured or wet concrete coming in contact with flowing waters may degrade water quality.

Avoidance or Minimization Measures Include:

- Bridge and road design should not have direct discharge (such as culverts or bridge drains) of untreated stormwater runoff draining into the river.
- Use of construction BMPs and erosion control methods, including revegetation of all bare soil prior to the rainy season, and whatever else is necessary to ensure no increase in sediment enters the river.
- If coffer dams are to be used water pumped out of the dam which may be turbid should not be allowed to re-enter the channel unless sediment has settled out resulting in no increase in turbidity in the river.
- Site should be monitored to insure no salmonids are present and may be harmed. If salmonids are present, an authorized fishery biologist may be required to capture and relocate juvenile fish.
- Where column repairs are to be done, materials used must be non-toxic to aquatic life.
- All equipment refueling and maintenance will occur outside the river channel and 200 feet away from the wetted width of the river.
- Water that contacts wet concrete and has a pH greater than nine must be pumped out and disposed of outside the river channel.
- Any concrete used in construction will be allowed to completely cure before it comes in contact with river water. This process takes a minimum of 14 - 28 days.

4. Pile Extraction and Driving

Impacts May Include:

- Noise and disturbance to migrating or rearing salmonids.
- Turbidity which may impair egg incubation, feeding, respiration, or behavior.

Avoidance or Minimization Measures Include:

- Pile driving work should occur only during the day and should not occur continuously in a 24-hour period. This allows fish for 'noise refugia' and time to migrate out of or past the area.
- Coffer dams that contains any turbidity should be pumped out before dam removal.

ENCLOSURE 5

National Marine Fisheries Service
Southwest Region

GUIDELINES FOR SALMONID PASSAGE AT STREAM CROSSINGS

1.0 INTRODUCTION

This document provides guidelines for design of stream crossings to aid upstream and downstream passage of migrating salmonids. It is intended to facilitate the design of a new generation of stream crossings, and assist the recovery of threatened and endangered salmon species. These guidelines are offered by the National Marine Fisheries Service, Southwest Region (NMFS-SWR), as a result of its responsibility to prescribe fishways under the Endangered Species Act, the Magnuson-Stevens Act, the Federal Power Act, and the Fish and Wildlife Coordination Act. The guidelines apply to all public and private roads, trails, and railroads within the range of anadromous salmonids in California.

Stream crossing design specifications are based on the previous works of other resource agencies along the U.S. West Coast. They embody the best information on this subject at the time of distribution. Meanwhile, there is mounting evidence that impassable road crossings are taking a more significant toll on endangered and threatened fish than previously thought. New studies are revealing evidence of the pervasive nature of the problem, as well as potential solutions. Therefore, this document is appropriate for use until revised, based on additional scientific information, as it becomes available.

The guidelines are general in nature. There may be cases where site constraints or unusual circumstances dictate a modification or waiver of one or more of these design elements. Conversely, where there is an opportunity to protect salmonids, additional site-specific criteria may be appropriate. Variances will be considered by the NMFS on a project-by-project basis. When variances from the technical guidelines are proposed, the applicant must state the specific nature of the proposed variance, along with sufficient biological and/or hydrologic rationale to support appropriate alternatives. Understanding the spatial significance of a stream crossing in relation to salmonid habitat within a watershed will be an important consideration in variance decisions.

Protocols for fish-barrier assessment and site prioritization are under development by the California Department of Fish and Game (CDFG). These will be available in updated versions of the *California Salmonid Stream Habitat Restoration Manual*. Most streams in California also support important populations of non-salmonid fishes, amphibians, reptiles, macroinvertebrates, insects, and other organisms important to the aquatic food web. Some of these may also be threatened or endangered species and require "ecological connectivity" that dictate other design criteria not covered in this document. Therefore, the project applicant should check with the local Fish and Game office, the U.S. Fish and Wildlife Service (USFWS), and/or tribal biologists to ensure other species are fully considered.

The California Department of Transportation Highway Design Manual defines a culvert as "A closed conduit which allows water to pass under a highway," and in general, has a single span of less than 20 feet or multiple spans totaling less than 20 feet. For the purpose of fish passage, the distinction between bridge, culvert or low water crossing is not as important as the effect the structure has on the form and function of the stream. To this end, these criteria conceptually apply to bridges and low water crossings, as well as culverts.

2.0 PREFERRED ALTERNATIVES AND CROSSINGS

The following alternatives and structure types should be considered in order of preference:

1. *Nothing* - Road realignment to avoid crossing the stream
2. *Bridge* - spanning the stream to allow for long term dynamic channel stabilty
3. *Streambed simulation strategies* - bottomless arch, embedded culvert design, or ford
4. *Non-embedded culvert* - this is often referred to as a hydraulic design, associated with more traditional culvert design approaches limited to low slopes for fish passage
5. *Baffled culvert, or structure designed with a fishway* - for steeper slopes

If a segment of stream channel where a crossing is proposed is in an active salmonid spawning area then only full span bridges or streambed simulations are acceptable.

3.0 DESIGNING NEW AND REPLACEMENT CULVERTS

The guidelines below are adapted from culvert design criteria published by many federal and state organizations including the California Department of Fish and Game (CDFG, 2001). It is intended to apply to new and replacement culverts where fish passage is legally mandated or important.

3.1 Active Channel Design Method

The Active Channel Design method is a simplified design that is intended to size a culvert sufficiently large and embedded deep enough into the channel to allow the natural movement of bedload and formation of a stable bed inside the culvert. Determination of the high and low fish

passage design flows, water velocity, and water depth is not required for this method since the stream hydraulic characteristics within the culvert are intended to mimic the stream conditions upstream and downstream of the crossing. This design method is usually not suitable for stream channels that are greater than 3% in natural slope or for culvert lengths greater than 100 feet. Structures for this design method are typical round, oval, or squashed pipes made of metal or reinforced concrete.

- Culvert Width - The minimum culvert width shall be equal to, or greater than, 1.5 times the active channel width.
- Culvert Slope - The culvert shall be placed level (0% slope).
- Embedment - The bottom of the culvert shall be buried into the streambed not less than 20% of the culvert height at the outlet and not more than 40% of the culvert height at the inlet.

3.2 Stream Simulation Design Method

The Stream Simulation Design method is a design process that is intended to mimic the natural stream processes within a culvert. Fish passage, sediment transport, flood and debris conveyance within the culvert are intended to function as they would in a natural channel. Determination of the high and low fish passage design flows, water velocity, and water depth is not required for this option since the stream hydraulic characteristics within the culvert are designed to mimic the stream conditions upstream and downstream of the crossing. The structures for this design method are typically open bottomed arches or boxes but could have buried floors in some cases. These culverts contain a streambed mixture that is similar to the adjacent stream channel. Stream simulation culverts require a greater level of information on hydrology and geomorphology (topography of the stream channel) and a higher level of engineering expertise than the Active Channel Design method.

- Culvert Width - The minimum culvert width shall be equal to, or greater than, the bankfull channel width. The minimum culvert width shall not be less than 6 feet.
- Culvert Slope - The culvert slope shall approximate the slope of the stream through the reach in which it is being placed. The maximum slope shall not exceed 6%.
- Embedment - The bottom of the culvert shall be buried into the streambed not less than 30% and not more than 50% of the culvert height. For bottomless culverts the footings or foundation should be designed for the largest anticipated scour depth.

3.3 Hydraulic Design Method

The Hydraulic Design method is a design process that matches the hydraulic performance of a culvert with the swimming abilities of a target species and age class of fish. This method targets distinct species of fish and therefore does not account for ecosystem requirements of non-target species. There are significant errors associated with estimation of hydrology and fish swimming speeds that are resolved by making conservative assumptions in the design process. Determination of the high and low fish passage design flows, water velocity, and water depth are required for this option.

The Hydraulic Design method requires hydrologic data analysis, open channel flow hydraulic calculations and information on the swimming ability and behavior of the target group of fish. This design method can be applied to the design of new and replacement culverts and can be used to evaluate the effectiveness of retrofits of existing culverts.

- Culvert Width - The minimum culvert width shall be 3 feet.
- Culvert Slope - The culvert slope shall not exceed the slope of the stream through the reach in which it is being placed. If embedment of the culvert is not possible, the maximum slope shall not exceed 0.5%.
- Embedment - Where physically possible, the bottom of the culvert shall be buried into the streambed a minimum of 20% of the height of the culvert below the elevation of the tailwater control point downstream of the culvert. The minimum embedment should be at least 1 foot. Where physical conditions preclude embedment, the hydraulic drop at the outlet of a culvert shall not exceed the limits specified above.

Hydrology for Fish Passage under the Hydraulic Design Method

- **High Fish Passage Design Flow** - The high design flow for adult fish passage is used to determine the maximum water velocity within the culvert. Where flow duration data is available or can be synthesized the high fish passage design flow for adult salmonids should be the 1% annual exceedance. If flow duration data or methods necessary to compute them are not available then 50% of the 2 year flood recurrence interval flow may be used as an alternative. Another alternative is to use the discharge occupied by the cross-sectional area of the active stream channel. This requires detailed cross section information for the stream reach and hydraulic modeling. For upstream juvenile salmonid passage the high design flow should be the 10% annual exceedance flow.
- **Low Fish Passage Design Flow** - The low design flow for fish passage is used to determine the minimum depth of water within a culvert. Where flow duration data is available or can be synthesized the 50% annual exceedance flow or 3 cfs, whichever is greater, should be used for adults and the 95% annual exceedance flow or 1 cfs, whichever is greater, should be used for juveniles.

Maximum Average Water Velocities in the Culvert at the High Fish Passage Design Flow - Average velocity refers to the calculated average of velocity within the barrel of the culvert. Juveniles require 1 fps or less for upstream passage for any length culvert at their High Fish Passage Design Flow. For adult salmonids use the following table to determine the maximum velocity allowed.

Culvert Length (ft)	Velocity (fps) - Adult Salmonids
<60	6
60-100	5
100-200	4
200-300	3
>300	2

Minimum Water Depth at the Low Fish Passage Design Flow - For non-embedded culverts, minimum water depth shall be twelve 12 inches for adult steelhead and salmon, and six 6 inches for juvenile salmon.

Juvenile Upstream Passage - Hydraulic design for juvenile upstream passage should based on representative flows in which juveniles typically migrate. Recent research (NMFS, 2001, in progress) indicates that providing for juvenile salmon up to the 10% annual exceedance flow will cover the majority of flows in which juveniles have been observed moving upstream. The maximum average water velocity at this flow should not exceed 1 fps. In some cases over short distances 2 fps may be allowed.

Maximum Hydraulic Drop - Hydraulic drops between the water surface in the culvert and the water surface in the adjacent channel should be avoided for all cases. This includes the culvert inlet and outlet. Where a hydraulic drop is unavoidable, its magnitude should be evaluated for both high design flow and low design flow and shall not exceed 1 foot for adults or 6 inches for juveniles. If a hydraulic drop occurs at the culvert outlet, a jump pool of at least 2 feet in depth should be provided.

3.4 Structural Design and Flood Capacity

All culvert stream crossings, regardless of the design option used, shall be designed to withstand the 100-year peak flood flow without structural damage to the crossing. The analysis of the structural integrity of the crossing shall take into consideration the debris loading likely to be encountered during flooding. Stream crossings or culverts located in areas where there is significant risk of inlet plugging by flood borne debris should be designed to pass the 100-year peak flood without exceeding the top of the culvert inlet (Headwater-to-Diameter Ratio less than one). This is to ensure a low risk of channel degradation, stream diversion, and failure over the life span of the crossing. Hydraulic capacity must be compensated for expected deposition in the culvert bottom.

3.5 Other Hydraulic Considerations

Besides the upper and lower flow limit, other hydraulic effects need to be considered, particularly when installing a culvert:

- Water surface elevations in the stream reach must exhibit gradual flow transitions, both upstream and downstream. Abrupt changes in water surface and velocities must be avoided, with no hydraulic jumps, turbulence, or drawdown at the entrance. A continuous low flow channel must be maintained throughout the entire stream reach.
- In addition, especially in retrofits, hydraulic controls may be necessary to provide resting pools, concentrate low flows, prevent erosion of stream bed or banks, and allow passage of bedload material.

- Culverts and other structures should be aligned with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing. This can often be accommodated by changes in road alignment or slight elongation of the culvert. Where elongation would be excessive, this must be weighed against better crossing alignment and/or modified transition sections upstream and downstream of the crossing. In crossings that are unusually long compared to streambed width, natural sinuosity of the stream will be lost and sediment transport problems may occur even if the slopes remain constant. Such problems should be anticipated and mitigated in the project design.

4.0 RETROFITTING CULVERTS

For future planning and budgeting at the state and local government levels, redesign and replacement of substandard stream crossings will contribute substantially to the recovery of salmon stocks throughout the state. Unfortunately, current practices do little to address the problem: road crossing corrections are usually made by some modest level of incremental, low cost "improvement" rather than re-design and replacement. These usually involve bank or structure stabilization work, but frequently fail to address fish passage. Furthermore, bank stabilization using hard point techniques frequently denigrates the habitat quality and natural features of a stream. Nevertheless, many existing stream crossings can be made better for fish passage by cost-effective means. The extent of the needed fish passage improvement work depends on the severity of fisheries impacts, the remaining life of the structure, and the status of salmonid stocks in a particular stream or watershed.

For work at any stream crossing, site constraints need to be taken into consideration when selecting options. Some typical site constraints are ease of structure maintenance, construction windows, site access, equipment, and material needs and availability. The decision to replace or improve a crossing should fully consider actions that will result in the greatest net benefit for fish passage. If a particular stream crossing causes substantial fish passage problems which hinder the conservation and recovery of salmon in a watershed, complete redesign and replacement is warranted. *Consolidation and/or decommissioning of roads can sometimes be the most cost-effective option.* Consultations with NMFS or CDFG biologists can help in selecting priorities and alternatives.

Where existing culverts are being modified or retrofitted to improve fish passage, the Hydraulic Design method criteria should be the design objective for the improvements. However, it is acknowledged that the conditions that cause an existing culvert to impair fish passage may also limit the remedies for fish passage improvement. Therefore, short of culvert replacement, the Hydraulic Design method criteria should be the goal for improvement but not necessarily the required design threshold.

Fish passage through existing non-embedded culverts may be improved through the use of gradient control weirs upstream or downstream of the culvert, interior baffles or weirs, or in some cases, fish ladders. However, these measures are not a substituted for good fish passage design

for new or replacement culverts. The following guidelines should be used:

- **Hydraulic Controls** - Hydraulic controls in the channel upstream and/or downstream of a culvert can be used to provide a continuous low flow path through culvert and stream reach. They can be used to facilitate fish passage by establishing the following desirable conditions: Control depth and water velocity within culvert, concentrate low flows, provide resting pools upstream and downstream of culvert and prevent erosion of bed and banks. A change in water surface elevation of up to one foot is acceptable for adult passage conditions, provided water depth and velocity in the culvert meet other hydraulic guidelines. A jump pool must be provided that is *at least* 1.5 times the jump height, or a minimum of two feet deep, whichever is deeper.

- **Baffles** - Baffles may provide incremental fish passage improvement in culverts with excess hydraulic capacity that can not be made passable by other means. Baffles may increase clogging and debris accumulation within the culvert and require special design considerations specific to the baffle type. Culverts that are too long or too high in gradient require resting pools, or other forms of velocity refuge spaced at increments along the culvert length.

- **Fishways** - Fishways are generally not recommended, but may be useful for some situations where excessive drops occur at the culvert outlet. Fishways require specialized site-specific design for each installation. A NMFS or CDFG fish passage specialist should be consulted.

- **Multiple Culverts** - Retrofitting multiple barrel culverts with baffles in one of the barrels may be sufficient as long as low flow channel continuity is maintained and the culvert is reachable by fish at low stream flow.

5.0 OTHER GENERAL RECOMMENDATIONS

Trash racks and livestock fences should not be used near the culvert inlet. Accumulated debris may lead to severely restricted fish passage, and potential injuries to fish. Where fencing cannot be avoided, it should be removed during adult salmon upstream migration periods. Otherwise, a minimum of 9 inches clear spacing should be provided between pickets, up to the high flow water surface. Timely clearing of debris is also important, even if flow is getting around the fencing. Cattle fences that rise with increasing flow are highly recommended.

Natural or artificial supplemental lighting should be provided in new and replacement culverts that are over 150 feet in length. Where supplemental lighting is required the spacing between light sources shall not exceed 75 feet.

The NMFS and the CDFG set in-stream work windows in each watershed. Work in the active stream channel should be avoided during the times of year salmonids are present. Temporary crossings, placed in salmonid streams for water diversion during construction activities, should meet all of the guidelines in this document. However, if it can be shown that the location of a

temporary crossing in the stream network is not a fish passage concern at the time of the project, then the construction activity only needs to minimize erosion, sediment delivery, and impact to surrounding riparian vegetation.

Culverts shall only be installed in a de-watered site, with a sediment control and flow routing plan acceptable to NMFS or CDFG. The work area shall be fully restored upon completion of construction with a mix of native, locally adapted, riparian vegetation. Use of species that grow extensive root networks quickly should be emphasized. Sterile, non-native hybrids may be used for erosion control in the short term if planted in conjunction with native species.

Construction disturbance to the area should be minimized and the activity should not adversely impact fish migration or spawning. If salmon are likely to be present, fish clearing or salvage operations should be conducted by qualified personnel prior to construction. If these fish are listed as threatened or endangered under the federal or state Endangered Species Act, consult directly with NMFS and CDFG biologists to gain authorization for these activities. Care should be taken to ensure fish are not chased up under banks or logs that will be removed or dislocated by construction. Return any stranded fish to a suitable location in a nearby live stream by a method that does not require handling of the fish.

If pumps are used to temporarily divert a stream to facilitate construction, an acceptable fish screen must be used to prevent entrainment or impingement of small fish. Contact NMFS or CDFG hydraulic engineering staff for appropriate fish screen specifications. Unacceptable wastewater associated with project activities shall be disposed of off-site in a location that will not drain directly into any stream channel.

6.0 POST-CONSTRUCTION EVALUATION AND LONG TERM MAINTENANCE AND ASSESSMENT

Post-construction evaluation is important to assure the intended results are accomplished, and that mistakes are not repeated elsewhere. There are three parts to this evaluation:

1) Verify the culvert is installed in accordance with proper design and construction procedures.
2) Measure hydraulic conditions to assure that the stream meets these guidelines.
3) Perform biological assessment to confirm the hydraulic conditions are resulting in successful passage.

NMFS and/or CDFG technical staff may assist in developing an evaluation plan to fit site-specific conditions and species. The goal is to generate feedback about which techniques are working well, and which require modification in the future. These evaluations are not intended to cause extensive retrofits of any given project unless the as-built installation does not reasonably conform to the design guidelines, or an obvious fish passage problem continues to exist. Over time, the

NMFS anticipates that the second and third elements of these evaluations will be abbreviated as clear trends in the data emerge.

Any physical structure will continue to serve its intended use only if it is properly maintained. During the storm season, timely inspection and removal of debris is necessary for culverts to continue to move water, fish, sediment, and debris. In addition, all culverts should be inspected at least once annually to assure proper functioning. Summary reports should be completed annually for each crossing evaluated. An annual report should be compiled for all stream crossings and submitted to the resource agencies. A less frequent reporting schedule may be agreed upon for proven stream crossings. Any stream crossing failures or deficiencies discovered should be reported in the annual cycle and corrected promptly.

8.0 DEFINITIONS

These definitions apply to terms used in this document. Meanings may differ when used in another context and are not legal unless otherwise noted. Definitions were shortened, paraphrased or adapted to fit regional conditions and for ease of understanding.

Active Channel: A waterway of perceptible extent that periodically or continuously contains moving water. It has definite bed and banks which serve to confine the water and includes stream channels, secondary channels, and braided channels. It is often determined by the "ordinary high water mark" which means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Bankfull: The point on a streambank at which overflow into the floodplain begins. The floodplain is a relatively flat area adjacent to the channel constructed by the stream and overflowed by the stream at a recurrence interval of about one to two years. If the floodplain is absent or poorly defined, other indicators may identify bankfull. These include the height of depositional features, a change in vegetation, slope or topographic breaks along the bank, a change in the particle size of bank material, undercuts in the bank, and stain lines or the lower extent of lichens and moss on boulders. Field determination of bankfull should be calibrated to known stream flows or to regional relationships between bankfull flow and watershed drainage area.

Bedload: Sand, silt, and gravel, or soil and rock debris rolled along the bottom of a stream by the moving water. The particles of this material have a density or grain size which prevents movement far above or for a long distance out of contact with the streambed under natural flow conditions.

Fish Passage: The ability of both adult and juvenile fish to move both up and down stream.

Flood Frequency: The frequency with which a flood of a given discharge has the probability of recurring. For example, a "100-year" frequency flood refers to a flood discharge of a magnitude

likely to occur on the average of once every 100 years or, more properly, has a one-percent chance of being exceeded in any year. Although calculation of possible recurrence is often based on historical records, there is no guarantee that a "100-year" flood will occur at all within the 100-year period or that it will not recur several times.

Flood Prone Zone: Spatially, this area generally corresponds to the modern floodplain, but can also include river terraces subject to significant bank erosion. For delineation, see definition for floodplain.

Floodplain: The area adjacent to the stream constructed by the river in the present climate and inundated during periods of high flow.

Flow Duration Curve: A cumulative frequency curve that shows the percentage of time that specified discharges are equaled or exceeded. Flow duration curves are usually based on daily streamflow and describe the flow characteristics of a stream throughout a range of discharges without regard to the sequence of occurrence. If years of data are plotted the annual exceedance flows can be determined.

Ordinary High Water Mark: The mark along the bank or shore up to which the presence and action of the water are common and usual, and so long continued in all ordinary years, as to leave a natural line impressed on the bank or shore and indicated by erosion, shelving, changes in soil characteristics, destruction of terrestrial vegetation, or other distinctive physical characteristics.

Roads: For purposes of these guidelines, roads include all sites of intentional surface disturbance for the purpose of vehicular or rail traffic and equipment use, including all surfaced and unsurfaced roads, temporary roads, closed and inoperable roads, legacy roads, skid trails, tractor roads, layouts, landings, turnouts, seasonal roads, fire lines, and staging areas.

Section 10 and 404 Regulatory Programs: The principal federal regulatory programs, carried out by the U.S. Army Corps of Engineers, affecting structures and other work below mean high water. The Corps, under Section 10 of the River and Harbor Act of 1899, regulates structures in, or affecting, navigable waters of the U.S. as well as excavation or deposition of materials (e.g., dredging or filling) in navigable waters. Under Section 404 of the Federal Water Pollution Control Act Amendments (Clean Water Act of 1977), the Corps is also responsible for evaluating application for Department of the Army permits for any activities that involve the placement of dredged or fill material into waters of the United States, including adjacent wetlands.

Waters of the United States: Currently defined by regulation to include all navigable and interstate waters, their tributaries and adjacent wetlands, as well as isolated wetlands and lakes and intermittent streams.

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Internet Resources:

California Department of Fish and Game
http://www.dfg.ca.gov

National Marine Fisheries Service Southwest Region
http://swr.nmfs.noaa.gov

Washington Department of Fish and Wildlife Fish Passage Technical Assistance
http://www.wa.gov/wdfw/hab/engineer/habeng.htm

Oregon Road/Stream Crossing Restoration Guide, Spring 1999 (with ODFW criteria)
http://www.nwr.noaa.gov/1salmon/salmesa/4ddocs/orfishps.htm

FishXing software and learning systems for the analysis of fish migration through culverts
http://www.stream.fs.fed.us/fishxing/

USDA Forest Service Water-Road Interaction Technology Series Documents
http://www.stream.fs.fed.us/water-road/index.html

British Columbia Forest Practices Code Stream Crossing Guidebook for Fish Streams
http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/stream/str-toc.htm

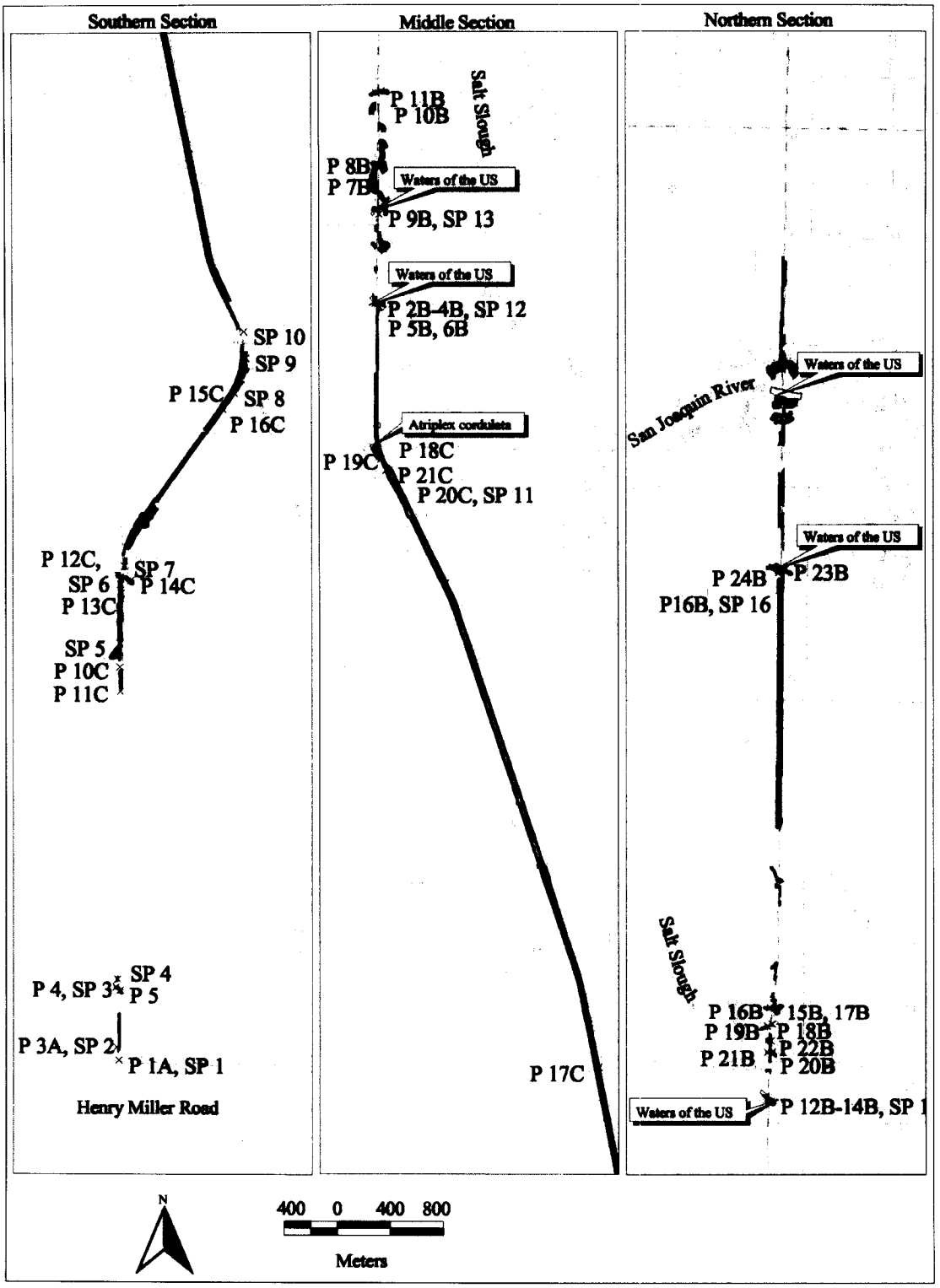
Please direct questions regarding this material to:

National Marine Fisheries Service
Hydraulic Engineering Staff
777 Sonoma Avenue, Suite 325
Santa Rosa, CA 95404

Phone: (707) 575-6050
Fax: (707) 578-3425

Email: nmfs.swr.fishpassage@noaa.gov

Appendix F Waters of the US/Wetland Maps, Functions & Values



Letters and numbers refer to wetland delineation soil pits and photos from ESRP's biological studies.

Wetland Functions and Values, based upon the Wetland Evaluation Technique (Adamus, 1987).

WETLAND FUNCTIONS	DEFINITION
Ground Water Recharge	Recharge to underlying materials or ground water exceeds discharge
Ground Water Discharge	Rate of discharge from ground water into the wetland exceeds the rate of recharge
Floodflow Alteration	Storage of surface water to a greater degree than typically occurs in terrestrial environments
Sediment Stabilization	Effectiveness of binding soil and dissipating erosive forces
Sediment/Toxicant Retention	Physical or chemical trapping and retention of chemical substances generally toxic to aquatic life.
Nutrient removal/Transformation	Retention or transformation of inorganic phosphorous or nitrogen
Production Export	Flushing of relatively large amounts of organic plant life
Aquatic Diversity/Abundance	Support of a large on-site diversity of fish or invertebrates, at least seasonally
Wildlife Diversity/Abundance	Support of a large on-site diversity of wetland dependent birds, at least seasonally

WETLAND FUNCTION	WETLAND TYPE RATINGS			
	Alkali Playa	Great Valley Mixed Riparian Forest	Alkali Marsh	Roadside Ditch
Ground Water Recharge	L	H	L	L
Ground Water Discharge	L	L	L	L
Floodflow Alteration	L	M	H	M
Sediment Stabilization	L	H	H	H
Sediment/Toxicant Retention	H	M	H	H
Nutrient removal/ Transformation	H	H	H	H
Production Export	L	M	L	M
Aquatic Diversity/Abundance	M	L	L	M
Wildlife Diversity/Abundance dependent birds, at least seasonally	M	M	M	M

H- High
M- Moderate
L- Low

FOR CONTRACT NO.: 10-279804

INFORMATION HANDOUT

PERMITS

California Regional Water Quality Control Board
(401 Permit)
dated January 12, 2010

Department of the Army
(404 - ACOE Permit)
dated June 23, 2010

California Department of Fish and Game
(1602 Permit)

MATERIAL INFORMATION

Foundation and Seismic Report
Salt Slough Bridge Br. No. 39-0209)
dated August 11, 2009

Revised Foundation and Seismic Report
(San Joaquin River Overflow Bridge Br. No. 39-0212)
dated August 11, 2009

Revised Foundation and Seismic Report
San Joaquin River Bridge Br. No. 39-0246)
dated November 18, 2009

Final Hydraulic Report
(Salt Slough Bridge Br. No. 39-0209,
San Joaquin River Overflow Bridge Br. No. 39-0212,
San Joaquin River Bridge Br. No. 39-0246)
dated December 22, 2008

Foundation Reviews
(Salt Slough Bridge Br. No. 39-0209)
(San Joaquin River Overflow Bridge Br. No. 39-0212)
San Joaquin River Bridge Br. No. 39-0246)
dated August 4, 2009

ROUTE: 10-Mer-165-PM 11.7/26.7

Linda S. Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
Central Valley Region

Karl E. Longley, ScD, P.E., Chair

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Arnold Schwarzenegger
Governor

12 January 2010

Carrie Blickenstaff, Associate Biologist
California Department of Transportation
District 6 Central Region, Environmental Division
2015 E. Shields Avenue, Suite 100
Fresno, CA 93726

ACTION ON REQUEST FOR CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION FOR DISCHARGE OF DREDGED AND/OR FILL MATERIALS ASSOCIATED WITH THE WOLFSEN ROAD REHABILITATION PROJECT, MERCED COUNTY

APPLICANT: California Department of Transportation (Caltrans)

PROJECT: Refer to Attachment 1 for Project Information

ACTION:

1. ☐ Order for Standard Certification
2. ■ Order for Technically-conditioned Certification
3. ☐ Order for Denial of Certification

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

1. This certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Section 13330 of the California Water Code and Section 3867 of Title 23 of the California Code of Regulations (23 CCR).

2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. The validity of any non-denial certification action is conditional upon total payment of the full fee required under 23 CCR Section 3833, unless otherwise stated in writing by the certifying agency.

4. Certification is valid for the duration of the described project. Caltrans shall notify the Central Valley Regional Water Quality Control Board (Central Valley Water Board) in writing within 7 days of project completion.

TECHNICAL CONDITIONS (for Certification Action 2):

In addition to the four standard conditions, Caltrans shall satisfy the following:

1. A finalized Streambed Alteration Agreement must be issued by the California Department of Fish and Game before this project may proceed. A copy of the finalized Streambed Alteration Agreement shall be submitted to the Central Valley Water Board.

2. Prior to commencement of work, and immediately after completion of work, submit photographs documenting site conditions to the Central Valley Water Board.

3. No work shall take place in any waterway if water is present or flowing in the channel prior to the approval by the Central Valley Water Board of a written water diversion plan. Submit the plan to the Central Valley Water Board a minimum of 14 days prior to beginning work in the channel if water is present or flowing in the channel. The plan must include adequate information to describe how flows will be diverted around the work area, and if necessary, the work area will be dewatered, along with mitigation measures to protect water quality and ensure compliance with the water quality objectives in the *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition, Revised September 2009.*

4. The work shall not cause oils, greases or other materials to form a visible film or coating on the water surface or on objects in the water.

5. The work shall not cause oils, greases, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

6. The work shall not cause concentrations of dissolved oxygen to fall below 7.0 mg/L.

7. The work shall not cause increases in turbidity attributable to controllable water quality factors to exceed the following limits:

    a. Where natural turbidity is less than 1Nephelometric Turbidity Units (NTU), increases shall not exceed 2 NTU.

    b. Where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU.

    c. Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.

    d. Where natural turbidity is equal to or between 50 and 100 NTUs, increases shall not exceed 10 NTUs.

e. Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.

8. The work shall not cause hazardous materials to be placed or stored in any surface waters, or anywhere they may discharge to surface waters.

9. Except for activities permitted by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, the work shall not cause soil, silt, or other organic or earthen materials to be placed where such materials could pass into surface waters or surface water drainage courses, and adversely affect beneficial uses.

10. The work shall not cause the normal ambient pH to fall below 6.5 or to exceed 8.5.

11. Notify the Central Valley Water Board immediately if any of the above conditions are violated and provide a description of measures it is taking to remedy the violation.

12. Conduct turbidity monitoring as follows:

    a. During in-water work, grab samples shall be taken and turbidity testing conducted hourly, both upstream and downstream of the work area. Exceedences of the limits described in Technical Condition No. 7 listed above shall be reported to the Central Valley Water Board within 24 hours with a description of actions that will be taken to reduce the turbidity levels. Records of turbidity tests shall be kept including the time, sampler's name, location, and test result.

    b. During dewatering operations, turbidity testing shall be conducted on the discharged water prior to discharge, and once per hour during dewatering. Effective dewatering Best Management Practices (BMPs) shall be implemented to prevent the discharge of sediment-laden dewatering discharge to the river. Exceedences of the limits described in Technical Condition No.7 listed above shall be reported to the Central Valley Water Board within 24 hours with a description of actions that will be taken to reduce the turbidity levels. Records of turbidity tests shall be kept including the time, sampler's name, location, and test result.

    c. Submit results from monitoring on a monthly basis to the Central Valley Water Board. Results shall be submitted by the 15th of each month for monitoring results for the previous month.

13. Ensure that diverted stream flow energy is dissipated, to the extent necessary, such that no erosion of the streambed results. Other BMPs must be employed, as necessary, to prevent downstream sedimentation.

14. Ensure that all areas disturbed by project activities are protected from washout or erosion.

15. Replace removed riparian vegetation to the extent that an adequate buffer exists to prevent bank erosion, and to prevent surface runoff from impacting the waterways.

CENTRAL VALLEY WATER BOARD CONTACT PERSON:

Bridget Supple, Environmental Scientist
(559) 445-5919
bsupple@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that the proposed discharge from the Wolfsen Road Rehabilitation project will comply with the applicable provisions of Sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Resources Control Board Water Quality Order No. 2003-0017-DWQ, "Statewide General Waste Discharge Requirements For Dredged Or Fill Discharges That Have Received State Water Quality Certification (General WDRs)," which is enclosed.

Except insofar as may be modified by any preceding conditions, all certification actions are contingent on (a) the discharge being limited and all proposed mitigations being completed in strict compliance with the applicant's project description and the attached Project Information Sheet, and (b) compliance with all applicable requirements of the Central Valley Water Board's *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition, Revised September 2009.*

for Pamela C. Creedon
Executive Officer

Enclosures: Project Information
Water Quality Order No. 2003-0017-DWQ

cc: Jason Brush, Supervisor, Wetlands Regulatory Office, U.S. Environmental Protection Agency, Region 9, San Francisco
Paul Maniccia, Chief, California South Branch, Regulatory Unit, Department of the Army, Corps of Engineers, Sacramento
Bill Orme, Water Quality Certification Unit Chief, Division of Water Quality, State Water Resources Control Board, Sacramento
Jeffrey Single, Regional Manager, San Joaquin Valley-Southern Sierra Region, California Department of Fish and Game, Fresno

ATTACHMENT 1
PROJECT INFORMATION

Application Date:	7 December 2009
Applicant:	California Department of Transportation (Caltrans)
Applicant Representatives:	Carrie Blickenstaff, Associate Biologist
Project Name:	Wolfsen Road Rehabilitation
Applicant Number:	RN #392; WDID No. 5B24CR
Project Locations:	Wolfsen Road Intersection: 37° 08' 50.12" North Latitude, 120° 49' 27.47" West Longitude; Section 13 of Township 9 South, Range 10 East, MDB&M; Salt Slough Bridge: 37° 14' 50.35" North Latitude, 120° 51' 08.30" West Longitude; Section 10 of Township 8 South, Range 10 East, MDB&M; San Joaquin River Bridge: 37° 17' 42.36" North Latitude, 120° 51' 05.81" West Longitude; Section 27 of Township 7 South, Range 10 East, MDB&M; San Joaquin River Overflow Bridge: 37° 17' 52.95" North Latitude, 120° 51' 05.04" West Longitude; Section 27 of Township 7 South, Range 10 East, MDB&M.
Project Duration:	April 2011 through March 2013
County:	Merced
Receiving Water(s) (hydrologic unit):	Wolfsen Road Intersection: San Joaquin River Hydrologic Basin, Delta-Mendota Canal Hydrologic Unit, Los Banos Hydrologic Area (#541.20); Salt Slough Bridge: San Joaquin River Hydrologic Basin, Delta-Mendota Canal Hydrologic Unit, Los Banos Hydrologic Area (#541.20); San Joaquin River Bridge: San Joaquin River Hydrologic Basin, on the boundary between San Joaquin Valley Floor Hydrologic Unit, El Nido-Steveninson Hydrologic Area (# 535.70) and Delta-Mendota Canal Hydrologic Unit, Los Banos Hydrologic Area (#541.20);

San Joaquin River Overflow Bridge: San Joaquin River Hydrologic Basin, San Joaquin Valley Floor Hydrologic Unit, El Nido-Steveninson Hydrologic Area (# 535.70)

Water Body Type: River, Slough, and Wetlands

Designated Beneficial Uses: The designated beneficial uses of the wetlands at the Wolfsen Road Intersection are: agricultural supply; warm freshwater habitat; wildlife habitat; and preservation of biological habitats of special significance.

The designated beneficial uses of Salt Slough are: agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; spawning, reproduction, and/or early development; wildlife habitat; commercial and sport fishing; preservation of biological habitats of special significance; and shellfish harvesting.

The designated beneficial uses of the San Joaquin River from Sack Dam to the mouth of the Merced River are: municipal and domestic supply; agricultural supply; industrial process supply; water contact recreation; non-contact water recreation; warm freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.

Project Description: Rehabilitate State Route 165 from post mile 11.7 to 26.9 (between Los Banos and Stevinson). Replace three existing bridges over the San Joaquin River, the San Joaquin River Overflow, and Salt Slough. Intersections and approaches will be upgraded, and the roadway surface will be paved.

Preliminary Water Quality Concerns: Increased turbidity, deposition of settleable material, and transport of pollutants to the waterbodies.

Proposed Mitigation To Address Concerns: Best Management Practices (BMPs) will be implemented during construction. All temporarily affected areas will be restored to pre-project contours and conditions upon completion of work activities.

Fill/Excavation Area: The project will result in permanent impacts of 0.196 acres to wetlands, permanent impacts of 0.013 acres to unvegetated streambeds, temporary impacts of 0.166 acres to wetlands and temporary impacts of 0.499 acres to unvegetated streambeds.

Dredge Volume (cy):	None
U.S. Army Corps of Engineers Permit:	Caltrans submitted an application for coverage under Nationwide Permit No. 14 on 30 November 2009.
Department of Fish and Game Streambed Alteration Agreement:	Caltrans applied for a Streambed Alteration Agreement on 30 November 2009.
CEQA Compliance:	Caltrans prepared a Mitigated Negative Declaration and filed it with the State Clearinghouse (#2007011106) on 24 January 2007, then filed a Notice of Determination on 3 April 2007 and 8 August 2007.
Compensatory Mitigation:	Caltrans proposes to provide compensatory mitigation via an In-Lieu Fee Program at a 1:1 ratio.
Application Fee Provided:	A fee of $3,045.00 was submitted on 7 December 2009, as required by 23 CCR Section 3833(b)(2)(A).

STATE WATER RESOURCES CONTROL BOARD

WATER QUALITY ORDER NO. 2003 - 0017 - DWQ

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR DREDGED OR FILL DISCHARGES THAT HAVE RECEIVED STATE WATER QUALITY CERTIFICATION (GENERAL WDRs)

The State Water Resources Control Board (SWRCB) finds that:

1. Discharges eligible for coverage under these General WDRs are discharges of dredged or fill material that have received State Water Quality Certification (Certification) pursuant to federal Clean Water Act (CWA) section 401.

2. Discharges of dredged or fill material are commonly associated with port development, stream channelization, utility crossing land development, transportation water resource, and flood control projects. Other activities, such as land clearing, may also involve discharges of dredged or fill materials (e.g., soil) into waters of the United States.

3. CWA section 404 establishes a permit program under which the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the United States.

4. CWA section 401 requires every applicant for a federal permit or license for an activity that may result in a discharge of pollutants to a water of the United States (including permits under section 404) to obtain Certification that the proposed activity will comply with State water quality standards. In California, Certifications are issued by the Regional Water Quality Control Boards (RWQCB) or for multi-Region discharges, the SWRCB, in accordance with the requirements of California Code of Regulations (CCR) section 3830 et seq. The SWRCB's water quality regulations do not authorize the SWRCB or RWQCBs to waive certification, and therefore, these General WDRs do not apply to any discharge authorized by federal license or permit that was issued based on a determination by the issuing agency that certification has been waived. Certifications are issued by the RWQCB or SWRCB before the ACOE may issue CWA section 404 permits. Any conditions set forth in a Certification become conditions of the federal permit or license if and when it is ultimately issued.

5. Article 4, of Chapter 4 of Division 7 of the California Water Code (CWC), commencing with section 13260(a), requires that any person discharging or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the State,[1] file a report of waste discharge (ROWD). Pursuant to Article 4, the RWQCBs are required to prescribe waste discharge requirements (WDRs) for any proposed or existing discharge unless WDRs are waived pursuant to CWC section 13269. These General WDRs fulfill the requirements of Article 4 for proposed dredge or fill discharges to waters of the United States that are regulated under the State's CWA section 401 authority.

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[1] "Waters of the State" as defined in CWC Section 13050(e)

6. These General WDRs require compliance with all conditions of Certification orders to ensure that water quality standards are met.

7. The U.S. Supreme Court decision of *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) (the *SWANCC* decision) called into question the extent to which certain "isolated" waters are subject to federal jurisdiction. The SWRCB believes that a Certification is a valid and enforceable order of the SWRCB or RWQCBs irrespective of whether the water body in question is subsequently determined not to be federally jurisdictional. Nonetheless, it is the intent of the SWRCB that all Certification conditions be incorporated into these General WDRs and enforceable hereunder even if the federal permit is subsequently deemed invalid because the water is not deemed subject to federal jurisdiction.

8. The beneficial uses for the waters of the State include, but are not limited to, domestic and municipal supply, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources.

9. Projects covered by these General WDRs shall be assessed a fee pursuant to Title 23, CCR section 3833.

10. These General WDRs are exempt from the California Environmental Quality Act (CEQA) because (a) they are not a "project" within the meaning of CEQA, since a "project" results in a direct or indirect physical change in the environment (Title 14, CCR section 15378); and (b) the term "project" does not mean each separate governmental approval (Title 14, CCR section 15378(c)). These WDRs do not authorize any specific project. They recognize that dredge and fill discharges that need a federal license or permit must be regulated under CWA section 401 Certification, pursuant to CWA section 401 and Title 23, CCR section 3855, et seq. Certification and issuance of waste discharge requirements are overlapping regulatory processes, which are both administered by the SWRCB and RWQCBs. Each project subject to Certification requires independent compliance with CEQA and is regulated through the Certification process in the context of its specific characteristics. Any effects on the environment will therefore be as a result of the certification process, not from these General WDRs. (Title 14, CCR section 15061(b)(3)).

11. Potential dischargers and other known interested parties have been notified of the intent to adopt these General WDRs by public hearing notice.

12. All comments pertaining to the proposed discharges have been heard and considered at the November 4, 2003 SWRCB Workshop Session.

13. The RWQCBs retain discretion to impose individual or general WDRs or waivers of WDRs in lieu of these General WDRs whenever they deem it appropriate. Furthermore, these General WDRs are not intended to supersede any existing WDRs or waivers of WDRs issued by a RWQCB.

IT IS HEREBY ORDERED that WDRs are issued to all persons proposing to discharge dredged or fill material to waters of the United States where such discharge is also subject to the water quality certification requirements of CWA section 401 of the federal Clean Water Act (Title 33 United States Code section 1341), and such certification has been issued by the applicable RWQCB or the SWRCB, unless the applicable RWQCB notifies the applicant that its discharge will be regulated through WDRs or waivers of WDRs issued by the RWQCB. In order to meet the provisions contained in Division 7 of CWC and regulations adopted thereunder, dischargers shall comply with the following:

1. Dischargers shall implement all the terms and conditions of the applicable CWA section 401 Certification issued for the discharge. This provision shall apply irrespective of whether the federal license or permit for which the Certification was obtained is subsequently deemed invalid because the water body subject to the discharge has been deemed outside of federal jurisdiction.

2. Dischargers are prohibited from discharging dredged of fill material to waters of the United States without first obtaining Certification from the applicable RWQCB or SWRCB.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 19, 2003.

AYE: Arthur G. Baggett, Jr.
Peter S. Silva
Richard Katz
Gary M. Carlton
Nancy H. Sutley

NO: None.

ABSENT: None.

ABSTAIN: None.

Debbie Irvin
Clerk to the Board

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

REPLY TO
ATTENTION OF

June 23, 2010

Regulatory Division (SPK-2007-00302)

Zachary K. Parker
California Department of Transportation, District 6
2015 East Shields Avenue, Suite 100
Fresno, California 93726 -5428

Dear Mr. Parker:

We are responding to your December 7, 2009, request for a Department of the Army permit for the State Route 165 Wolfsen Road Rehabilitation Project. This approximately 62-acre project involves activities, including the discharge of dredged or fill material, into waters of the United States to; replace the San Joaquin River Bridge, widen the San Joaquin River Overflow Bridge and Salt Slough Bridge, Realign the intersections at Santa Fe Grade Road and Wolfsen Road. The project is located near Los Banos, Section 10, Township 8 South, Range 10 East, Latitude 37.205547°, Longitude -120.842582°, MDB&M, Merced County, California.

Based on the information you provided the proposed activities in approximately 0.88 acres of Waters of the United States, including wetlands, located in the areas identified in the attached Appendix A: Project Impact Maps are authorized by Nationwide Permit Number 14 (Permanent Impacts to Wetlands 0.2 acres and Waters 0.015 acres, Temporary Impacts to Wetlands 0.166 acres and Waters 0.499 acres) . Your work must comply with the general terms and conditions listed on the enclosed Nationwide Permit information sheets and the following special conditions:

Special Conditions

1. All terms and conditions of the January 12, 2010 Section 401 Water Quality Certification (WDID5B24CR) are expressly incorporated as conditions of this permit.

2. We understand the State of California, Department of Transportation (Caltrans) is the National Environmental Policy Act (NEPA) lead federal agency for this project, and as such, will ensure the authorized work complies with the National Environmental Policy Act, the Endangered Species Act, the National Historical Preservation Act and any other applicable federal laws. This authorization is contingent upon the permittee implementing all actions necessary to comply with these requirements.

3. This Corps permit does not authorize you to take an endangered species, in particular giant garter snake *(Thamnophis gigas)*, or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). To ensure your project complies with the Federal Endangered Species Act, you must implement all of the mitigating measures identified in the enclosed U.S. Fish and Wildlife Service letter of concurrence #81420-2010-F-0306-1, dated June 4, 2010, including those ascribed to the California Department of Transportation (Caltrans) therein. If you are unable to implement any of these measures, you must immediately notify the appropriate Caltrans office, the U.S. Army Corps of Engineers Regulatory office, and the appropriate U.S. Fish and Wildlife office so that Caltrans acting as the lead Federal agency for this project may consult as appropriate, prior to initiating the work, in accordance with Federal law.

4. To insure your project complies with the Federal Endangered Species Act, you must implement all of the mitigating measures identified in the enclosed National Marine Fisheries Service letter of concurrence #2009/06606, dated January 29, 2010, including those ascribed to Caltrans therein. If you are unable to implement any of these measures, you must immediately notify the appropriate Caltrans office, the U.S. Army Corps of Engineers Regulatory office, and the appropriate National Marine Fisheries Service office so that Caltrans acting as the lead Federal agency for this project may consult as appropriate, prior to initiating the work, in accordance with Federal law.

5. To mitigate for the loss 0.2-acres of wetlands and the loss of 0.015 acres of waters of the United States, you shall submit a check in the amount of $32,250.00 payable to the National Fish and Wildlife Foundation (NFWF). The Middle San Joaquin-Lower Chowchilla Hydrologic Unit Code (18040001) must be indicated in the in-lieu fee agreement in order to insure the proper location of future mitigation. Prior to proceeding with any activity otherwise authorized by this permit, we must receive notification from you that your in-lieu fees have been deposited into NFWF's Sacramento District Wetlands Conservation Fund.

6. To mitigate for impacts to aquatic resource and associated habitat, you shall plant and maintain regionally appropriate native riparian vegetation at a 3:1 replacement ratio along the affected reaches of the San Joaquin River, San Joaquin River Overflow, and Salt Slough. Willows, oaks, alders, cottonwoods, sycamores, and/or other appropriate native vegetation shall be planted to shade the impacted areas. To insure long-term survival of plantings, rip-rapped areas shall be planted with native trees/shrubs, using vegetated rip-rap techniques, or other methods approved by Caltrans.

7. All equipment staging, including Temporary Construction Areas (TCA's), shall take place within Caltrans approved areas within the project boundary. Prior to construction implementation, you shall ensure all equipment staging, TCA's, demolition and excavation, off pavement detours, borrow and fill areas, and upland disposal areas have been evaluated under National Environmental Policy Act, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species Act and Section 106 of the National Historical Preservation Act and all required permits have been obtained.

8. You shall, prior to proceeding with any activity otherwise authorized by this permit, install Environmentally Sensitive Area (ESA) fencing and employ appropriate water quality protection measures and/or Best Management Practices (BMP's) along the entire perimeter of the new Right-of-Way (ROW) to ensure unauthorized fills and unforeseen impacts to waters of the United States are avoided. All fencing surrounding avoidance areas shall allow unrestricted visibility of these areas to discourage vandalism, destruction or disturbance. An example of fencing includes high-visibility orange plastic or similar type.

9. Temporary fills, access roads and/or work structures shall be removed in their entirety and the affected areas returned to pre-construction elevations, contours and conditions within 30 days of activity completion. The affected areas must be revegetated with appropriate native trees, shrubs and/or seed mix, using techniques or other methods approved by Caltrans.

10. You shall follow the specifications and standards described in the Storm Water Pollution Prevention Plan (SWPPP) and/or Water Pollution Control Plan (WPCP), to prevent erosion and sedimentation during and after construction. Construction work within waters of the United States shall be performed when the flows are at their seasonal low or when they have ceased and the areas are dry, typically late summer through early fall. All in-stream devices will be removed between construction seasons and disturbed areas will be stabilized to prevent erosion.

11. No activity may cause more than a minimal adverse effect on navigation. Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittees' expense on authorized facilities or structures in navigable waters of the United States.

12. You shall have a biological monitor, who is familiar with aquatic resources and buffer habitat, monitor all construction activities within waters of the U.S. and 100 feet of avoided waters, including wetlands. The monitor shall ensure unauthorized activities do not occur within avoided waters of the U.S. during project implementation. The monitor shall have the authority to stop work immediately, if unauthorized activities occur.

13. You shall notify the Sacramento District, Regulatory Division Office immediately if any of the above conditions are violated or unauthorized activities occur, and shall provide a description of measures taken to remedy the violation.

14. The Permittee is responsible for all work authorized herein. To ensure that involved contractors are aware of the terms, conditions and limitations of this authorization, the permittee shall post a copy of the permit authorization and associated drawings at the project site during all phases of construction to ensure that contractors are aware of the terms and conditions of the authorization.

15. To ensure avoidance and minimization measures are successful and temporary fills have been removed, you shall take pre-construction, numbered and dated, photographs of the affected ***water features*** seven (7) days **prior** to construction impact. You shall take post-construction, numbered and dated, photographs of the affected ***water features*** within seven (7) days **after** construction impact. You shall submit the photographs within 30 days after construction completion. The camera positions and view angles of pre- and post-photographs shall be identical and taken from designated locations documented on the plan drawing(s).

16. You shall notify this office of the start of the authorized work within seven (7) calendar days of initiating construction activities. Along with this notification, you shall submit a copy of the project construction/work schedule or similar report.

17. You must allow representatives from the Corps of Engineers to inspect the authorized activity and any mitigation, preservation, or avoidance areas at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

18. You shall notify this office of any proposed modifications to the project, including revisions to any of the plans or documents cited in this authorization, for review and approval prior to construction work associated with the proposed modification.

19. You must sign the enclosed *Compliance Certification* form and return it to this office within 30 days after completion of the authorized work.

This verification is valid until the nationwide permit referenced above is modified, reissued, or revoked. All of the nationwide permits are scheduled to be modified, reissued, or revoked prior to March 18, 2012. It is incumbent upon you to remain informed of changes to the nationwide permits. We will issue a public notice when the nationwide permits are reissued. Furthermore, if you commence or are under contract to commence the authorized activity before the date that the relevant nationwide permit is modified, reissued or revoked you will have twelve (12) months from the date of the modification, reissuance, or revocation of the nationwide permits to complete the activity under the present terms and conditions of the nationwide permits.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2007-00302 in any correspondence concerning this project. If you have any questions, please contact Ms. Leah Fisher at our California South Branch Office, 1325 J Street, Room 1480, Sacramento, CA 95814-2922, email *leah.m.fisher@usace.army.mil*, or telephone 916-557-6639.

For more information regarding our program, please visit our website at *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Paul M. Maniccia
Chief, California South Branch

Enclosure:

1) *Nationwide Permit Number 14, Linear Transportation Projects,* Summary Sheet
2) *U.S. Fish and Wildlife Service letter of concurrence* #81420-2010-F-0306-1, dated June 4, 2010
3) *NMFS Concurrence Letter #2009/06606* dated January 29, 2010
4) Appendix A: Impact Maps

Copy furnished without enclosure:

California Regional Water Quality Control Board, Storm Water and Water Quality Certification Unit, Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114

U.S. Fish and Wildlife Service, Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-3901

National Marine Fisheries Service, Regional Administrator, 650 Capitol Mall, Suite 8-300, Sacramento, California 95814-4706

California Department of Fish and Game, 1701 Nimbus Road, Rancho Cordova, California 95670-4504

COMPLIANCE CERTIFICATION

Permit File Number: SPK-2007-00302

Nationwide Permit Number: 14, Linear Transportation Projects

Permittee: Zachary K. Parker
California Department of Transportation, District 6
2015 East Shields Avenue, Suite 100
Fresno, California 93726

County: Merced

Date of Verification: June 23, 2010

Within 30 days after completion of the activity authorized by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Regulatory Division
1325 J Street, Room 1480
Sacramento, California 95814-2922
Leah.M.Fisher@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of the permit your authorization may be suspended, modified, or revoked. If you have any questions about this certification, please contact the Corps of Engineers.

* * * * * * * * *

I hereby certify that the work authorized by the above-referenced permit, including all the required mitigation, was completed in accordance with the terms and conditions of the permit verification.

_____ _____
Signature of Permittee Date

Nationwide Permit Summary

U S Army Corps of Engineers
Sacramento District

33 CFR Part 330; Issuance of Nationwide Permits – March 19, 2007 Includes corrections of May 8, 2007 and addition of regional conditions December 2007

14. Linear Transportation Projects. Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 27.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4)

A. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP.

☐ 1. **Navigation.**

☐ (a) No activity may cause more than a minimal adverse effect on navigation.

☐ (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

☐ (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

☐ 3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

☐ 4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ 5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

☐ 6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

☐ 7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☐ 8. **Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or

interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent—meaning bordering, contiguous, or neighboring—to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

prevent erosion and siltation into waters and wetlands at the earliest practicable date). Streambed material or other small aggregate material placed along a bank as stabilization will not meet General Condition 12. Also, use of erosion control mates that contain plastic netting may not meet General Condition 12 if deemed harmful to wildlife.

b. Designated Critical Resource Waters in Colorado. In Colorado, a list of designated Critical Resource Waters has been published in accordance with General Condition 19 (Designated Critical Resource Waters). This list will be published on the Albuquerque District Regulatory home page (http://www.spa.usace.army.mil/reg/)

c. Federally-Listed Threatened and Endangered Species. General condition 17 requires that non-federal permittees notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project. Information on such species, to include occurrence by county in Colorado, may be found at the following U.S. Fish and Wildlife Service website:
http://www.fws.gov/mountain%2Dprairie/endspp/name_county_search.htm

C. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

D. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of streams bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands

14. For NWP 46, the discharge shall not cause the loss of greater than 0.5 acres of waters of the United States or the loss of more than 300 linear feet of ditch, unless this 300 foot linear foot limit is waived in writing by the Sacramento District.

15. For NWPs 29, 39, 40, 42, and 43, upland vegetated buffers shall be established and maintained in perpetuity, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced or preserved waters of the U.S., consistent with General Condition 20. Except in unusual circumstances, vegetated buffers shall be at least 50 feet in width.

16. All NWPs except 3, 6, 20, 27, 32, 38, and 47, are revoked for activities in histosols and fens and in wetlands contiguous with fens. Fens are defined as slope wetlands with a histic epipedon that are hydrologically supported by groundwater. Fens are normally saturated throughout the growing season, although they may not be during drought conditions. For NWPs 3, 6, 20, 27, 32, and 38, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27.

17. For all NWPs, when activities are proposed within 100 feet of the point of groundwater discharge of a natural spring, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27. A spring source is defined as any location where ground water emanates from a point in the ground. For purposes of this condition, springs do not include seeps or other discharges which lack a defined channel.

II. California Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.

2. In the Primary and Secondary Zones of the Legal Delta, NWPs 29 and 39 are revoked. New development activities in the Legal Delta will be reviewed through the Corps' standard permit process.

III. Nevada Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.

IV. Utah Only

1. For all NWPs, except NWP 47, prospective permittees shall submit a PCN in accordance with General Condition 27 for any activity, in waters of the United States, below 4217 feet mean sea level (msl) adjacent to the Great Salt Lake and below 4500 feet msl adjacent to Utah Lake.

2. A PCN is required for all bank stabilization activities in a perennial stream that would affect more than 100 linear feet of stream.

3. For NWP 27, facilities for controlling stormwater runoff, construction of water parks such as kayak courses, and use of grout or concrete to construct in-stream structures are not authorized. A PCN is required for all projects exceeding 1500 linear feet as measured on the stream thalweg, using in stream structures exceeding 50 cubic yards per structure and/or incorporating grade control structures exceeding 1 foot vertical drop. For any stream restoration project, the post project stream sinuosity shall be appropriate to the geomorphology of the surrounding area and shall be equal to, or greater than, pre project sinuosity. Sinuosity is defined as the ratio of stream length to project reach length. Structures shall allow the passage of aquatic organisms, recreational water craft or other navigational activities unless specifically waived in writing by the District Engineer.

V. Colorado Only

1. Final Regional Conditions Applicable to Specific Nationwide Permits within Colorado.

a. Nationwide Permit Nos. 12 and 14, Utility Line Activities and Linear Transportation Projects. In the Colorado River Basin, utility line and road activities crossing perennial water or special aquatic sites require notification to the District Engineer in accordance with General Condition 27 (Pre-Construction Notification).

b. Nationwide Permit No. 13 Bank Stabilization. In Colorado, bank stabilization activities necessary for erosion prevention in streams that average less than 20 feet in width (measured between the ordinary high water marks) are limited to the placement of no more than 1/4 cubic yard of suitable fill* material per running foot below the plane of the ordinary high water mark. Activities greater than 1/4 cubic yard may be authorized if the permittee notifies the District Engineer in accordance with General Condition 27 (Pre-Construction Notification) and the Corps determines the adverse environmental effects are minimal. [* See (g) for definition of Suitable Fill]

c. Nationwide Permit No. 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

(1) For activities that include a fishery enhancement component, the Corps will send the Pre-Construction Notification to the Colorado Division of Wildlife (CDOW) for review. In accordance with General Condition 27 (Pre-Construction Notification), CDOW will have 10 days from the receipt of Corps notification to indicate that they will be commenting on the proposed project. CDOW will then have an additional 15 days after the initial 10-day period to provide these comments. If CDOW raises concerns, the applicant may either modify their plan, in coordination with CDOW, or apply for a standard individual permit.

(2) For activities involving the length of a stream, the post-project stream sinuosity will not be significantly reduced, unless it is demonstrated that the reduction in sinuosity is consistent with the natural morphological evolution of the stream (sinuosity is the ratio of stream length to project reach length).

(3) Structures will allow the upstream and downstream passage of aquatic organisms, including fish native to the reach, as well as recreational water craft or other navigational activities, unless specifically waived in writing by the District Engineer. The use of grout and/or concrete in

property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

☐ (c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

☐ (2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

☐ (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

☐ (4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

☐ (5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

☐ (e) In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant

aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

☐ (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

☐ (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

☐ (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

☐ (g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

☐ (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

☐ **21. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

☐ **22. Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

☐ **23. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

☐ **24. Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

☐ **25. Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

> "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."
>
> ---
>
> (Transferee)
>
> ---
>
> (Date)

☐ **26. Compliance Certification.** Each permittee who received an NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

restricting its flow must be minimized to the maximum extent practicable.

☐ **9. Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ **10. Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

☐ **11. Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ **12. Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

☐ **13. Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☐ **14. Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

☐ **15. Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

☐ **16. Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

☐ **17. Endangered Species.**

☐ (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

☐ (c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

☐ (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

☐ (e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide Web pages at http://www.fws.gov/ and http://www.noaa.gov/fisheries.html respectively.

☐ **18. Historic Properties.**

☐ (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

United States Department of the Interior

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

IN REPLY REFER TO:
81420-2010-F-0306-1

JUN 4 2010

Mr. Zachary Parker
Branch Chief, Central Region Biology Branch
California Department of Transportation, District 6
2015 East Shields Avenue, Suite A-100
Fresno, California 93726-5428

Subject: Biological Opinion for the State Route 165 Wolfsen Road Rehabilitation Project, Merced County, California (California Department of Transportation EA 10-279801, 10-MER-165-PM 11.7/26.9)

Dear Mr. Parker:

This is the U.S. Fish and Wildlife Service's (Service) response to the California Department of Transportation's (Caltrans) request for formal consultation on the proposed State Route 165 Wolfsen Road Rehabilitation Project (project) in Merced County, California. Your letter requesting consultation, dated April 22, 2010 was received in this office on April 26, 2010. At issue are potential effects of the proposed project on the federally-threatened giant garter snake (*Thamnophis gigas*; GGS). This document represents the Service's biological opinion on the effects of the proposed project on this listed species. This document has been prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*) (Act).

The findings and recommendations of this biological opinion (B.O.) are based on: (1) an initial project description summary delivered via electronic-mail (e-mail) on January 20, 2010; (2) supplemental information provided by the May 2006 Natural Environment Study and the November 2009 Permit Applications packet; (3) a February 16, 2010, site visit by the Service and Caltrans biologists; (4) a meeting between Caltrans and the Service on February 26, 2010; (5) a biological assessment (B.A.), dated April 2010, incorporated as part of the consultation initiation package; (6) e-mail and telephone exchanges between the Service and Caltrans dating from January through May 2010; and (7) other information available to the Service.

Caltrans originally determined that the project would have no effect on the GGS and requested the Service's concurrence with this determination in order to provide documentation of coordination with the Service to the United States Army Corps of Engineers (Corps). The Service reviewed the proposed project but did not concur with Caltrans' determination; instead it recommended that Caltrans initiate formal consultation for the GGS. The Service determined

that the proposed project was likely to adversely affect the GGS given a number of reasons: a majority of bridge construction and water-work will occur outside of the GGS's active period and within 200 ft of suitable aquatic habitat; the project is situated in an area inhabited by the extremely vulnerable Grasslands GGS population; State Route 165, the highway on which construction activities will occur, runs through sensitive National Wildlife Refuge (NWR) areas in which historic and more recently known occurrences of GGS have been documented; and there is also high waterway connectivity in this Grasslands region, creating an environment in which GGS can move freely.

Consultation History

January 20, 2010. Carrie Blickenstaff (Caltrans) e-mailed Jen Schofield (Service) with a summary of information on the project and the request for input on and concurrence with Caltrans' 'no effect' determination for the GGS. This was in response to the Corps' request to Caltrans to have Service documentation of concurrence before proceeding with 404 permit matters. In her e-mail, Ms. Blickenstaff also included four project location maps and four photographs documenting various locales throughout the project site.

January 20, 2010. Virginia Strohl (Caltraus) telephoned Ms. Schofield to update her on the project and to provide a brief summary of events and background. She said it would be ready to list for construction soon and so it was necessary to start addressing matters. Ms. Strohl recognized that if the Service did not concur, Caltrans would need to revisit the project.

January 27, 29 & February 1, 2010. Ms. Schofield e-mailed MaryAnn Owens (Service) to ask for input regarding the GGS in the project area. Ms. Schofield explained what could potentially create issues for GGS despite Caltrans having made its 'no effect' determination. Ms. Owens replied on January 29 and February 1, agreeing that location, high waterway connectivity, and newer survey data were reasons for being cautious in regards to the determination.

January 29, 2010. Ms. Schofield emailed Ms. Strohl to update her on the project. Ms. Schofield informed her that she was discussing GGS issues internally and that Caltrans might need to revisit its 'no effect' determination.

February 1, 2010. Ms. Schofield further discussed the project with Ms. Owens, who recommended Ms. Schofield enquire into several other species that might possibly be affected by the project, e.g. Conservancy fairy shrimp (*Branchinecta conservatio*; CFS) and San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF). Zachary Parker (Caltrans) also telephoned Ms. Schofield to explain that the November and December work dates were set in place partly due to lower water flows during the winter months and would not be used for irrigation during this period. The bridges would need to be closed to traffic but could not be closed during the summer months because of the tomato harvest season. He said Caltrans would like to complete the project in a single season. Ms. Schofield pointed out that the proposed closure times would create work window issues for GGS.

February 3 & 5, 2010. Ms. Schofield e-mailed Kim Forrest (San Luis NWR), asking for her input on the project and on any particular species issues. She inquired as to whether the NWR had any concerns regarding the project based on the elements currently involved. Ms. Forrest replied on February 5 to say that she had been keeping track of the project over the years. The

original project description from years earlier would have had far too many impacts on the NWR through extensive road widening and presence of borrow pits. However, given the current project description, she had no concerns to add.

February 4, 2010. Ms. Strohl telephoned Ms. Schofield to discuss various topics, including matters relevant to the current project. Ms. Schofield updated her on some of the issues she had been discussing with Ms. Owens regarding the GGS and SJKF, as well as with the NWR, and informed Ms. Strohl that the work window would become a problem if concurrence with Caltrans' determination was not reached. Ms. Strohl confirmed that all Best Management Practices (BMPs) would be included in the project. She also stated that the schedule for the project was tight since Caltrans was also required to obtain the 404 permit from the Corps prior to the project's upcoming ready-to-list date.

February 9, 2010. Ms. Schofield e-mailed Ms. Strohl with further updates, questions, and concerns regarding the project's effects on the GGS. She relayed that the NWR had no problems with the project, but that she and Ms. Owens still had some GGS concerns, particularly at Salt Slough Bridge, given the in-water work and construction activity outside of the GGS active period, as well as the extreme vulnerability of the Grasslands GGS population in the area, as evidenced by the baseline information provided in a B.O. issued by the Service the previous month for a project whose action area incorporated that of the project considered here. Ms. Schofield also had some questions regarding the SJKF, vernal pool tadpole shrimp (*Lepidurus packardi;* VPTS), California tiger salamander (*Ambystoma californiense;* CTS), and CFS. She also requested a site visit.

February 12, 2010. Ms. Blickenstaff and Ms. Schofield exchanged telephone calls to schedule a day and time for a site visit.

February 16, 2010. Ms. Schofield met Ms. Blickenstaff on-site at the intersection of State Route 140 and State Route 165 and traversed the entire project route to discuss project construction, bridge work, and issues to GGS, SJKF, and vernal pool species. The possibility of formal consultation for GGS was discussed.

February 17, 2010. Ms. Blickenstaff e-mailed Ms. Schofield with responses to her questions from February 9. Ms. Blickenstaff made a case for why earlier construction (to coincide with the GGS active period at the Service's request) would not be feasible and why full bridge closure was a better option. She also responded to the queries regarding the SJKF, vernal pool species, and the installation of speed bumps on the highway. If the Service determined that formal consultation was necessary, she asked for a turn-around date by which the B.O. could be delivered given the issues surrounding funding and the ready-to-list date, in addition to the reintroduction of salmon by the San Joaquin River Restoration Plan which would bring another listed species into consultation if construction were pushed back too far.

February 24, 2010. Ms. Schofield e-mailed Ms. Strohl and Ms. Blickenstaff to inform them that after further internal Service discussion, the Service recommended that Caltrans initiate formal consultation for the GGS based on sensitivity of the area, state of the GGS population, and the presence of water work outside of the GGS active period.

February 26, 2010. The Service received copies from Caltrans of the Natural Environment Study (May 2006), the Permit Applications packet (November 2009), and selected 11x17 mapping delineating impacts for the road realignments and bridge/slough work. A quarterly meeting was also held between the Service (Kenneth Sanchez and Ms. Schofield) and Caltrans (Christine Cox, Gail Miller, Mr. Parker, Ms. Strohl) to discuss project workload in general and the project considered here in particular. Caltrans asked for clarification regarding the Service's request to have Caltrans initiate formal consultation. It also asked about timelines (ideally, it would need to receive the B.O. before June 30). Ms. Schofield suggested Caltrans could submit a mini B.A. to speed up the process since much discussion had already taken place on project issues.

March 15-16, 2010. Laura Peterson-Diaz (California Department of Fish and Game (CDFG)) e-mailed Ms. Schofield with a request to review the draft of the Streambed Alteration Agreement to see whether CDFG's provisions in its document would conflict with anything in the Service's B.O. Ms. Schofield responded on March 16 to say that the provisions as written would not be a problem.

April 26, 2010. The Service received a letter from Caltrans requesting formal consultation for the GGS for the project. The initiation package also included a B.A.

May 4, 2010. Ms. Schofield e-mailed Ms. Blickenstaff with several minor questions regarding the B.A. Ms. Schofield also e-mailed Mr. Parker to discuss project compensation, including a request to use an increased ratio (6:1) based on the fact that construction activity would take place outside of the GGS active period, as well as because of the highly vulnerable status of the Merced area GGS populations. They also discussed two options as means of compensation (GGS in-lieu fund and a credit purchase at a possible future available conservation bank).

May 5, 2010. Ms. Blickenstaff responded to Ms. Schofield's questions from May 4 via e-mail.

May 6, 2010. Mr. Parker telephoned Ms. Schofield to discuss the compensation issue. He said Caltrans would feel more comfortable using a higher 3:1 ratio applied to the temporary effects, rather than the 6:1 ratio for permanent effects, because it did not want to set a precedent for higher ratio usage in the Merced region. Ms. Schofield explained that from the Service perspective, they felt it was appropriate not only because work would be occurring outside of the GGS active period, but because of the extreme status of these southern populations in relation to the status of the northern populations. However, because the credit totals for both proposals balanced out, Ms. Schofield approved Caltrans' preferred proposal using 3:1 for temporary effects. Mr. Parker also stated that Caltrans liked the option of using a conservation bank if one were to become available prior to project groundbreaking.

BIOLOGICAL OPINION

Description of the Proposed Action

The following project description is based on information provided by Caltrans in its Natural Environment Study (Caltrans, 2006) and B.A. (Caltrans, 2010). The proposed project intends to rehabilitate a 15.2 mile (mi) rural segment of State Route (SR) 165 (post mile (PM) 11.7 at Henry Miller Road to 26.9 at SR 140) in Merced County, north of the City of Los Banos, in

order to prevent the further deterioration of the roadway and structures, and to upgrade the intersections to meet current design standards. Construction activities will include:

- Overlaying the entire existing roadway with new asphalt concrete
- Replacing the San Joaquin River Bridge
- Widening the San Joaquin River Overflow Bridge approximately six feet on each side
- Widening the Salt Slough Bridge approximately six feet on each side
    - Extending the existing rip-rap on the north bank by 69 cubic yards
- Realigning Santa Fe Grade Road and Wolfsen Road where they intersect SR 165
- Widening and tapering the shoulders at the bridges to accommodate the approaches to the newly widened bridges

The existing alignment consists of two 12-foot (ft) lanes with two to three and one half ft shoulders. This section of highway is flanked on both sides by sensitive habitats: the San Luis National Wildlife Refuge (NWR) complex to the east, Kesterson NWR to the west, and the Great Valley Grasslands State Park to the west, beginning at Salt Slough and extending to approximately 0.6 mi south of SR 140.

A Project Scope Summary Report was prepared for this project in 1993. The project never came to fruition at that time due to a lack of funding and recommendations to implement significant design modifications, based on new traffic data, hydraulic data and the potential to affect a significant expanse of wetlands. Original design elements included:

- Widening shoulders to eight ft on each side
- Extending 11 cement box culverts at multiple sloughs
- Replacing approximately 100 pipe culverts
- Constructing turn lanes
- Modifying the SR 165/SR 140 intersection

All of these were removed from consideration because of the scale of potential impacts to species and natural resources in the NWR lands.

Construction Activities

Temporary trestles and falsework will be erected at each of the three bridges. The majority of bridge work will be conducted during the fall, when migratory birds will not be nesting. However, installation of falsework will begin in the spring; Caltrans will have funds set aside for swallow exclusion measures. All heavy equipment used for placement of piles and bridge falsework will be operated from the bridge decks and these activities will be the sole in-water activities. No temporary access roads will be constructed; neither will any means of water diversion occur, unless determined absolutely necessary by the contractor. Only minor trimming of trees will occur in the project area, in particular by the San Joaquin River Overflow Bridge and Salt Slough Bridge, but there will be some removal of other vegetation, e.g. next to all bridge abutments.

Borrow/Fill Material

Fill material (1,800 cubic yards) will be imported to the project site for intersection realignment work at Santa Fe Grade Road, but no fill material will be necessary at Salt Slough. At this stage, Caltrans does not yet know from where the contractor will derive the material, but it will be clean and meet Caltrans' specifications.

Schedule

Overall work is anticipated to begin in April 2011 and be completed in March 2012. According to Caltrans' "Order of Work" contract special provision, construction at Santa Fe Grade intersection is scheduled for the summer of 2011, prior to the road closure necessitated by the bridge work. However, the contractor could request to conduct the Santa Fe Grade work concurrently with the bridge work.

Bridge construction is proposed for a three month period from September through November 2011, in order to coincide with the lowest water flows (particularly in the San Joaquin River) and to avoid both the migratory bird nesting season and the tomato harvest season in which there is an increase in traffic volume of tomato-hauling trucks requiring access along SR 165. With a full 90 day road closure scheduled later in the year, Caltrans will be able to confine construction activities to one season, rather than have them spread to multiple seasons. The anticipated total construction duration will thus decrease from 20 months to 12 months with a 260-day working schedule, resulting in a reduction of overall project presence and allowing space for equipment staging on the highway pavement. The approach shoulder widening will occur immediately afterwards, in November and December 2011. Overlaying of the asphalt concrete will subsequently follow using one-lane traffic control.

Proposed Avoidance and Minimization Measures

Construction Guidelines

Caltrans proposes to follow Standard BMPs for the duration of the proposed project. According to the NES, the B.A., and further discussion with Caltrans' biologists, Caltrans also proposes to implement the following guidelines to minimize and avoid impacts to natural resources and special-status species that may occur within the vicinity of the construction area:

1. Chemicals, lubricants, and petroleum products will be closely monitored and precautions will be taken. All equipment will be maintained for leaks of fluids, such as gasoline, oils, or solvents. If any spills occur, cleanup will take place immediately.

2. Construction site BMPs will be utilized during implementation of a Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP) to minimize any water quality reductions that could occur from this project. These BMPs are best conventional technology/best available technology-based and are consistent with the control practices required under the Clean Water Act.

3. A dust palliative or other dust control plan will be included in the WPCP.

4. Any sensitive sites adjacent to the construction activities, within the Caltrans ROW, will be designated as environmentally-sensitive areas (ESA) to prevent accidental and indirect construction-related impacts.

    a. ESA fencing will be placed around the willow tree at Salt Slough; set up around the aquatic and upland habitat areas in the Santa Fe Grade Road intersection in order to minimize equipment and foot-traffic on GGS upland habitat; and also set up to mark the staging areas located at the Wolfsen Road intersection.

5. A noxious weed condition will be included in Caltrans' Earthwork Special Provision in the Construction Contract.

6. If tree trimming and shrub and vegetation removal occur during the nesting season, surveys for ground nesting birds will be conducted prior to this.

    a. Vegetation will not be removed beyond the minimum area anticipated for temporary and permanent construction activity.

Proposed Giant Garter Snake Conservation Measures

According to the B.A. and further discussion between Service and Caltrans biologists, Caltrans proposes to implement the following conservation measures to minimize and avoid effects to the GGS in and around Salt Slough and the SR 165/Santa Fe Grade intersection:

1. All heavy equipment used at Salt Slough will be operated from the bridge deck and roadbed in order to avoid in-water disturbance.

2. Between September 1 and November 30, a Caltrans biologist will conduct a pre-construction survey for GGS at Salt Slough and Santa Fe Grade Road within 24 hours of initial ground disturbance and prior to a resumption in work activities following a lapse of one week or longer.

3. A Caltrans biologist will be present to monitor the initial ground-breaking activities at Salt Slough and at Santa Fe Grade Road.

4. Equipment parking, project access, supply logistics, equipment maintenance, and other project-related activities will occur in designated construction access and staging areas, which will be pre-approved by a Service-approved biologist prior to the commencement of construction.

    a. Staging areas at the Wolfsen Road intersection will likely be located east of SR 165 and adjacent to the canal in two open, disturbed expanses, located just north and south of the proposed realignment.

    b. Staging areas at the Santa Fe intersection will likely be located adjacent to the proposed alignment in the new Caltrans right-of-way.

c. Staging areas for all bridge work during the period of road closure will be located on the pavement of SR 165.

5. Construction personnel will participate in a worker environmental awareness program approved by the Service. A Service-approved biologist will inform workers about GGS identification, life history, and habitat requirements, the consequences and penalties of listed species take and federal and state laws pertaining to the GGS, the procedures for dealing with a GGS encounter, and the minimization/avoidance measures stated herein.

6. If a live GGS is encountered during construction, the Service will be immediately notified.

d. The Service-approved biologist will stop construction activity in the vicinity of the GGS, monitor the area, and allow the GGS to leave on its own. The biologist will stay in the area for the remainder of the workday to ensure the GGS is not harmed and that it leaves the site and does not return. If the GGS does not leave of its own accord within one working day, the Service will be further consulted.

e. Only a Service-approved biologist with a valid take permit pursuant to Section 10(a)(1)(A) of the Act, will have the authority to capture and/or relocate any GGS encountered in the action area.

7. The proposed project will result in the permanent loss of a total of 0.16 acres (ac) of GGS habitat at Salt Slough and Santa Fe Grade Road (0.08 ac at each location) and temporary disturbance to 0.25 ac at Santa Fe Grade Road. When there are plans for construction activity to proceed outside of the GGS active season, the Service can recommend extra minimization measures. One such measure applies a higher 3:1 ratio to temporary effects; temporary effects are thus treated as permanent effects. Prior to groundbreaking, Caltrans proposes using a 3:1 compensation ratio for permanent effects (0.16 ac x 3 = 0.48 credits) and a 3:1 ratio for temporary effects (0.25 ac x 3 = 0.75 credits) to pay a fee of $68,880 (1.23 credits x $56,000/credit) into the GGS In-Lieu Conservation Fund (in-lieu fund). The in-lieu fund is an agreement between the Service, the Center for Natural Lands Management (CNLM), and the Giant Garter Snake Conservation Fund Participant, which in this case, is Caltrans. To ensure that these funds are appropriately used to help minimize effects to the GGS in the vicinity of the project's action area, the funds will be specified "for use in Merced County only." When fully executed, the enclosed Agreement satisfies, in part, conservation measures described for the project.

8. Should a Service-approved conservation bank become available within Merced County prior to project groundbreaking, and the bank has a service area that appropriately covers the project area and specifically includes the GGS, Caltrans will have the option to purchase 1.23 GGS credits at this bank (0.16 ac at 3:1 + 0.25 at 3:1). Credit sales will be completed at least 60 calendar days prior to the date of initial groundbreaking.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the

proposed project, the action area includes the 15.2 mile (mi) segment of highway due to be overlaid with new asphalt concrete; the approximately 1,200 ft segment of Santa Fe Grade road and the approximately 400 ft segment of Wolfsen Road, both of which will be realigned; the Caltrans ROW within which bridge-related and road realignment construction activities will occur; the ruderal and agricultural areas through which the Santa Fe Grade road will be realigned and the wetland area through which Wolfsen Road will be realigned; staging areas outside of the Caltrans ROW by Wolfsen Road; and the several hundred feet downstream of in-water bridge work in Salt Slough and the San Joaquin River that could experience sedimentation and erosion as a result of construction activities.

Status of the Species

Listing – The Service published a proposal to list the GGS as an endangered species on December 27, 1991 (56 FR 67046). The Service reevaluated the status of the snake before adopting the final rule, which listed it as a threatened species on October 20, 1993 (58 FR 54053).

Description – The GGS is one of the largest garter snake species, reaching a total length of approximately 64 inches (in). Females tend to be slightly longer and proportionately heavier than males. Generally, the snakes have a dark dorsal background color with pale dorsal and lateral stripes, although coloration and pattern prominence are geographically and individually variable (Hansen, 1980; Rossman *et al.*, 1996).

Historical and Current Range – GGS formerly occurred throughout the wetlands that were extensive and widely distributed in the Sacramento and San Joaquin Valley floors of California (Fitch, 1940; Hansen and Brode, 1980; Rossman and Stewart, 1987). The historical range of the GGS is thought to have extended from the vicinity of Chico, Butte County, southward to Buena Vista Lake, near Bakersfield, in Kern County (Fitch, 1940; Fox, 1948; Hansen and Brode, 1980; Rossman and Stewart, 1987). Early collecting localities of the GGS coincide with the distribution of large flood basins, particularly riparian marsh or slough habitats and associated tributary streams (Hansen and Brode, 1980). Loss of habitat due to agricultural activities and flood control have extirpated the snake from the southern one third of its range in former wetlands associated with the historic Buena Vista, Tulare, and Kern lake beds (Hansen, 1980; Hansen and Brode, 1980).

Upon Federal listing in 1993, the Service identified 13 separate populations of GGS, with each population representing a cluster of discrete locality records (Service, 1993). The 13 populations largely coincide with historical flood basins and tributary streams throughout the Central Valley: (1) Butte Basin, (2) Colusa Basin, (3) Sutter Basin, (4) American Basin, (5) Yolo Basin/Willow Slough, (6) Yolo Basin/Liberty Farms, (7) Sacramento Basin, (8) Badger Creek/Willow Creek, (9) Caldoni Marsh/White Slough, (10) East Stockton--Diverting Canal & Duck Creek, (11) North and South Grasslands, (12) Mendota, and (13) Burrel/Lanare. Population clusters 1 through 4 above were associated with rice production areas, especially channels and canals that delivered or drained agricultural irrigation water. These populations were determined to be extant in 1993. Population clusters at Butte, Sutter, and Colusa Basins (1, 2, and 3) were determined to be not imminently threatened with extirpation. Populations 4 through 13 were determined to be imminently threatened with extirpation. The area covered by these populations (4 through 13) included the San Joaquin Valley, portions of the eastern fringes of the Delta, and

the southern Sacramento Valley; an area encompassing about 75 percent of the species' known geographic range (Service, 1993a).

The known range of the GGS has changed little since the time of listing. In 2005, GGS were observed at the City of Chico's wastewater treatment facility, approximately ten miles north of what was previously believed to be the northernmost extent of the species' range (D. Kelly, pers. comm., 2006; E. Hansen, pers. comm., 2006). The southernmost known occurrence is at the Mendota Wildlife Area in Fresno County. No sightings of GGS south of Mendota Wildlife Area within the historic range of the species have been made since the time of listing (Hansen, 2002).

Population Genetics - Recent genetic work on GGS population structure indicates three genetic entities within the species which follow the pattern of subdivision revealed by the snake's mitochondrial DNA and color pattern variants: north, central, and south (Paquin, 2001; Paquin *et al.*, 2006). Interestingly, evidence of historical gene flow between northern and southern populations exists; however, mitochondrial DNA data reveal that the central population, analogous to the Delta Basin, is genetically isolated from both northern and southern populations. High frequencies of unique mitochondrial DNA haplotypes in the central population increase the conservation value for the Delta Basin, particularly as a source for GGS genetic diversity.

Essential Habitat Components – Endemic to wetlands in the Sacramento and San Joaquin valleys, the GGS inhabits marshes, sloughs, ponds, small lakes, low gradient streams, and other waterways and agricultural wetlands, such as irrigation and drainage canals, rice fields and the adjacent uplands (Service, 1999). Essential habitat components consist of: (1) wetlands with adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) upland habitat with grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for over-wintering habitat with escape cover (vegetation, burrows) and underground refugia (crevices and small mammal burrows) (Hansen, 1988). Summer aquatic habitat is essential because it supports the frogs, tadpoles, and small fish on which the GGS preys. Rice and natural wetlands adjacent to ditches and canals may serve as vital nursery habitat for young GGS and as temporary stopping stations as GGS make their way through systems of ditches and canals.

Females will often give birth in rice fields and the newly born snakes will feed on the small prey items that are prevalent in rice fields, but are rare or absent from other permanent aquatic habitat types (E. Hansen, pers. comm., 2008). GGS are typically absent from larger rivers and other bodies of water that support introduced populations of large, predatory fish, and from wetlands with sand, gravel, or rock substrates (Hansen, 1988; Hansen and Brode, 1980; Rossman and Stewart, 1987). Riparian woodlands do not provide suitable habitat because of excessive shade, lack of basking sites, and absence of prey populations (Hansen, 1988).

Foraging Ecology – Giant garter snakes are the most aquatic garter snake species and are active foragers, feeding primarily on aquatic prey such as fish and amphibians (Fitch, 1941). Because the species' historic prey species are either declining, extirpated, or extinct, the predominant food items are now introduced species such as carp (*Cyprinus carpio*), mosquito-fish (*Gambusia affinis*), and larval and sub-adult bullfrogs (*Rana catesbiana*) (Fitch, 1941; Hansen, 1988; Hansen and Brode, 1980, 1993; Rossman *et al.*, 1996).

Reproductive Ecology – The GGS breeding season extends through March and April, and females give birth to live young from late July through early September (Hansen and Hansen, 1990). Although growth rates are variable, young typically more than double in size by one year of age, and sexual maturity averages three years in males and five years for females (Service, 1993).

Movements and Habitat Use – The GGS is highly aquatic but also occupies a terrestrial niche (Service, 1999; Wylie *et al.*, 2004a). The snake typically inhabits small mammal burrows and other soil and/or rock crevices during the colder months of winter (*i.e.*, October to April) (Hansen and Brode, 1993; Wylie *et al.*, 1995; Wylie *et al.*, 2003a), and also uses burrows as refuge from extreme heat during its active period (Wylie *et al.*, 1997; Wylie *et al.*, 2004a). While individuals usually remain in close proximity to wetland habitats, the Biological Resource Division of the U.S. Geological Survey (BRD) has documented snakes using burrows as much as 165 feet away from the marsh edge to escape extreme heat, and as far as 820 feet from the edge of marsh habitat for over-wintering habitat (Wylie *et al.*, 1997).

In studies of marked snakes in the Natomas Basin, snakes moved about 0.25 to 0.5 mile per day (Hansen and Brode, 1993). Total activity, however, varies widely between individuals; individual snakes have been documented to move up to five miles over a few days in response to dewatering of habitat (Wylie *et al.*, 1997) and to use up to more than eight miles of linear aquatic habitat over the course of a few months. Home range (area of daily activity) averages about 61 ac in both the Natomas Basin and the Colusa National Wildlife Refuge (NWR) (Wylie, 1998a; Wylie *et al.*, 2002a).

Rice fields have become important habitat for the GGS, particularly associated canals and their banks for both spring and summer active behavior and winter hibernation (Hansen, 2004a; Wylie, 1998b). GGS require water during the active phase of their life cycle in the summer, and this summer aquatic habitat is essential because it supports the frogs, tadpoles, and small fish on which the GGS preys (Paquin *et al.* 2006). While within the rice fields, snakes forage in the shallow water for prey, utilizing rice plants and vegetated berms dividing rice checks for shelter and basking sites (Hansen and Brode, 1993). In the Natomas Basin, habitat used consisted almost entirely of irrigation ditches and established rice fields (Wylie, 1998a), while in the Colusa NWR, snakes were regularly found on or near edges of wetlands and ditches with vegetative cover (Wylie *et al.*, 2003a). Telemetry studies also indicate that active snakes use uplands extensively, particularly where vegetative cover exceeds 50 percent in the area (Wylie, 1998b).

Recent studies provide limited information on the use of agricultural wetlands by GGS. Wylie *et al.* (1997) found that GGS densities were highest, and average home range was smallest, in permanent wetlands (Badger Creek, Sacramento County) compared to agricultural wetlands (Gilsizer Slough, Sutter County) or managed marshes (Colusa NWR, Colusa County). However, Wylie *et al.* (2000) reported that in wetlands managed specifically to benefit the GGS, home range estimates were smaller than for those areas lacking comparable management (wetlands managed for waterfowl). Wylie (1998b) also documented 14 captures and recaptures of GGS using natural channels or sloughs in the Grasslands Area in Merced County, compared to four captures and recaptures of snakes using irrigation canals. These observations may indicate that GGS may concentrate in the best habitat when all other surrounding habitat has been eliminated

or highly degraded. It also may indicate that habitat in agricultural wetlands and some managed marshes are meeting some of their biological needs, but not to the fullest extent possible.

Predators – Giant garter snakes are killed and/or eaten by a variety of predators, including raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), opossums (*Didelphis virginiansa*), bull frogs (*Rana catesbiana*), hawks (*Buteo* sp.), egrets (*Casmerodius albus, Egretta thula*), river otters (*Ludra canadensis*), and great blue herons (*Ardea herodias*) (Dickert, 2003; Wylie *et al.*, 2003b; G. Wylie, pers. comm., 2006). Many areas supporting snakes have been documented to have abundant predators; however, predation does not seem to be a limiting factor in areas that provide abundant cover, high concentrations of prey items, and connectivity to a permanent water source (Hansen and Brode, 1993; Wylie *et al.*, 1995).

Reasons for Decline and Threats to Survival – The current distribution and abundance of the GGS is much reduced from former times (Service, 1999). Prior to reclamation activities beginning in the mid- to late-1800s, about 60 percent of the Sacramento Valley was subject to seasonal overflow flooding providing expansive areas of snake habitat (Hinds, 1952). Now, less than 10 percent, or about 319,000 acres of the historic 4.5 million ac of Central Valley wetlands remain (U.S. Department of Interior, 1994), of which very little provides habitat suitable for the GGS. Loss of habitat due to agricultural activities and flood control have extirpated the snake from the southern one-third of its range in former wetlands associated with the historic Buena Vista, Tulare, and Kern lakebeds (Hansen, 1980; Hansen and Brode, 1980).

Valley flood wetlands are now subject to cumulative effects of upstream watershed modifications, water storage and diversion projects, as well as urban and agricultural development. The Central Valley Project (CVP), the largest water management system in California, created an ecosystem altered to such an extent that remaining wetlands depend on highly managed water regimes (U.S. Department of Interior, 1994). Further, the implementation of CVP has resulted in conversion of native habitats to agriculture, and has facilitated urban development through the Central Valley (Service, 1999). For instance, it is estimated that residential and commercial growth in the Central Valley will lead to the loss of more than one million acres by the year 2040 (USGS, 2003). Environmental impacts associated with urbanization include loss of biodiversity and habitat, alteration of natural fire regimes, fragmentation of habitat from road construction, and degradation due to pollutants. Rapidly expanding cities within the snake's range include Chico, Yuba City, the Sacramento area, Galt, Stockton, Gustine, and Los Banos.

The primary threats to the GGS continue to be habitat loss and degradation. Farmland lost to urbanization includes land that is presently cultivated in rice. The relatively abundant populations of GGS in the Sacramento Valley may reflect the expansion of available habitat that is provided from rice cultivation. Dependence of populations on rice cultivation leaves the GGS vulnerable to wide-scale habitat loss in the event of changes in crop type (e.g., grapes, fruit or nut producing orchards, or annual row crops such as wheat, tomatoes or cotton) to those less water intensive or land fallowing (Paquin *et al.*, 2006) and to changes in precipitation patterns and water availability and timing associated with climate change (CDWR, 2008). Unlike flood irrigated rice fields, other agricultural cropping systems do not hold sufficient water for long enough time periods to create artificial, temporary wetlands. GGS in the San Joaquin Valley are threatened by a lack of summer surface water in wetlands and fields, and the age structure of populations in this part of the range has been found to be senescing with very few if any young

individual GGS being found during trapping surveys conducted over the last five years (Hansen, 2008a). Availability of clean summer water is especially important for young GGS to survive and grow (E. Hansen, pers. comm., 2008).

Ongoing maintenance of aquatic habitats for flood control and agricultural purposes eliminates or prevents the establishment of habitat characteristics required by GGS (Hansen, 1988). Such practices can fragment and isolate available habitat, prevent dispersal of snakes among habitat units, and adversely affect the availability of the snake's food items (Hansen, 1988; Brode and Hansen, 1992). For example, tilling, grading, harvesting and mowing may kill or injure individuals (Wylie *et al.*, 1997). Biocides applied to control aquatic vegetation reduce cover for the snake and may harm prey species (Wylie *et al.*, 1995). Rodent control threatens the snake's upland aestivation habitat (Wylie *et al.*, 1995; Wylie *et al.*, 2003). Restriction of suitable habitat to water canals bordered by roadways and levee tops renders snakes vulnerable to vehicular mortality (Wylie *et al.*, 1997). Rolled erosion control products, which are frequently used as temporary berms to control and collect soil eroding from constriction sites, can entangle and kill snakes (Stuart *et al.*, 2001; Barton and Kinkead, 2005). Livestock grazing along the edges of water sources degrades water quality and can contribute to the elimination and reduction of available quality snake habitat (Hansen, 1988; E. Hansen, pers. comm., 2006), and GGS have been observed to avoid areas that are grazed (Hansen, 2003). Fluctuation in rice and agricultural production affects stability and availability of habitat (Paquin *et al.*, 2006; Wylie and Casazza, 2001; Wylie *et al.*, 2003c, 2004).

Other land use practices also currently threaten the survival of the snake. Recreational activities, such as fishing, may disturb GGS and disrupt thermoregulation and foraging activities (E. Hansen, pers. comm., 2006). While large areas of seemingly suitable GGS habitat exist in the form of duck clubs and waterfowl management areas, water management of these areas typically does not provide the summer water needed by the species (Beam and Menges, 1997; Dickert, 2005; Paquin *et al.*, 2006).

Nonnative predators, including introduced predatory game fish, bullfrogs, and domestic cats, can threaten snake populations (Dickert, 2003; Hansen, 1986; Service, 1993; Wylie *et al.*, 1995; Wylie *et al.*, 2003b). Nonnative competitors, such as the introduced water snake (*Nerodia fasciata*) in the American River and associated tributaries near Folsom, may also threaten the GGS (Stitt *et al.*, 2005). Predation by native species upon the GGS has not been well documented. Anecdotal information includes observations of hawks, herons, and river otters preying upon the GGS. According to Rossman *et al.* (1996), GGS may be important prey for several vertebrate predators including jays (*Cyanocitta cristata*) and crows (*Corvus brachyrhynchos*), carnivorous fish, and small mammals. Small native mammalian predators are likely to include raccoons, skunks, opossums, and foxes. Anthropogenic (human-caused) changes in ecosystem dynamics and reductions in suitable habitat for GGS may favor and subsidize these predator populations. The result may be an increase in predation pressure upon the GGS (Service, 2006).

The disappearance of GGS from much of the west side of the San Joaquin Valley was approximately contemporaneous with the expansion of subsurface drainage systems in this area, providing circumstantial evidence that the resulting contamination of ditches and sloughs with drainwater constituents (principally selenium) may have contributed to the demise of GGS populations. Dietary uptake is the principle route of toxic exposure to selenium in wildlife,

including the GGS (Beckon *et al.*, 2003). Many open ditches in the northern San Joaquin Valley carry subsurface drainwater with elevated concentrations of selenium, and green sunfish (*Lepomis cyanellus*) have been found to have concentrations of selenium within the range of concentrations associated with adverse affects on predator aquatic reptiles (Hopkins *et al.*, 2002; Saiki, 1998). Studies on the effects of selenium on snakes suggest that snakes with high selenium loads in their internal organs can transfer potentially toxic quantities of selenium to their eggs (Hopkins *et al.*, 2004) and also demonstrate higher rates of metabolic activity than uncontaminated snakes (Hopkins *et al.*, 1999).

Climate Change – Global warming increases the frequency of extreme weather events, such as heat waves, droughts, and storms (International Panel on Climate Change (IPCC), 2001, 2007; California Climate Action Team, 2006; Lenihan *et al.*, 2003). At present, there is no quantitative analysis of how ongoing climate change is currently affecting the GGS in the San Joaquin Valley. Although predictions of future climatic conditions for smaller sub-regions in California remain uncertain (Christensen et al., 2007; Field *et al.*, 2007; Moser *et al.*, 2009), daily minimum and maximum temperatures have begun to change (Moser *et al.*, 2009), and inter-annual precipitation variability has already begun to increase (Kelly and Goulden, 2008; Loarie *et al.*, 2008). Across the mid-latitudes of the northern hemisphere, spring plant green-up has advanced by almost two weeks and animals in many areas are responding to such changes by breeding earlier and shifting their ranges (see review in Field *et al.*, 2007). As the global climate warms, terrestrial habitats are moving northward and upward, but in the future, range contractions are more likely than simple northward or upslope shifts. Ongoing global climate change (Inkley *et al.*, 2004; Adger *et al.*, 2007; Kanter, 2007) likely imperils the GGS and the resources necessary for its survival within the Delta Basin subpopulation in the action area. Since climate change threatens to disrupt annual weather patterns, it may result in a loss of habitat and/or prey, and/or increased numbers of predators, parasites, and diseases. Where populations are isolated or fragmented, a changing climate may result in local extinction, with range shifts precluded by lack of habitat.

Status with Respect to Recovery – The draft recovery plan for the GGS subdivides its range into four proposed recovery units (Service, 1999): (1) Sacramento Valley Recovery Unit; (2) Mid-Valley Recovery Unit; (3) San Joaquin Valley Recovery Unit; and (4) South Valley Recovery Unit.

The Sacramento Valley Unit at the northern end of the species' range contains sub-populations in the Butte Basin, Colusa Basin, and Sutter Basin (Service, 1999; Service, 2006). Protected snake habitat is located on State refuges and refuges of the Sacramento National Wildlife Refuge (NWR) Complex in the Colusa and Sutter Basins. Suitable snake habitat is also found in low gradient streams and along waterways associated with rice farming. This northernmost recovery unit is known to support relatively large, stable sub-populations of GGS (Wylie *et al.*, 1995; Wylie *et al.*, 1997; Wylie *et al.*, 2002; Wylie *et al.*, 2003a; Wylie *et al.*, 2004). Habitat corridors connecting subpopulations, however, are either not present or not protected, and are threatened by urban encroachment.

The Mid-Valley Unit includes sub-populations in the American, Yolo, and Delta Basins (Service, 1999; Service, 2006). The status of Mid-Valley sub-populations is very uncertain; each is small, highly fragmented, and located on isolated patches of limited quality habitat that is increasingly threatened by urbanization (E. Hansen, 2002, 2004a; Service, 1993; Wylie, 2003;

Wylie and Martin, 2004; Wylie *et al.*, 2005; G. Wylie, pers. comm., 2006). The American Basin sub-population, although threatened by urban development, receives protection from the Metro Air Park and Natomas Basin Habitat Conservation Plans, which share a regional strategy to maintain a viable snake sub-population in the basin.

The San Joaquin Valley Unit, which includes sub-populations in the San Joaquin Basin, formerly supported large snake populations, but numbers have severely declined, and recent survey efforts indicate numbers are extremely low compared to Sacramento Valley sub-populations (Dickert, 2002, 2003; Hansen, 1988; Williams and Wunderlich, 2003; Wylie, 1998a). The GGS currently occurs in the northern and central San Joaquin Basin within the Grassland Wetlands of Merced County and the Mendota Wildlife Area of Fresno County; however, these sub-populations remain small, fragmented, and unstable, and are probably decreasing (Dickert, 2003, 2005; G. Wylie, pers. comm., 2006).

The South Valley Unit included sub-populations in the Tulare Basin, however, agricultural and flood control activities are presumed to have extirpated the snake from the Tulare Basin (Hansen, 1995). Comprehensive surveys for this area are lacking and where habitat remains, the GGS may be present. Wylie and Amarello (2008) surveyed locations in the Tulare Basin in 2006 including Buena Vista Lake, Fresno Slough, Kern Refuge, Kings River and North Kings River. No snakes were detected at any of the locations sampled. Wylie and Amarello noted that suitable habitat does exist in Kern NWR so that reintroduction may be considered feasible in the future should summer water supplies (incremental Level 4) be secured.

Since 1995, BRD has studied snake sub-populations at the Sacramento, Delevan, and Colusa NWRs and in the Colusa Basin Drain within the Colusa Basin, at Gilsizer Slough within the Sutter Basin, at the Badger Creek area of the Cosumnes River Preserve within the Badger Creek/Willow Creek area of the Delta Basin, and in the Natomas Basin within the American Basin (Hansen, 2003, 2004b; Wylie, 1998a, 1998b, 2003; Wylie *et al.*, 1995; Wylie *et al.*, 2002; Wylie *et al.*, 2003a, 2004; Wylie *et al.*, 2003c, 2004). These areas contain the largest extant GGS sub-populations. Outside of protected areas, however, GGS are still subject to all threats identified in the final rule. The other sub-populations are distributed discontinuously in small, isolated patches, and are vulnerable to extirpation by stochastic environmental, demographic, and genetic processes (Goodman, 1987).

The revised draft recovery criteria require multiple, stable sub-populations within each of the four recovery units, with sub-populations well-connected by corridors of suitable habitat. This entails that corridors of suitable habitat between existing snake sub-populations be maintained or created to enhance sub-population interchange to offset threats to the species (Service, 2003). Currently, only the Sacramento Valley Recovery Unit is known to support relatively large, stable GGS populations. Habitat corridors connecting sub-populations, even in the Sacramento Valley Recovery Unit, are either not present or not protected. Overall, the future availability of habitat in the form of canals, ditches, and flooded fields are subject to market-driven crop choices, agricultural practices, and urban development, and thus are uncertain and unpredictable.

Summary of the Five-Year Review – The abundance and distribution of GGS have not changed significantly since the time of listing. Although some individuals have been rediscovered in several southern populations that were thought to be extirpated, these populations remain in danger of extirpation because their numbers remain very low and the habitat is of low quality.

By far, the most serious threats to continue to be loss and fragmentation of habitat from urban and agricultural development and loss of habitat associated with changes in rice production. Activities, such as water management, that are associated with habitat loss are also of particular concern, because they exacerbate the losses from development and from loss of rice production. The remaining threats (such as from introduced predators, roads, erosion control) are secondary to such habitat loss although habitat fragmentation could become a critical issue in the snake's survival should large scale habitat changes occur. Populations range-wide are largely isolated from one another and from remaining suitable habitat. Without hydrologic links to suitable habitat during periods of drought, flooding, or diminished habitat quality, the snake's status will decline.

Environmental Baseline

Status of the Giant Garter Snake within the Vicinity of the Action Area

The action area is located within the wider San Joaquin Basin within the Grassland Wetlands of Merced County; GGS sub-populations there comprise the San Joaquin Valley Recovery Unit. San Joaquin Valley subpopulations of GGS have suffered severe declines and possible extirpations over the last two decades. In the North and South Grasslands, 24 records in the California Natural Diversity Data Base (CNDDB), all prior to 1976, delimit a formerly extensive complex of occupied suitable habitat, probably the largest regional population in the San Joaquin Valley since the reclamation of the Tulare and Buena Vista lakebeds. However, a recent history of selenium and salinity contamination throughout this area and absence of GGS sightings in much of its historic range in the Grasslands has indicated that this population is at high risk (Service, 1993). Thirteen of these CNDDB occurrences (2010) have been recorded within the United States Geological Survey (USGS) Stevinson, San Luis Ranch, and Los Banos 7.5-minute quadrangles, within which lies the current project's action area. The most recent of these occurrences is from 2000 in which a male and female were captured in Mud Slough, a tributary of Salt Slough. Waterways and associated wetlands provide vital permanent aquatic and upland habitat for snakes in areas with otherwise limited habitat. The recovery strategy for the species includes maintenance and/or creation of habitat corridors between existing sub-populations to enhance population interchange and offset threats to the species (Service, 2003).

In April 1998 the Dixon Field Station of the USGS's Western Ecological Research Center began a survey for GGS in the San Joaquin Valley. The effort yielded the capture of seven female and four male GGS, for a total of 11 individuals (Wylie, 1998a). The majority of the GGS were caught in the North Grasslands area, within seven miles of the project's action area: seven GGS were caught in Los Banos Creek west of Kesterson NWR, which is located approximately 6.5 miles west of where Salt Slough runs under SR 165; and three were caught at the Volta State Wildlife Area (WA), whose eastern boundary lies approximately three miles west of the Santa Fe Grade Road realignment site at which there is suitable GGS aquatic and upland habitat.

In 1999, GGS surveys were conducted by the CDFG out of the Los Banos State Wildlife Area, Volta State WA, and Los Banos Creek; these were performed according to USGS Dixon Field Station protocols (Beam *et al.*, 1999). Fourteen new GGS were captured and eleven were recaptured as part of this effort; none of the captures were made on the Los Banos State WA. GGS densities in the San Joaquin Valley are extremely low in comparison to study areas in the Sacramento Valley.

Because the GGS is known to exist on the wildlife refuges and wildlife areas neighboring the project area, Caltrans determined that surveys would be conducted, but not at protocol level. In 2000, eight locations along the length of the highway were designated for study; the ESRP conducted 97 spot surveys on 12 different occasions within these eight locations during the GGS active period. No individuals were observed.

In 2003, the CDFG performed visual searches for GGS on private properties as well as on the China Island, Volta and Los Banos State WAs (Dickert, 2003). Trapping resulted in the capture of 31 individuals, all from the Volta State WA (an area with no history of selenium contamination from subsurface agricultural drainage water).

In 2004, the CDFG continued trapping for GGS in the Volta State WA. That trapping effort yielded 13 individuals (Sloan, 2005). A parallel trapping effort conducted throughout the San Luis NWR complex during 2004 did not detect any GGS (Williams *et al.*, 2004). Trapping was conducted again by the CDFG in 2006 at Mud Slough (South) and at Volta State WA, resulting in seven GGS captured within the Volta Wasteway; none were captured at Mud Slough (South) (CDFG, 2006a).

E. Hansen (2007) provides a summary of trapping efforts by the USGS, the Service, and the CDFG from 1999 to 2004. The closest GGS captures in regards to the project's action area were discovered south of the Los Banos State WA, located approximately three miles from the southern boundary of the action area; were discovered within the Volta State WA, at a site located approximately five miles west of the Santa Fe Grade Road/SR 165 realignment intersection; and were also discovered west of Santa Fe Grade Road near Kesterson NWR, approximately five to six miles west of where Salt Slough crosses SR 165.

Between May 1 and September 8, 2007, Hansen established 64 traplines with 48,762 trap days accrued (2007). Four GGS were captured in all. Of these four GGS, one was captured twice, constituting a decrease from 33 capture events in 2006 to five capture events in 2007 despite the increase in trapping effort. Two of the four GGS captured in 2007 had been previously marked in 2006. All GGS were encountered along the Los Banos Creek corridor between the San Joaquin River and the City of Los Banos, which encompasses the segment of SR 165 comprising the project's action area.

In 2008, Hansen established ten 50-trap transects along the Los Banos Creek corridor. Twenty-two traplines were established in total with 38,339 trap days accrued. Nineteen individual GGS (10 males and 9 females) were captured in 36 total capture events; eight individuals were captured more than once. Of these 19, three were captured in the Los Banos Creek corridor within the North Grasslands area and fifteen were captured within the Volta State WA (E. Hansen, 2008a).

Given the frequency of surveys that have been conducted over the years, a very low number of individual GGS have been documented. Although habitat has been lost or degraded throughout the Central Valley, there have been many recent sightings of GGS in the Sacramento Valley while there have been very few recent sightings within the San Joaquin Valley, particularly on smaller scales within the San Joaquin Basin and the North and South Grasslands.

Factors Affecting the Giant Garter Snake within the Vicinity of the Action Area

The status of the North and South Grasslands population has been, and continues to be, impacted by past and contemporaneous Federal, State, private, and other human activities and natural factors. The small numbers of GGS found both in the action area and in the surrounding state-, federally-, and privately-owned lands, likely reflect the continued degradation of wetland habitat and the abundance of invasive predators, such as bullfrogs. Low numbers of GGS in the San Joaquin Valley in general place these populations at high risk of extinction (Service, 2006a). The Five-Year Review of the GGS found that by far one of the most serious threats to the species continues to be loss and fragmentation of habitat from urban and agricultural development. However, factors in addition to habitat loss are likely contributing to the decline. Threats affect GGS within otherwise suitable habitat and include interrupted water supply and poor water quality (Hansen, 1996). Activities such as water management that are associated with habitat loss are of particular concern because they exacerbate the losses from development and from loss of rice production. Populations range-wide are largely isolated from one another and from remaining suitable habitat. Without hydrologic links to suitable habitat during periods of drought, flooding, or diminished habitat quality, the GGS's status will decline (Service, 2006a).

An unrelated Federal action has occurred within the action area and adjacent regions, affecting the environmental baseline of the species. The project, the *Third Use Agreement for the Grassland Bypass Project in Merced County* (File number 81420-2009-F-1036), has been subject to prior section 7 consultation and this action has resulted in direct effects to GGS and the suitable habitat within the action area.

Analytical Framework for the Jeopardy/No Jeopardy Determination

In accordance with policy and regulation, the following analysis relies on four components to support the jeopardy/no jeopardy determination for the GGS: (1) the *Status of the Species*, which evaluates the range-wide condition of the GGS, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the GGS in the action area, the factors responsible for that condition, and the role of the action area in the GGS's survival and recovery; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the GGS; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the GGS.

In accordance with policy and regulation, the jeopardy/no jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the GGS's current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the GGS in the wild.

The following analysis places an emphasis on consideration of the range-wide survival and recovery needs of the GGS and the role of the action area in meeting those needs as the context for evaluating the significance of the effects of the proposed Federal action, combined with cumulative effects, for purposes of making the jeopardy/no jeopardy determination. In short, a non-jeopardy determination is warranted if the proposed action is consistent with maintaining the

role of habitat and the GGS population in the action area for the survival and recovery of the species.

Effects of the Proposed Action

Direct effects to the GGS include the loss of and disturbance to suitable habitat during the course of bridge widening and intersection realignment activities. Permanent effects will result in the loss of 0.08 ac of habitat at Salt Slough through the placement of six new 18-inch diameter bridge piles in-water (0.0002 ac), removal of vegetation for the placement of 0.01 ac of Rock Slope Protection (RSP; or riprap) on the north bank of the slough, and the widening of the bridge shoulders to taper back into the existing pavement (0.073 ac). Ground disturbance will be limited to the abutments and within the already disturbed Caltrans right-of-way. Permanent effects will also result in the loss of 0.08 ac of potential suitable habitat at the Santa Fe Grade Road intersection site. There is no work proposed within or to the Santa Fe Canal itself, but rather within a 200 ft buffer from suitable GGS aquatic habitat. Within the buffer there lies a segment of asphalt concrete road; a fallow, but maintained agricultural field through which the realignment will be positioned; and a small grassy section of potential GGS upland habitat extending above the emergent wetland vegetation found on the banks of the canal. Temporary effects to 0.25 ac at the Santa Fe Grade Road site will result from increased heavy equipment presence and worker foot traffic.

A 650 ft segment of Santa Fe Grade Road will no longer be in use once realignment activities have rerouted the road. This segment abuts the Santa Fe Canal; removal of the pavement will allow for the natural re-vegetation of the area, providing an increase in potential suitable upland habitat for the GGS. The old Wolfsen Road pavement will also be removed and then hydroseeded with a mixture of ripgut brome (*Bromus diandrus*); California oatgrass (*Danthonia californica*); Bermuda grass "Santa Ana" (*Cynodon dactylon*); common spikeweed (*Hemizonia pungens*); and Johnson grass (*Sorghum halepense*).

Since GGS can move approximately five miles over several days (Wylie *et al.*, 1997), and because of the proximity of both historical snake observation records and recent surveying efforts to the action area; the presence of suitable habitat in and/or around Salt Slough and Santa Fe Grade Road; and the biology and ecology of the species, the Service believes that the GGS is reasonably certain to occur within the action area. Therefore, the proposed project is likely to adversely affect the GGS through permanent habitat loss and temporary disturbance.

As a result of these permanent and temporary effects, harassment or harm of GGS individuals is likely to occur to those GGS present in the construction area when activities begin or when they enter the action area once activities are underway. Because bridge widening activities will continue for two out of the three month closure period during the GGS inactive period (between October 1 and April 30), additional effects to the species are likely to occur. Increased risk is posed to the GGS during this over-wintering period, because at this time of year, the species cannot thermo-regulate as effectively, and has a low resulting body temperature; this impairs rapid movement, and hence the ability to relocate quickly to avoid danger. Additionally, individuals move to hibernacula during this season, occupying underground burrows or crevices, where they are more susceptible to ground disturbance and overland construction work. Consequently, continued personnel foot traffic, in addition to equipment and machinery presence, could lead to harassment, injury and mortality of GGS individuals as a result of vehicle

hits or being unearthed from their burrows. ESA fencing will be erected to cut access to aquatic and upland areas at the Santa Fe Grade site. In part to minimize the impact of these additional dangers to the GGS, Caltrans has agreed to compensate for effects likely to occur outside of the active season by increasing the compensation ratio to 3:1 to apply to the amount of acreage temporarily disturbed.

Bridge work and removal of some vegetative cover on the banks of Salt Slough could result in harassment or harm to individuals. However, Caltrans proposes to keep staging and vehicle areas on the bridge decks during bridge work, and within the proposed new Caltrans' right-of-way during realignment work at Santa Fe Grade, and to conduct preconstruction surveys for the species in order to minimize project impacts on the GGS. It is possible that GGS could also be harmed, harassed, or injured if they become trapped in construction materials like stored pipes or become stuck in excavated holes. Preventative action can be addressed by checking for trapped individuals prior to the start of each work day and by covering materials and holes at the end of each work day.

Trash left daily during construction activities could attract predators to the work site, which could in turn harm, harass, or kill the GGS. For example, scavenger species, such as raccoons and skunks, are attracted to trash as food items and could prey opportunistically upon the GGS once within the action area. Garbage left in ditches or in vegetation along the banks would pollute the waterways, and possibly even lead to individuals becoming entangled in trash items. Stockpiled debris left behind could end up polluting the waterways or cluttering bank and upland habitat. Erosion and sediment control measures left in place too long or left behind at a site could affect the waterways and also any GGS individuals present. Plastic erosion control matting should not be used, so as to not risk entangling the GGS.

Effects could also result from the interrelated activity of obtaining fill/borrow materials. Depending on when and from where the contractor derives the fill material necessary for building the new roadway, this mining action could adversely affect the GGS. Because Caltrans does not yet know the details pertaining to the fill, potential fill locations will be identified only after the biological opinion for this project has been issued. If fill is taken from a location(s) where the listed species might occur, such as within five miles of the action area, and if taking that fill is likely to impact waterways, or occur outside the GGS active period, further harm and harassment to the species could result.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed project are not considered in this section, because they require separate consultation pursuant to section 7 of the Act.

The Service is not aware of any non-Federal developments currently planned in or around the SR-165 action area that would directly remove further GGS habitat.

Conclusion

The extent of take, as well as effects to the GGS and its habitat, is such that it is anticipated to be minimal in regards to the entire North and South Grasslands GGS population within the San Joaquin Valley Basin, despite the fact that this population is extremely vulnerable. This supports a non-jeopardy determination. After reviewing the current status of the GGS, the environmental baseline for the action area, the effects of the proposed SR 165 Wolfsen Road Rehabilitation Project, and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the GGS.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement. The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these Terms and Conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of Take

The Service anticipates that incidental take of the GGS will be difficult to detect because the species is cryptically colored, secretive, and aversive to human activities, and often retreats into burrows, soil crevices, or vegetative cover. Most close-range observations represent chance encounters that are difficult to predict. Thus, it is problematic to quantify an exact number of GGS individuals that are anticipated to be taken as a result of the proposed action. In instances when take calculations are difficult to accurately calculate, the Service may estimate take in numbers of individuals per acre of permanently lost or degraded habitat as a result of the project action, as these impacts reflect a significant biological effect to the species. Therefore, the Service anticipates take incidental to this project as all GGS inhabiting, utilizing, or moving through the 0.16 ac of suitable habitat that will be permanently lost (0.08 ac at Salt Slough and 0.08 at Santa Fe Grade Road), as well as the 0.25 ac that will be temporarily disturbed at Santa Fe Grade Road. Upon implementation of the following *Reasonable and Prudent Measures*, incidental take for this project within this acreage in the forms of harm, harassment, injury, or

mortality of the GGS, deriving from increased personnel foot traffic and equipment/vehicle presence outside of the GGS's active period; bridge widening work; bankside vegetation removal; and handling of trash, debris, erosion control, and fill material, are hereby exempt from the prohibitions described under section 9 of the Act.

Effect of the Take

The Service has determined that this level of anticipated take is not likely to jeopardize the continued existence of the GGS.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the adverse effects of the project on the GGS:

1. All of the conservation measures proposed in the B.A., the *Project Description*, and as supplemented and modified below, must be fully implemented.

2. Pollution, trash, and excess materials must be treated in a manner so as to minimize the potential for take of the GGS.

3. Appropriate measures concerning erosion must be applied, so as to minimize the potential for take of the GGS.

4. Appropriate measures regarding usage of borrow and fill materials must be undertaken, so as to minimize the potential for take of the GGS.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans, as well as any contractor acting on its behalf, must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These Terms and Conditions are nondiscretionary.

The following Terms and Conditions implement Reasonable and Prudent Measure one:

1. All fueling and cleaning activities shall take place only within the designated staging areas. If equipment must be washed, washing shall occur where the water cannot flow into the stream channel.

2. The Service-approved biologist shall have oversight over implementation of all the measures described in this biological opinion and he/she shall have the authority to stop project activities, through communication with the Caltrans Resident Engineer, if any of the requirements associated with these measures are not being fulfilled. Any stop work requests due to take of listed species shall be communicated to the Service and California Department of Fish and Game (CDFG) within one day.

3. The Service-approved biologist and/or the Contractor shall check for GGS under any equipment such as vehicles and stored pipes before the start of work each day. He/she shall check all excavated, steep-walled holes or trenches greater than six inches deep for the GGS and these shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals.

The following Terms and Conditions implement Reasonable and Prudent Measure two:

1. To minimize both pollution to GGS habitat and opportunistic predator effects to the GGS, Caltrans shall require that garbage be removed daily from the project site and disposed of off-site. All litter, debris, and unused materials, shall be removed from the staging areas at the end of each day in order to keep predators and scavengers away.

2. Following completion of construction activities, all construction debris/stockpiled materials from the project site shall be removed and, wherever, feasible, disturbed areas shall be restored to pre-project conditions.

The following Terms and Conditions implement Reasonable and Prudent Measure three:

1. All erosion and sediment control measures shall be removed after the work area is stabilized or as directed by the engineer.

2. No plastic, monofilament, jute, or similar erosion control matting shall be placed that could entangle the GGS. Possible substitutions include coconut coir matting, tactified hydro-seeding compounds, or other material approved by the Service.

The following Term and Condition implements Reasonable and Prudent Measure four:

1. Since use of borrow/fill material is planned, Caltrans shall require documentation from the contractor that aggregate, fill, and/or borrow material provided for the project is obtained in compliance with the Act. Evidence of compliance with the Act shall be demonstrated by providing the Resident Engineer with any one of the following:

    a. A letter from the Service stating use of the borrow pit area shall not result in the incidental take of listed species;

    b. An incidental take permit for contractor-related activities issued by the Service pursuant to section 10(a)(1)(B) of the Act;

    c. A biological opinion or a letter concurring with a 'not likely to adversely effect' determination issued by the Service to Caltrans.

    d. Contractor submittal of information to the Caltrans Resident Engineer indicating compliance with the State Mining and Reclamation Act (SMARA) and providing the County land use permits and California Environmental Quality Act (CEQA) clearance.

c. Report to the Service where the fill/burrow materials will be taken from, once it is identified.

Reporting Requirements

1. Before construction starts on this project, the Service shall be provided with the final documents related to protection of conservation acres, including but not limited to, proof of payment into the GGS In-Lieu Conservation Fund or credit purchase at a Service-approved conservation bank.

2. A post-construction report detailing compliance with the project design criteria described under the *Description of the Proposed Action* section of this biological opinion shall be provided to the Service within 30 calendar days of completion of the project. The report shall include: (1) dates of project groundbreaking and completion; (2) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the GGS, if any; (5) occurrences of incidental take of the GGS, and; (6) any other pertinent information.

3. New sightings of GGS or any other sensitive animal species shall be reported to the California Natural Diversity Database (CNDDB) of the CDFG. A copy of the reporting form and a topographic map clearly marked with the location in which the animals were observed also should be provided to the Service.

Disposition of Individuals Taken

In the case of injured and/or dead GKR, SJKF, and BNLL, the Service shall be notified within one day and the animals shall only be handled by a Service-approved, permitted biologist. Injured GKR, SJKF, and BNLL shall be cared for by a licensed veterinarian or other qualified person. In the case of a dead animal, the individual animal shall be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or until the Service takes custody of the specimen. Caltrans must report to the Service within one calendar day any information about take or suspected take of federally-listed species not authorized in this opinion. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal. The Service contacts are Mr. Daniel Russell, Division Chief, Endangered Species Program, Sacramento, at (916) 414-6600 and Mr. Daniel Crum, the Resident Agent-in-Charge of the Service's Law Enforcement Division at (916) 414-6660. The CDFG contact is the Fresno Office at (559) 243-4017.

Any contractor or employee who, during routine operations and maintenance activities inadvertently kills or injures a listed wildlife species must immediately report the incident to his representative at his contracting/employment firm or to Caltrans. This representative must contact the Service within one calendar day in the case of a federally-listed species and contact the CDFG in the case of a dead or injured State-listed species.

CONSERVATION RECOMMENDATIONS

Conservation recommendations are suggestions of the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, or regarding the development of new information. These measures may serve to minimize or avoid further adverse effects of a proposed action on listed, proposed, or candidate species, or on designated critical habitat. They may also serve as suggestions on how action agencies can assist species conservation in furtherance of their responsibilities under section 7(a)(1) of the Act, or recommend studies improving an understanding of a species' biology or ecology. Wherever possible, conservation recommendations should be tied to tasks identified in recovery plans. The Service is providing you with the following conservation recommendations:

1. It is recommended that Caltrans incorporate culverts, tunnels, and other underpasses and/or overpass designs on roadways to facilitate safe passage for the GGS, as well as other listed species.

2. It is recommended that Caltrans incorporate speed bumps on roadways like SR 165 in order to minimize both species effects and accident potential.

3. It is recommended that Caltrans help support the development of a centralized website where GGS research scientists can upload mark numbers and associated data for each snake, and make it available to the scientific community.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

RE-INITIATION—CLOSING STATEMENT

This concludes the formal consultation for the SR 165 Wolfsen Road Rehabilitation Project. As provided in 50 CFR §402.16 and in the *Terms and Conditions* of this biological opinion, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation; otherwise, the project will be out of compliance with this biological opinion.

Please contact Jen Schofield or Susan P. Jones at (916) 414-6600 if you have questions regarding this biological opinion. The Service wishes to thank you for your continued efforts and dedication to the conservation of America's wildlife resources.

Sincerely,

for Susan K. Moore
Field Supervisor

Enclosures
Instructions for providing Funds to the Giant Garter Snake In-Lieu Conservation Fund
Two-Party Agreement between the United States Fish and Wildlife Service and the Center for Natural Lands Management
Three-Party Agreement between the United States Fish and Wildlife Service, Giant Garter Snake Conservation Fund Participant, and the Center for Natural Lands Management
Giant Garter Snake Conservation Fund Account Payment Receipt

cc:
Mr. Walter C. Waidelich, Jr., Federal Highway Administration, Sacramento, California
Ms. Annee Ferranti, California Department of Fish and Game, Fresno, California

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

In response refer to:
2009/06606

JAN 29 2010

Zachary K. Parker
Biology Branch Chief
California Department of Transportation
2015 East Shields Avenue, Suite A-100
Fresno, California 93726-5428

Dear Mr. Parker:

This letter is in response to your December 1, 2009, request for NOAA's National Marine Fisheries Service (NMFS) concurrence that the State Route (SR) 165 Rehabilitation project in Merced County, California would have no effect on Central Valley steelhead (*Oncorhynchus mykiss*). In addition, the California Department of Transportation (Caltrans) has determined that the proposed project would not adversely affect Essential Fish Habitat (EFH) of Pacific salmon, and has requested initiation of consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA). This letter also serves as consultation under the authority of, and in accordance with, the provisions of the Fish and Wildlife Coordination Act of 1934 (FWCA), as amended. NMFS recognizes that Caltrans is acting in conjunction with the Federal Highway Administration (FHWA) for this project and has assumed FHWA's responsibilities under Federal environmental laws as allowed by the Memorandum of Understanding between FHWA and Caltrans, which became effective on July 1, 2007.

Caltrans proposes to replace the existing San Joaquin River Bridge and widen the Salt Slough and San Joaquin River Overflow Bridges on SR 165 in Merced County, California. The widened bridges will extend approximately six feet on each side and extend the existing rip-rap on the north bank to minimize erosion. The proposed project will also include overlaying the existing roadway with new asphalt concrete and widening and tapering the shoulders at the bridge sites. Heavy equipment will be operated from the bridge deck, thus temporary access roads will not be needed. Best Management Practices and a Storm Water Pollution Prevention Plan or Water Pollution Control Plan will be implemented into the proposed project to minimize the potential for siltation and downstream sedimentation of the San Joaquin River and Salt Slough. During the evaluation of this project, the California Department of Fish and Game determined that there is a barrier downstream from the project site at the confluence of the Merced River that prevents listed anadromous fish from migrating up the San Joaquin River. In addition, current high water temperatures, low flows, and lack of gravel substrate, create an unsuitable habitat for Pacific salmon in the action area.

Endangered Species Act (ESA) Section 7 Consultation

Pursuant to the ESA implementing regulations, a determination of "no effect" is the responsibility of the action agency, thus NMFS will not be commenting on your "no effect" determination.

EFH Consultation

The proposed project area has been identified as EFH for Pacific salmon in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the MSA. Federal action agencies are mandated by the MSA (section 305[b] [2]) to consult with NMFS on all actions that may adversely affect EFH, and NMFS must provide EFH conservation recommendations to those agencies (section 305[b] [4] [A]). NMFS has reviewed this project for impacts to EFH for Pacific salmon and determined that implementation of the proposed project will not adversely affect EFH for Pacific salmon. Therefore additional EFH conservation recommendations are not being provided at this time beyond suggesting that the standard best management practices that have been previously proposed and implemented by Caltrans on similar bridge repair projects be applied to this project as well. However, if there is substantial revision to the action, the lead Federal agency will need to re-initiate EFH consultation.

FWCA

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development (16 U.S.C. 661). The FWCA establishes a consultation requirement for Federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage (16 U.S.C 662(a)). Consistent with this consultation requirement, NMFS provides recommendations and comments to Federal action agencies for the purpose of conserving fish and wildlife resources. The FWCA provides the opportunity to offer recommendations for the conservation of species and habitats beyond those currently managed under the ESA and MSA. Because the proposed project is designed to avoid environmental impacts to aquatic habitat within the action area, NMFS has no additional FWCA comments to provide at this time.

Please contact Monica Gutierrez at (916) 930-3657, or via e-mail at Monica.Gutierrez@noaa.gov if you have any questions or require additional information concerning this project.

Sincerely,

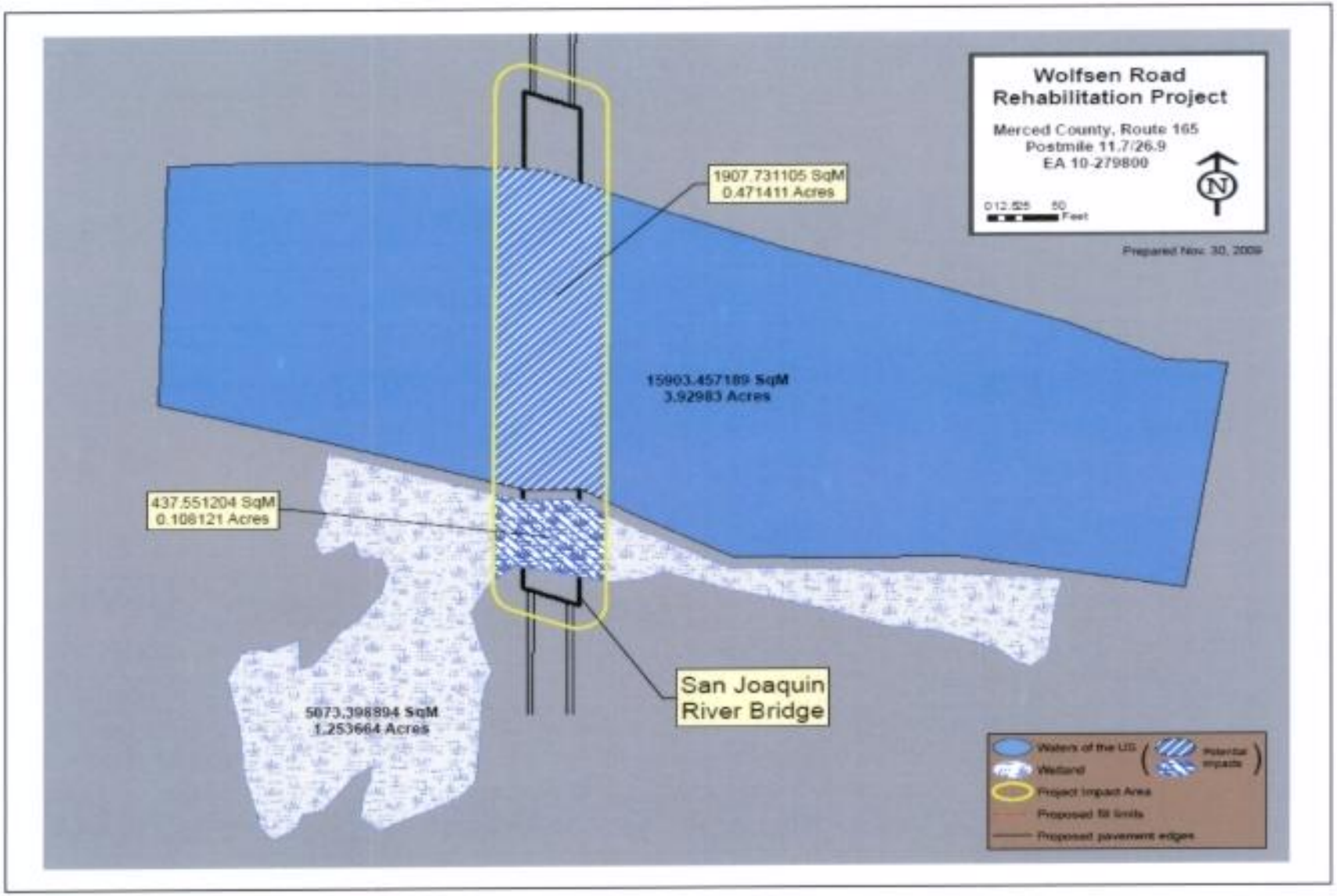
for Rodney R. McInnis
Regional Administrator

cc: Copy to File ARN # 151422SWR2001SA6036
NMFS-PRD, Long Beach, CA

Appendix A Mapping

Project Vicinity Map

Project Impact Maps


Wolfsen Road
Rehabilitation Project
Merced County, Route 165
Postmile 11.7/26.9
EA 10-279800
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Feet
N
Prepared Nov. 30, 2009
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15903.457189 SqM
3.92983 Acres
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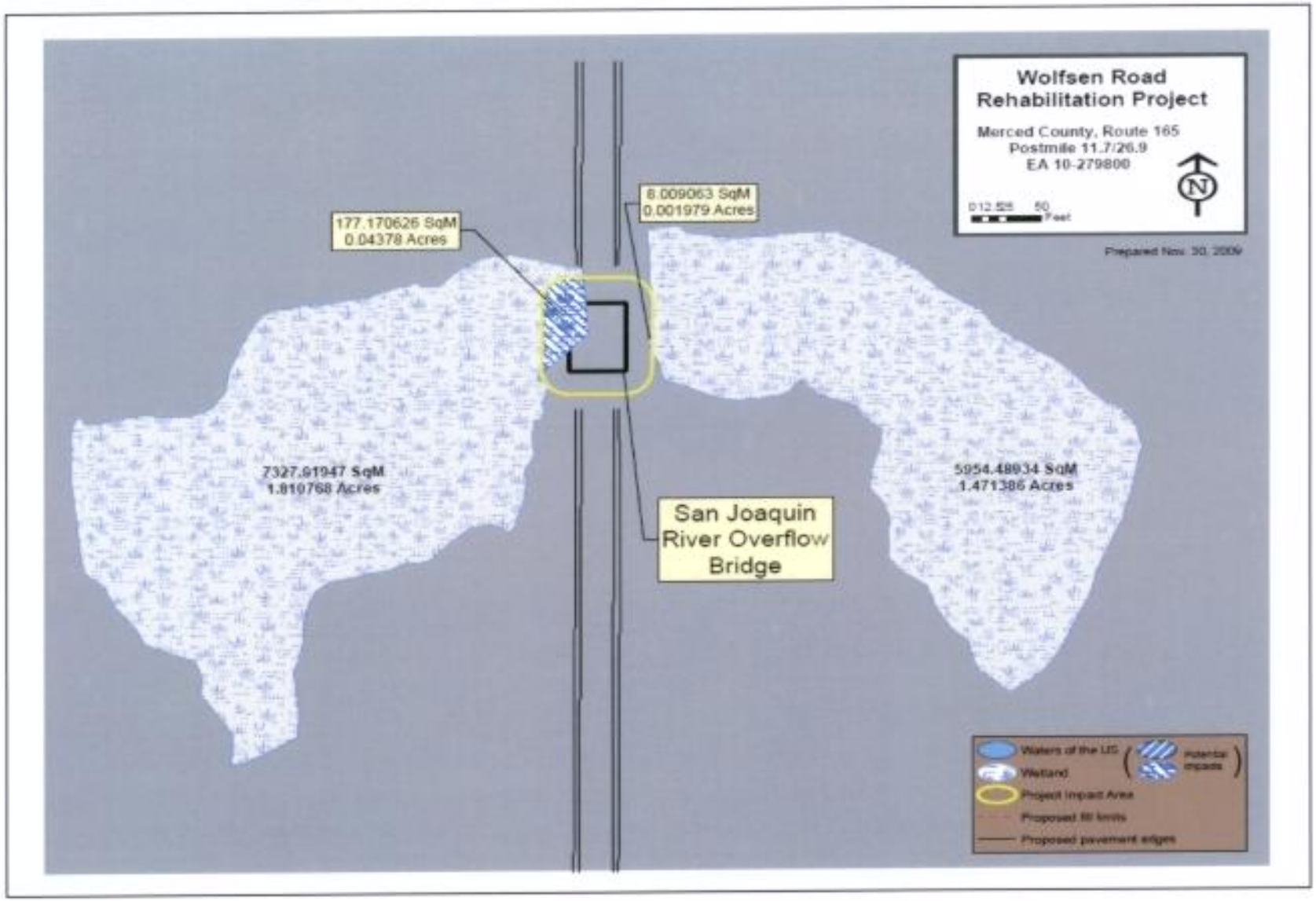
San Joaquin
River Bridge
Waters of the US
Wetland
Project Impact Area
Proposed fill limits
Proposed pavement edges
Potential impacts


Wolfsen Road
Rehabilitation Project
Merced County, Route 165
Postmile 11.7/26.9
EA 10-279800
0 12.5 25 50
Feet
N
Prepared Nov. 30, 2009
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8.009063 SqM
0.001979 Acres
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1.810768 Acres
5954.48934 SqM
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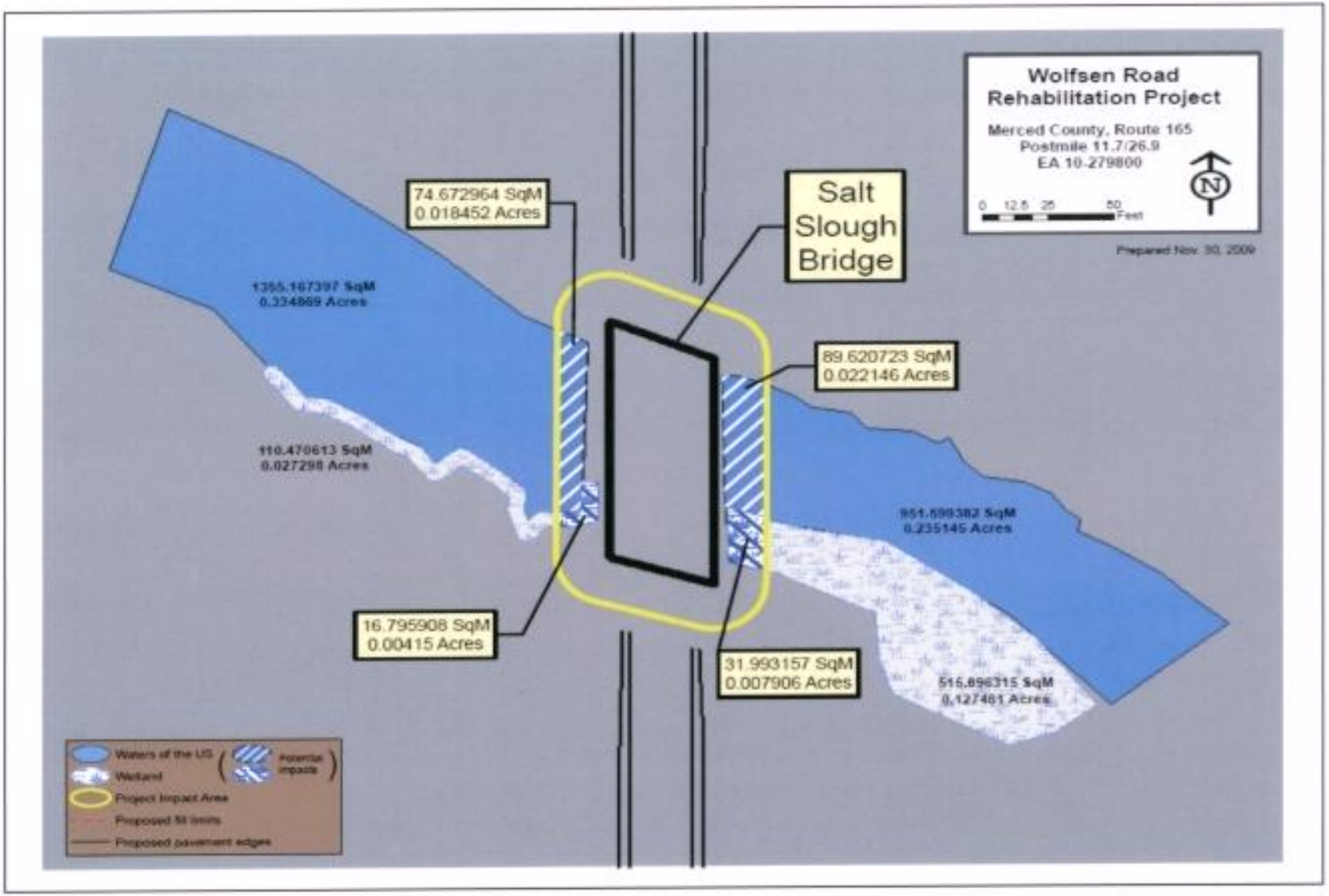
San Joaquin
River Overflow
Bridge
Waters of the US
Wetland
Project Impact Area
Proposed fill limits
Proposed pavement edges
Potential impacts


Wolfsen Road
Rehabilitation Project
Merced County, Route 165
Postmile 11.7/26.9
EA 10-279800
0 12.5 25 50 Feet
N
Prepared Nov. 30, 2009
Salt
Slough
Bridge
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0.027298 Acres
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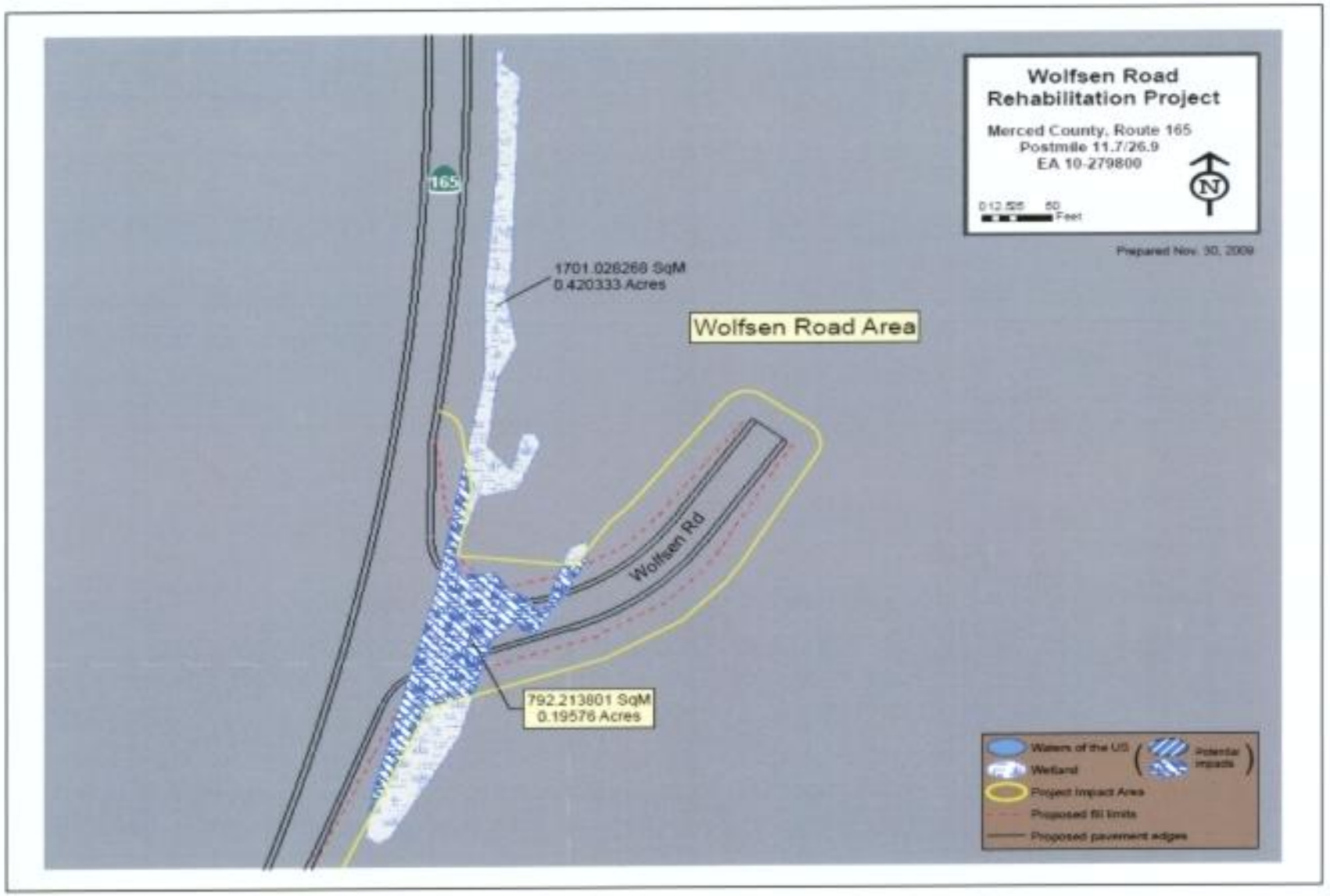
Waters of the US
Wetland
Project Impact Area
Proposed fill limits
Proposed pavement edges


Wolfsen Road
Rehabilitation Project
Merced County, Route 165
Postmile 11.7/26.9
EA 10-279800
0 12.5 25 50
Feet
N
Prepared Nov. 30, 2009
165
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Wolfsen Road Area
Wolfsen Rd
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Waters of the US
Wetland
Project Impact Area
Proposed fill limits
Proposed pavement edges
Potential impacts

AGREEMENT

California Fish and Game Code Section 1602
Stream Alteration Agreement No. 2009-0209-R4
California Department of Transportation
Salt Slough, San Joaquin River, and San Joaquin Overflow - Merced County
SR 165 Wolfsen Road Rehabilitation Project
MER 165 PM 11.7-26.9 EA 10- 279801

Parties:

California Department of Fish and Game
Central Region
1234 East Shaw Avenue
Fresno, California 93710

California Department of Transportation
Virginia Strohl
2015 East Shields Avenue, Suite 100
Fresno, California 93726

WHEREAS:

1. Ms. Carrie Blickenstaff, representing the California Department of Transportation (referred to as "Caltrans") on December 7, 2009, notified ("Notification" No. 2009-0209-R4) the Department of Fish and Game ("Department") of their intent to divert or obstruct the natural flow of, or change the bed or banks of, or use materials from Salt Slough, San Joaquin River and San Joaquin Overflow in Merced County, waters over which the Department asserts jurisdiction pursuant to Division 2, Chapter 6 of the California Fish and Game Code.

2. Caltrans may not commence any activity that is subject to Fish and Game Code Sections 1600 et seq., until the Department has found that such Project shall not substantially adversely affect an existing fish or wildlife resource or until the Department's proposals, or the decisions of a panel of arbitrators, have been incorporated into such projects.

3. Fish and Game Code Sections 1600 et seq., make provisions for the negotiation of agreements regarding the delineation and definition of appropriate activities, Project modifications and/or specific measures necessary to protect fish and wildlife resources.

4. The Department has determined that without the protective features identified in this Agreement, the activities proposed in the Notification could substantially adversely affect fish and wildlife.

NOW THEREFORE, IT IS AGREED THAT:

1. The receipt of this document ("Agreement"), by Caltrans, satisfies the Department's requirement to notify Caltrans of the existence of an existing fish and wildlife resource that may be substantially adversely affected by the Project that is described in the Notification.

2. The contents of this Agreement constitute the Department's proposals as to measures necessary to protect fish and wildlife resources, and satisfy the Department's requirement to submit these proposals to Caltrans.

3. The signature of Caltrans' representative on this Agreement constitutes Caltrans' commitment to incorporate the Department's proposals into the Project that is described in the Notification.

4. This Agreement does not exempt Caltrans from complying with all other applicable local, State and Federal law, or other legal obligations.

5. This Agreement, alone, does not constitute or imply the approval or endorsement of a Project, or of specific Project features, by the Department, beyond the Department's limited scope of responsibility, established by Fish and Game Code Sections 1600 et seq. This Agreement does not therefore assure concurrence, by the Department, with the issuance of permits from this or any other agency. Independent review and recommendations shall be provided by the Department as appropriate on those projects where local, State, or Federal permits, or environmental reports are required.

6. This Agreement does not authorize the "take" (defined in Fish and Game Code Section 86 as hunt, pursue, catch, capture, or kill; or attempt to hunt, pursue, catch, capture, or kill) of State-listed threatened or endangered species. If Caltrans, in the performance of the agreed work, discovers the presence of a listed species in the Project work area, work shall stop immediately. Caltrans shall not resume activities authorized by this Agreement until such time as valid "take" permits are obtained from the Department, pursuant to Fish and Game Code Sections 2081(a) and 2081(b), as appropriate.

7. To the extent that the Provisions of this Agreement provide for the diversion of water, they are agreed to with the understanding that Caltrans possesses the legal right to so divert such water.

8. To the extent that the Provisions of this Agreement provide for activities that require Caltrans to trespass on another owner's property, they are agreed to with the understanding that Caltrans possesses the legal right to so trespass.

9. To the extent that the Provisions of this Agreement provide for activities that are subject to the authority of other public agencies, said activities are agreed to with the understanding that all appropriate permits and authorizations shall be obtained prior to commencing agreed activities.

10. All Provisions of this Agreement remain in force throughout the term of the Agreement. Any Provision of the Agreement may be amended at any time, provided such amendment is agreed to in writing by both parties. Mutually approved amendments become part of the original Agreement and are subject to all previously negotiated Provisions. The Agreement may be terminated by either party, subject to 30 days written notification.

11. Caltrans shall provide a copy of the Agreement to the Project supervisors and all contractors and subcontractors. Copies of the Agreement shall be available at work sites during all periods of active work and shall be presented to Department personnel upon demand.

12. Caltrans agrees to provide the Department access to the Project site at any time to ensure compliance with the terms, conditions, and Provisions of this Agreement.

13. Caltrans and any contractor or subcontractor, working on activities covered by this Agreement, are jointly and separately liable for compliance with the Provisions of this Agreement. Any violation of the Provisions of this Agreement is cause to stop all work immediately until the problem is reconciled. Failure to comply with the Provisions and requirements of this Agreement may result in prosecution.

14. Caltrans assumes responsibility for the restoration of any fish and wildlife habitat which may be impaired or damaged either directly or, incidental to the Project, as a result of failure to properly implement or complete the mitigation features of this Agreement, or from activities which were not included in the Caltrans' Notification.

15. It is understood that the Department enters into this Agreement for purposes of establishing protective features for fish and wildlife, in the event that a Project is implemented. The decision to proceed with the Project is the sole responsibility of Caltrans, and is not required by this Agreement. It is agreed that all liability and/or incurred costs, related to or arising out of Caltrans' Project and the fish and wildlife protective conditions of this Agreement, remain the sole responsibility of Caltrans. Caltrans agrees to hold harmless and defend the Department against any related claim made by any party or parties for personal injury or other damage.

16. The terms, conditions, and Provisions contained herein constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that Caltrans is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement are subject to separate notification, pursuant to Fish and Game Code Sections 1600 et seq.

California Environmental Quality Act (CEQA) Compliance: In approving this Agreement, the Department is independently required to assess the applicability of CEQA. The features of this Agreement shall be considered as part of the overall Project description. Caltrans' concurrence signature on this Agreement serves as confirmation to the Department that the activities that shall be conducted under the terms of this Agreement are consistent with the Project described in Notification No. 2009-0209-R4. This Project is part of the Wolfsen Road Rehabilitation Project for which Caltrans submitted an Initial Study with Mitigated Negative Declaration, State Clearinghouse Number 2007011106.

The Department, as a CEQA Responsible Agency, shall make findings and submit a Notice of Determination to the State Clearinghouse upon signing this Agreement.

This Agreement contains a Monitoring and Reporting Program (MRP), to incorporate monitoring and reporting requirements for the activities authorized in this Agreement.

Project Location: The work authorized by this Agreement will occur at three crossings on State Route (SR) 165: 1) Salt Slough between Post Mile (PM) 22.2-22.3 in Section 10 of Township 8 South, Range 10 East; 2) San Joaquin River and 3) San Joaquin Overflow between PM 25.5-25.7 both in Section 27 of Township 7 South, Range 10 East in Merced County (**Figure 1**).

Project Description: Caltrans' Notification includes Fish and Game Notification Form FG2023 and construction plans. The Notification comprises Caltrans' Project description, and it is used as the basis for establishing the protective Provisions that are included in this Agreement. Any changes or additions to the Project as described in the Notification shall require additional consultation and protective Provisions. The Department's concurrence with Caltrans' CEQA Determination is based upon Caltrans' commitment to full implementation of the Provisions of this Agreement. Caltrans has proposed the following scope of work. The bulleted items comprise the activities authorized by this Agreement.

- Salt Slough Bridge (Br No 39-0209): This Bridge is being widened. There are three bents in the channel. The existing bents consist of four 12-inch diameter concrete pile extensions. The widening will add one "column" to each side of each of the existing bents. The Columns will be 18 inches in diameter. The bridge width will be increased from 30 feet to about 43 feet.

- San Joaquin River Bridge (Br No 39-0246): The existing Bridge (Br No 39-0211) will be completely removed and replaced by a new bridge. The existing Bridge is a 15 span slab bridge. The width of the bridge is about 30 feet. There are 14 bents, each consisting of four 12-inch diameter concrete pile extensions. In addition, there are 12 "temporary" steel bents installed last year to support the structure due to scour of the channel. Each of these temporary bents consists of four steel piles with cross bracing and a steel cap. The new bridge will be a 4 span structure, so there are three bents in the channel. The bents consist of five 36-inch diameter columns spaced about 9 feet apart. The new bridge will be about 43 feet wide and 412 feet long.


2009-0209-R4
Project Locations
Figure 1
Department of Fish and Game
Conservation Planning GIS
Central Region
USGS Quad
N
San Joaquin River
Overflow Bridge
San Joaquin
River Bridge
Salt Slough Bridge
San Luis Island
SAN JOAQUIN RIVER
SAN LUIS ISLAND
Salt Slough
Middle Branch
East Branch
Bear Creek
Lake Howard
DUCK PONDS
KESTERSON NATIONAL WILDLIFE REFUGE

- San Joaquin Overflow Bridge (Br No 39-0212): This Bridge is being widened. There is one bent in the channel. The existing bent consists of four 12-inch diameter concrete pile extensions. The widening will add one "column" to each side of the existing bent. The Columns will be 18 inches in diameter. The bridge width will be increases from 30 feet to about 43 feet.

Plant and Animal Species of Concern: This Agreement is intended to avoid, minimize, and mitigate adverse impacts to the fish and wildlife resources that occupy the area of Salt Slough, San Joaquin River, San Joaquin Overflow, and the immediate adjacent riparian habitat. The protective measures described in this Agreement must be implemented in order to avoid impacts, within the area covered by this Agreement, to the following species: the State threatened Swainson's hawk (*Buteo swainsoni*), the Species of Special Concern burrowing owl (*Athene cunicularia*), as well as the other birds, mammals, fish, reptiles, amphibians, invertebrates, and plants that comprise the local riparian ecosystem. Departmental files contain lists of species that could be subject to potential generated impacts from this Project.

Caltrans has already done surveys and habitat evaluations and determined that there is no suitable habitat, either aquatic or upland, for Federal threatened and State threatened giant garter snake (*Thamnophis gigas*), Federal threatened and State candidate California tiger salamander (*Ambystoma californiense*), or Species of Special Concern western spadefoot (*Spea hammondii*) within the Project Impact Area, and therefore no impacts to these species, which are known to occur in the vicinity, will result from construction-related activities.

PROVISIONS:

General

1. The Notification, together with all supporting documents, is hereby incorporated into this Agreement to describe the location and features of the proposed Project. Caltrans agrees that all work shall be done as described in the Notification and supporting documents, incorporating all wildlife resource protection features, mitigation measures, and Provisions as described in this Agreement. Caltrans further agrees to notify the Department of any modifications that need to be made to the Project plans submitted to the Department. At the discretion of the Department, modifications may be deemed minor, requiring an amendment to this Agreement, or substantial, requiring the submission of a new notification application. If the latter is the case, this Agreement becomes null and void. Failure to notify the Department of changes to the original plans or subsequent amendments to this Agreement may result in the Department suspending or canceling this Agreement.

2. Before the start of construction/work activities covered under this Agreement, all workers shall have received training from Caltrans' staff, or approved alternate trainer, on the content of this Agreement, the resources at stake including recognition of the species listed above and their habitat, and the legal consequences of non-compliance.

3. When known, prior to beginning work, Caltrans shall provide a construction/work schedule to the Department (fax to Laura Peterson-Diaz, Environmental Scientist, at (559) 243-4020). Please reference the Agreement number. Caltrans shall also notify the Department upon the completion of the activities covered by this Agreement.

4. Agreed activities within the bed, bank, or channel may commence any time after the Department has signed this Agreement. This Agreement shall remain in effect for five (5) years beginning on the date signed by the Department. If the Project is not completed prior to the expiration date defined above, Caltrans shall contact the Department to negotiate a new expiration date and any new requirements.

Flagging/Fencing

5. Within the riparian corridor, Caltrans shall identify the upstream and downstream limits of the minimum work area required, access routes, the Project footprint, plus all Environmentally Sensitive Areas (ESA). These boundaries shall be defined by the Caltrans' Project engineer and biologist and flagged/fenced prior to the beginning of construction. These limits shall not extend beyond Caltrans' right-of-way and/or the construction easement, and shall be confined to the minimal area needed to accomplish the proposed work. Flagging/fencing shall be maintained in good repair for the duration of the Project.

Wildlife

6. An approved biologist shall perform general wildlife surveys of the Project area (including access routes and storage areas) prior to Project construction start with particular attention to evidence of the presence of the species listed above and shall report any possible adverse affect to fish and wildlife resources not originally reported. If the survey shows presence of any wildlife species which could be impacted, Caltrans shall contact the Department and mitigation, specific to each incident, shall be developed. If any State- or Federal-listed threatened or endangered species are found within the proposed work area or could be impacted by the work proposed, a new Agreement and/or a 2081(b) State Incidental Take Permit may be necessary and a new CEQA analysis may need to be conducted, before work can begin.

7. If work is done between March 1 and September 1, then in order to protect nesting birds, Caltrans' biologist shall make a survey for nesting activity in and adjacent to the defined "work area", before construction begins. If any nesting activity is observed, (including cavity nesting), the nests and trees shall not be damaged, disturbed, or removed until the young have fledged and left the nest. Caltrans shall obtain Department approval prior to damaging or removing nesting trees.

8. Raptors: Survey for nesting activity of raptors, including Swainson's hawks, within 0.25 miles (extend to 0.5 miles in suitable riparian habitat) of the construction site. Surveys shall be conducted at appropriate nesting times and concentrate on mature

trees. If any active nests are observed, these nests and nest trees shall be designated an ESA and protected (while occupied) with a minimum 500-foot buffer during Project construction. Caltrans shall also consult with the Department for any further requirements.

9. Burrowing owls: If any ground-disturbing activities will occur during the burrowing owl nesting season (approximately February 1 through August 31), a pre-construction site survey shall be conducted by a qualified biologist no more than 30 days before the onset of any ground-disturbing activities. If signs (i.e., pellets, feathers, tracks, or scat) of burrowing owls are observed at burrow entrances within 300 feet of the defined work area, a qualified biologist shall perform a Phase III Burrowing Owl Survey, as described in the 1997 California Burrowing Owl Consortium's Survey Protocol and Mitigation Guidelines.

Occupied burrows shall be avoided by implementation of a no-construction buffer zone of a minimum distance of 250 feet, unless a qualified biologist approved by the Department verifies through non-invasive methods that either: 1) the birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Failure to implement this buffer zone could cause adult burrowing owls to abandon the nest, cause eggs or young to be directly impacted (crushed), and/or result in reproductive failure.

If burrowing owls occupy the site, during the non-breeding season, a passive relocation effort may be instituted.

10. Swallows: If Caltrans cannot avoid work on the bridges where there is the potential it would disturb nesting swallows (February 15 through August 15), then prior to February 1, of each year, Caltrans shall remove all existing inactive nests which would be destroyed by the Project. Caltrans shall continue to discourage new nest building in places where they would be disturbed, using methods developed in consultation with the Caltrans District Biologist and the Department. Prior to nesting season a swallow exclusion device, with visual warnings for the birds to prevent entanglement, must be installed. Where disturbance shall occur, nesting must be discouraged throughout the nesting season.

11. Bats: No bats shall be disturbed without specific notice to and consultation with the Department. Pre-construction surveys by a qualified biologist shall be performed to determine if bat species are utilizing the bridges for roosting. If bats are using the existing bridge as a roosting site, exclusion of these bats shall take place a minimum of four (4) weeks prior to construction. If after four (4) weeks exclusion measures are unsuccessful and bat species still utilize the bridge for roosting, Caltrans shall contact the Department and mitigation shall be developed in consultation with the Department.

Giant Garter Snake

12. Twenty-four hours prior to initial construction activities and prior to resumption of work activities after a lapse of one week or longer between October 1 and November 30, the Project area should be surveyed for giant garter snakes.

13. All initial ground-disturbing work activity (grading, excavation, dredging, etc.) for all streambed or ground-disturbing in-channel and adjacent bank work within the identified giant garter snake habitat waterways will be limited to the period from May 1 to October 1. This is the active period for giant garter snakes and direct mortality is lessened during this period since snakes are more likely to move and avoid danger. Work on the bridge may continue through the end of November provided construction activities do not have the potential to cause "take" of giant garter snakes and the additional surveys required in Provision 12 are implemented in the event of lapse in work activities of one week or longer.

14. An approved biologist will be present during all initial ground-disturbing activities within 200 feet of the waterway, and in all adjacent and/or contiguous habitats, and shall monitor these areas for Giant Garter Snake. If a snake is encountered, this biologist shall have the authority to stop all activities which may threaten the snake and redirect activities if needed until it is determined that the snake will not be harmed. The biologist will report all sightings of live or dead snakes within three (3) days of their discovery to the Department of Fish and Game and the United States Fish and Wildlife Service (USFWS).

15. To protect giant garter snakes throughout construction, any giant garter snake found on the Project site must be avoided and left alive and uninjured; all activities in the vicinity of the snake shall cease until the snake has safely vacated the construction area.

16. Confine movement of heavy equipment to existing roadways and operate excavation equipment from the top of banks to the extent possible to minimize habitat disturbance.

17. If erosion control matting is required, non-entangling erosion control matting will be used in potential snake habitat.

18. If any giant garter snake habitat, such as wetlands, irrigation ditches, marshes, etc., must be dewatered prior to initiating work, the dewatered habitat should remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat. Water drafting, pumping, or other water diversion shall be done in a manner that is not harmful to fish or other aquatic or semi-aquatic wildlife. Pump inflow tubes or hoses shall be contained within a 0.5-millimeter mesh-screened cage to exclude aquatic wildlife that may otherwise be harmed in the process.

19. If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed.

Vegetation

20. For this Project, no riparian trees or shrubs with trunks greater than or equal to four (4) inches in diameter at breast height (DBH) will be removed. Some trees including a cottonwood and a small oak tree and a number of willows will need to be trimmed. If any of the branches to be trimmed are larger then three (3) inches in diameter the Department shall be consulted prior to cutting. The amount cut shall not exceed the minimum necessary to complete the Project.

21. Precautions shall be taken to avoid any other damage to vegetation by people or equipment for the duration of the Project.

Vehicles

22. Construction vehicles and equipment will need access to the stream banks and bed for this Project. All other areas adjacent to the work site shall be considered an ESA and shall remain off-limits to construction equipment.

Pollution

23. Caltrans and all contractors and subcontractors shall be subject to the pollution protective and other features of Department of Transportation Standard Specifications Section 7-1.01G and Fish and Game Code Sections 5650 and 12015.

24. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream channel and banks. Any equipment or vehicles driven and/or operated within or adjacent to the channel shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life. If a spill should occur, cleanup shall begin immediately. The Department shall be notified as soon as possible by Caltrans and shall be consulted regarding further cleanup procedures.

25. Raw cement, concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to fish or wildlife resulting from or disturbed by Project-related activities, shall be prevented from contaminating the soil and/or entering the stream channel.

Erosion

26. All disturbed soils shall be stabilized to reduce erosion potential, both during and following construction. Erosion control Best Management Practices (BMPs) shall be applied to all disturbed areas.

Fill/Spoil

27. Rock, gravel, and/or other materials shall not be imported into or moved within the stream, except as otherwise addressed in this Agreement. Only on-site materials and clean imported fill shall be used to complete the Project. Fill shall be limited to the minimal amount necessary to accomplish the agreed activities. Excess and temporary fill material shall be moved off-site at Project completion.

28. Spoil storage sites shall not be located within the stream, or where spoil could be washed into the stream, or where it shall cover vegetation.

Restoration

29. Excess material must be removed from the Project site, pursuant to Department of Transportation Standard Specifications Section 7-1.13.

30. Caltrans shall make the final contour of the site match the adjacent slope of the land and provide the appropriate surface water drainage. All areas subject to temporary ground disturbance, including storage and staging areas, temporary roads, pipeline corridors, etc., shall be recontoured, if necessary, and revegetated to promote restoration of the area.

31. At the discretion of the Department, all exposed areas where seeding is considered unsuccessful after 90 days shall receive appropriate soil preparation and a second application of seeding, straw, or mulch as soon as is practical on a date mutually agreed upon.

MONITORING AND REPORTING PROGRAM (MRP):

PURPOSE

The purpose of the MRP is to ensure that the protective measures required by the Department are properly implemented, and to monitor the effectiveness of those measures.

OBLIGATIONS OF THE OPERATOR

Caltrans shall have primary responsibility for monitoring compliance with all protective measures included as "Provisions" in this Agreement. Protective measures must be implemented within the time periods indicated in the Agreement and the program described below.

Caltrans shall submit the following Reports to the Department:

- Verification of employee training (Provision 2).

- Construction/work schedule (Provision 3).

- Wildlife survey results (Provisions 6 through 12).

- A Final Project Report submitted within 30 days after the Project is completed. The final report shall summarize the Project construction, including any problems relating to the protective measures of this Agreement. "Before and After" photo documentation of the Project site shall be required and included in the final report.

In addition to the above monitoring and reporting requirements, the Department requires as part of this MRP that Caltrans:

- Immediately notify the Department in writing if monitoring reveals that any of the protective measures were not implemented during the period indicated in this program, or if it anticipates that measures will not be implemented within the time period specified.

- Immediately notify the Department if any of the protective measures are not providing the level of protection that is appropriate for the impact that is occurring, and recommendations, if any, for alternative protective measures.

VERIFICATION OF COMPLIANCE:

The Department shall verify compliance with protective measures to ensure the accuracy of Caltrans' monitoring and reporting efforts. The Department may, at its sole discretion, review relevant Project documents maintained by Caltrans, interview Caltrans' employees and agents, inspect the Project area, and take other actions to assess compliance with or effectiveness of protective measures for the Project.

CONCURRENCE:

APPROVED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME

on 4/20, 2010.

Jeffrey R. Single, Ph.D.
Regional Manager
Central Region

ACKNOWLEDGMENT

The undersigned acknowledges receipt of this Agreement and, by signing, accepts and agrees to comply with all terms and conditions contained herein. The undersigned also acknowledges that adequate funding shall be made available to implement the measures required by this Agreement.

By: Virginia Strohl Date: 4/5/10

Virginia Strohl
California Department of Transportation

State of California
Department of Transportation

Business, Transportation and Housing Agency

Memorandum

received by 9/8/09

Flex your power!
Be energy efficient!

To: ROD SIMMONS
Acting Chief, Senior Bridge Engineer
Division of Structure Design North
Bridge Design Branch 17

Date: August 11, 2009

File: 10-MER-165-PM22.34
EA 10-279801
Salt Slough Bridge (Widen)
Br. No. 39-0209

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Revised Foundation and Seismic Report

Per your request, the Office of Geotechnical Design North (OGD-N) has prepared this Revised Foundation and Seismic Report for the proposed bridge widening. Subsequent change to the pile loads by Structures Design prompted this revised report. Pile tip elevations were affected but all other recommendations remain the same. The report is based on review and evaluation of the existing bridge files, field investigation in the fall of 2006, and the General Plan dated August 8, 2006 and Foundation Plan dated August 8, 2006.

SCOPE OF WORK

The scope of this report includes:

1. Review of "As-Built" information of the existing bridge and site reconnaissance.
2. Review of available published information about the site including site geology and Seismicity.
3. Work with District design project engineers, biologist and Drilling Services in pursuit of the necessary permits to perform the field investigation.
4. Conducting the field investigation including two soil test borings.
5. Review of field findings.
6. Performing laboratory tests on the soil samples gathered from the field investigation.
7. Discussion of the project with Structure Design project engineer and Structure Hydraulics.

8. Performing engineering analysis, calculations, and developing recommendations.
9. Completing the report.

PROJECT DESCRIPTION

The project site is located on State Highway 165 south of the town of Stevenson (Post Mile 22.34) in the Great Valley Grasslands State Park in Merced County. In general, the sites natural topography is relatively flat with an elevation of approximately 72feet above mean sea level. The elevation of the river channel at the bridge is about 66 feet and at the existing abutments road grade (maximum height of the bridge embankment fill) the elevation is approximately 76 feet.

The existing 4-span continuous reinforced concrete slab bridge was built in 1959. The proposed work will involve widening the existing spans 6.2 feet on each side, increasing the width of the bridge from 30.2 to 42.83 feet.

Water was observed in the slough during the foundation investigation conducted in the fall of 2006.

The elevations used in this report are based on the NGVD 29.

SITE GEOLOGY AND SUBSURFACE CONDITIONS

The subject site is located approximately in the central portion of the Great Valley geomorphic province of California. The Geologic Map of the San Francisco-San Jose Quadrangle, scale 1:250,000, compiled by D.L. Wagner, E.J. Bortugno, and R.D. McJunkin, 1990, second printing 2005, California Geological Survey, indicate the site is underlain by alluvial deposits of the Pleistocene age Modesto Formation.

Two mud rotary soil test borings were drilled, one drilled in September 2006 and the other in October 2008, both reached a maximum depth of approximately 101 feet. In addition, the "As-Built" Log of Test Borings (LOTBs) indicated that one mud rotary soil test boring was drilled and one 2.5-inch Cone Penetrometer Test was conducted in August 1957.

Our subsurface investigation indicates that the embank fill soils consists of medium dense to loose silty sand and extend to a depth of about 7.5 feet (elevation 68.5 feet) under the bridge Abutments 1 and Abutment 5. For reference the pavement elevation at the abutments is approximately 76 feet. Below, alluvium (native soil) was encountered to the maximum depth of the borings. These native soils, which appear relatively consistent across the site, can be

divided in to zones by depth according to soil type and / or consistency. These native soil zones are described broadly as follows.

Bent 2 Locations

Zone 1: (68.5 to 52 feet elevation). Below the fill materials, native alluvial soils consist of interbedded loose to medium dense, fine to medium grained, poorly graded silty sand and soft to stiff clay.

Zone 2: (52 to –37.0 feet elevation). The native soils in this zone are predominately poorly graded medium dense to dense sand. The exception was a loose poorly graded sand bed between elevations 45.0 and 40.0 feet.

Zone 3: (-37.0 to –55.0 feet elevation). The soils consist of approximately 23foot layer of stiff to very stiff clay followed by a 7foot layer of very dense poorly graded sand.

Bent 3 and Bent 4 Locations

Zone 1: (68 to 63 feet Elevation) The soils in this zone consisted of a medium dense silty sand.

Zone 2: (63 to – 25.0 feet Elevation). The soils consisted of mainly medium dense to dense poorly graded sand and silty sand. Between elevations –24 and-26 feet a very stiff clay was encountered.

Please refer to Log of Test Borings (LOTBs) for details.

GROUND WATER

Ground water depth was not measured during the 2006 foundation investigation due to the use of the mud rotary drilling method and drilling at an active traffic lane. Ground water was measured at elevation 63.3 feet in boring B-1 in 1957 field investigation ("As-Built" LOTBs). The surface water was observed in the slough during the fall of 2006 foundation investigation. We consider the ground water elevation as the water elevation in the Salt Slough. However, ground water elevations may fluctuate with seasonal precipitation.

SCOUR EVALUATION

The "Hydrology and Hydraulics Report" for San Joaquin River bridge (dated December 22, 2008) state "The scour noted in this report is the Total Scour anticipated at the structure, including thalweg migration, long-term degradation, pressure and local pier scour. The Salt Slough is considered to be an active, meandering channel. Since the abutments will be placed on the floodplain, inside the levees, they will also be subject to potential channel

migration and scour. Therefore, all piles at each structure, including the abutment piles are potentially subject to the same scour depth and elevation." A hydrology summary is presented in the following table.

Table 1- Scour Summary

Scour Summary for San Joaquin Salt Slough Bridge, 39-0209	
Minimum Soffit Elevation	Match Existing
(Total) Scour, All Piles	2.8 ft
(Total) Scour Elevation, All piles	58.3 ft

CORROSIVITY EVALUATION

Representative samples taken during the foundation investigation were tested for corrosion potential. The results of the laboratory tests indicated this site is not corrosive. The following table 1 is a summary of the corrosion testing for Salt Slough Bridge.

Table 1, Corrosive Test Summary

Boring No.	Sample Depth (m/ft)	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
B-1-06	2.4-3.0/8-10	8.20	1900	–	–

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water sample taken at the site: Chloride concentration is greater than or equal 500 ppm, sulfate concentration is greater than or equal 2000 ppm, or the pH is 5.5 or less.

SEISMIC STUDY

Based on Caltrans California Seismic Hazard Map 1996, the controlling fault is the Midway-San Joaquin/N (MSJ) with a maximum credible earthquake moment magnitude of M_w=6.75, and is located approximately 11.2 miles west of the site. The Peak Bedrock Acceleration, based on the above map is estimated to be 0.3g. Liquefaction potential is consider high at the project site. Table 3 below presents the estimated liquefiable layers. There is no known active fault crossing the bridge site, therefore, the potential for surface rupture at the site is considered insignificant.

Based on the geologic map and field investigation, Caltrans Seismic Design Criteria Acceleration Response Spectrum curve corresponding to soil profile Type E is recommended for design (See Attachment).

Table 3 - Liquefaction Data

Support Location	Estimated Original Ground Elevation (ft)	Estimated Elevations of Liquefiable Layers (ft)
Abutment 1	76	66 to 61
Pier 2	69	59 to 54
Pier 3	65	None
Pier 4	65	None
Abutment 5	76	76 to 68

AS-BUILT FOUNDATION DATA

The existing bridge is approximately 101 feet long by 30 feet wide, and is supported by driven Raymond Concrete (RC) pile columns. The existing RC piles are tipped at elevation approximately 48 feet. The design load for the existing RC piles is 45 tons.

FOUNDATION RECOMMENDATIONS

Based on the available information, we are providing following foundation recommendations for the proposed Widening of the existing bridge.

Driven Class 200 Alternative "W" pipe piles are recommended as suitable to support the proposed bridge widening at the abutments. Driven Cast-In-Steel (CISS) piles are recommended to support the widening at the Bents. The geotechnical capacity of these piles has been calculated using the Nordlund method (1963, 1979) for cohesionless soils and the Tomlinson method (1980, 1985) for cohesive soils. The FHWA approved computer program DRIVEN 1.2 was used to calculate the driven pile capacity for the project.

Table 4 -Pile Data

Support Location	Pile Type	Design Load (kips)	Nominal Resistance (kips)		Bottom Pile Cap Elev. (ft)	Design Tip Elevations (ft)	Specified Tip Elevations (ft)	Nominal Driving Resistance (kips)
			Compression	Tension				
Abut 1	CLASS 200 ALT. "W" (16"X0.5")	90 (1)	180 (2)	N/A	72.2	+21.0 (3b)	+21.0	450
Bent 2	CISS (18"X0.5")	N/A	180	N/A	N/A	+5.1 (3b)	+5.1	450
Bent 3	CISS (18"X0.5")	N/A	190	N/A	N/A	+19.7 (3a)	+19.7	450
Bent 4	CISS (18"X0.5")	N/A	180	N/A	N/A	+20.0 (3a)	+20.0	450
Abut 5	CLASS 200 ALT. "W" (16"X0.5")	90 (1)	180 (2)	N/A	72.2	+18.7 (3a)	+18.7	450

Design tip elevations are controlled by the following demands.

1. Design load using working stress design.
2. Factor of safety 2 is applied to the design load.
3. Compression controls tip elevation; a) Scour Control, b) Liquefaction Control

GENERAL NOTES TO DESIGNER

1. The structure engineer shall show on the plans, in the pile data table, the minimum pile tip elevation required to meet the lateral load demands.

2. Should the specified pile tip elevation required to meet lateral load demands exceed the specified pile tip elevation given within this report, the Office of Geotechnical Design North should be contacted for further recommendations.

3. Pile center-to-center spacing for piles should not be less than 3.0 times the pile diameter.

4. Support locations are to be plotted on the Log of Test Borings, in plan view, as stated in "Memos to Designers" 4-2. The plotting of the support locations should be made prior to the foundation review.

5. To ensure the geotechnical resistance, a minimum 10 feet soil plug has to remain in the steel shell undisturbed.

6. Prior to installing driven piles, the contractor shall provide a driving system submittal.

Construction Considerations

1. Water is anticipated to be encountered during the construction in the river channel, and in the abutment areas below the elevation of the River water.

2. To ensure the geotechnical resistance, a minimum 10 feet soil plug has to remain in the steel shell.

3. Due to high ground water elevation and subsurface uncemented granular soils nature, the equipments and/or methods used to clean the steel shell should not cause quick soil conditions.

4. Pile acceptance criteria for all driven pile types will be based on the Caltrans Standard Specifications in Section 49-1.08, 2002.

5. In general, the driving of pipe piles for the project should go smoothly and no major difficulties are anticipated. The contractor should note that the very dense (high Standard Penetration Test (SPT) blow counts) soil layers were shown in the LOTBs. The contractor should prepare to deal with the situation based on their experiences.

6. We recommend all pipe pile should have a cut-off allowance to compensate for material damaged at the top of the pile by the impact of the hammer during pile driving. A 1.5 to 5 foot pile section for cut-off allowance is normally recommended (API 1993).

7. The pile may be cut off under the Caltrans engineer's approval in the case where the pipe piles are driven to refusal before reaching the specified tip elevation, if the pile vertical and lateral capacity requirements are met.

PROJECT INFORMATION

Standard Special Provisions S5-280, "Project Information," discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the information Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans are:

A. Log of Test Borings for Salt Slough Bridge, Bridge Number 39-0209.

Data and Information included in the Information Handout provided to the bidders and Contractors are:

A. Foundation Report for Salt Slough Bridge, Bridge Number 39-0209, dated August 11, 2009.

Data and Information available for inspection at the district Office:

A. None

Data and information available for inspection at the Transportation Laboratory:

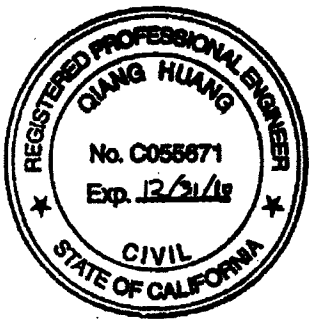
A. *Existing Salt Slough Bridge, Bridge Number 39-0209, file.*

If any conceptual changes are made during final project design, the Office of Geotechnical Design North should review those changes to determine if these foundation recommendations are still applicable. If there are any questions, please contact William Bertucci at (916)-227-1045 or John Huang at (916)-227-1037.

William Bertucci
Associated Engineering Geologist
Geotechnical Design – North

John Huang
Senior Materials and Research Engineer
Geotechnical Design – North

Reza Mahallati, P.E.
Senior Materials and Research Engineer
Geotechnical Design – North



Attachment – ARS Curve

c: R.E. Pending, Structure OE, GDN File, GS File Room

Salt Slough (Widen)
Br. No. 39-0209
10-279801

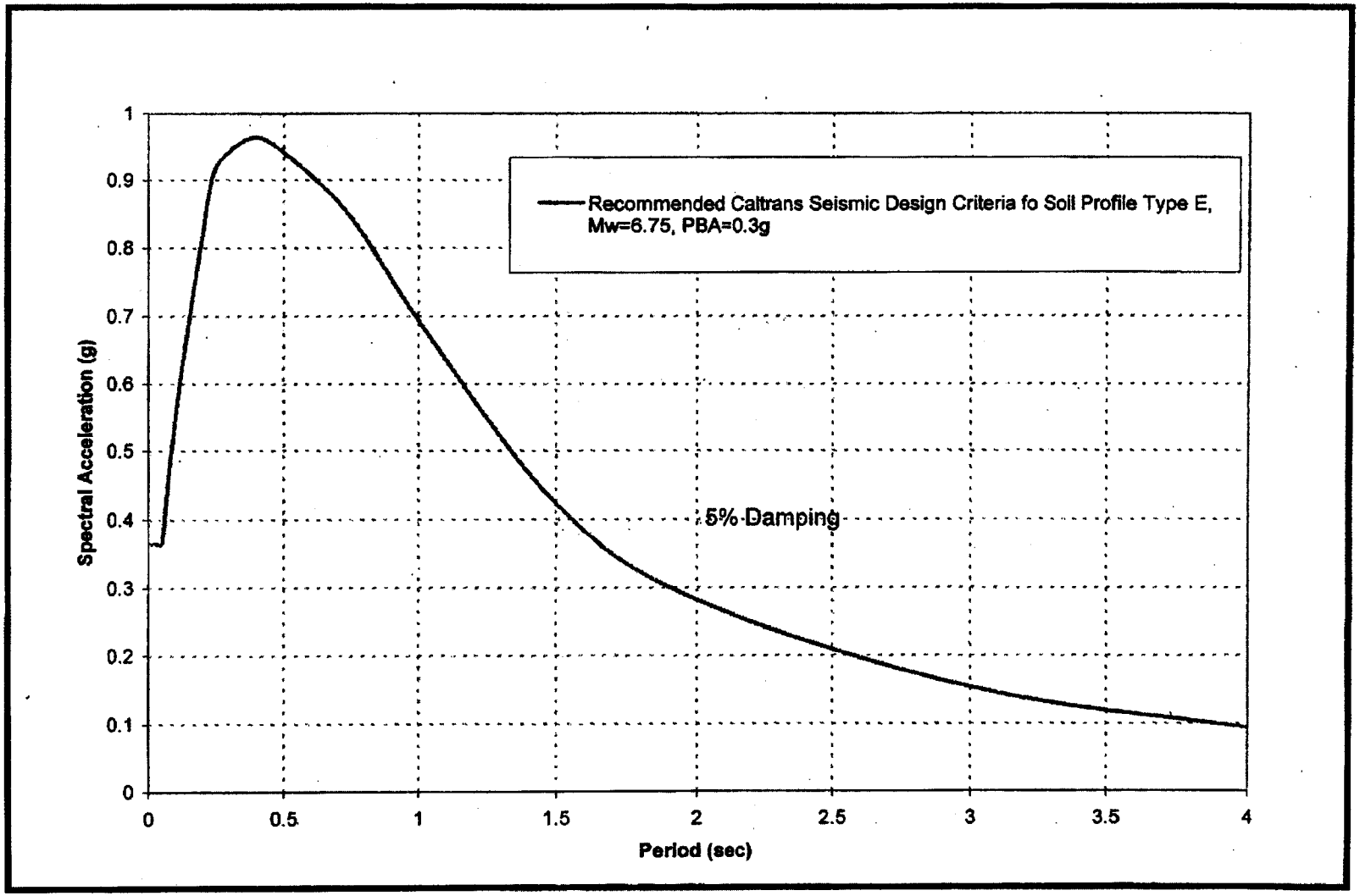


Figure 1. Acceleration Response Spectrum Recommended for Design

State of California
Department of Transportation

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: ROD SIMMONS
Acting Chief, Senior Bridge Engineer
Division of Structure Design North
Bridge Design Branch 17

Date: August 11, 2009

File: 10-MER-165-PM25.8
EA 10-279801
San Joaquin River Overflow
Bridge (Widen)
Br. No. 39-0212

Attention: Igor Chernioglo

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Revised Foundation and Seismic Report

Per your request, the Office of Geotechnical Design North (OGD-N) has prepared this Revised Foundation and Seismic Report for the proposed bridge widening. Additional changes to pile loads by Structures Design prompted this revised report. This report supercedes the previous foundation and Seismic reports dated January 9, 2009 and April 1, 2009. Pile tip elevations were affected but all other recommendations remain the same. The report is based on review and evaluation of the existing bridge files, field investigation in the fall of 2006, and the General Plan dated August 8, 2006 and Foundation Plan dated August 8, 2006.

SCOPE OF WORK

The scope of this report includes:

1. Review of "As-Built" information of the existing bridge and site reconnaissance.
2. Review of available published information about the site including site geology and Seismicity.
3. Work with District design project engineers, biologist and Drilling Services in pursuit of the necessary permits to perform the field investigation.
4. Conducting the field investigation including two soil test borings.
5. Review of field findings.
6. Performing laboratory tests on the soil samples gathered from the field investigation.
7. Discussion of the project with Structure Design project engineer and Structure Hydraulics.
8. Performing engineering analysis, calculations, and developing recommendations.
9. Completing the report.

PROJECT DESCRIPTION

The project site is located on State Highway 165 south of the town of Stevenson (Post Mile 25.8) in the Great Valley Grasslands State Park in Merced County. In general, the sites natural topography is relatively flat with an elevation of approximately 72 feet above mean sea level. The elevation of the river channel at the bridge is about 66 feet and at the existing abutments road grade (maximum height of the bridge embankment fill) the elevation is approximately 82 feet.

The existing 2-span continuous reinforced concrete slab bridge was built in 1959. The proposed work will involve widening the existing spans 6.2 feet on each side, increasing the width of the bridge from 30 feet to 42 feet.

Water was observed in the overflow channel during the foundation investigation conducted in the fall of 2006.

The elevations used in this report are based on NAVD 29.

SITE GEOLOGY AND SUBSURFACE CONDITIONS

The subject site is located approximately in the central portion of the Great Valley geomorphic province of California. The Geologic Map of the San Francisco-San Jose Quadrangle, scale 1:250,000, compiled by D.L. Wagner, E.J. Bortugno, and R.D. McJunkin, 1990, second printing 2005, California Geological Survey, indicate the site is underlain by alluvial deposits of the Pleistocene age Modesto Formation .

Two mud rotary soil test borings were drilled in September and October 2006 to a maximum depth of approximately 101 feet. Our subsurface investigation indicates that the embank fill soils that underlie the existing abutments consists of medium dense to loose silty sand and extend to a depth of about 13 to 14 feet (average elevation 68.5 ft). For reference the pavement elevation at the abutments was 82 feet. Below, alluvium (native soil) was encountered to the maximum depth of the borings. These native soils, which appear relatively consistent across the site, can be divided in to zones by depth according to soil type and / or consistency. These native soil zones are described broadly as follows.

Zone 1: (68.5 ft to 48 ft elevation at Abutment 1 and 53 ft elevation at Abutment 3). These soils consist of predominately wet, poorly sorted, loose, fine-grained sand with minor silt and interbedded silty sand.

Zone 2: (48 ft/ 53 ft to about 5.5 ft elevation). These soils consist of wet, poorly sorted, medium dense to dense fine sand and silty sand with traces of silt and some thin interbedded hard clay.

Zone 3: (5.5 ft to –6 ft elevation). These soils consist of wet, dense to very dense sandy silt and silty sand interbedded with minor amounts of poorly sorted very dense sand.

Zone 4: (-6.0 ft to –16.0 ft elevation). These soils consist of moist, very stiff clay with sand (qu = 3.75 tsf).

Zone 5: (-16 ft t0 –19.0 ft elevation). These soils consist of wet, dense sandy silt and silty sand.

Please refer to Log of Test Borings (LOTBs) for details.

GROUND WATER

Ground water depth was not measured during the 2006 foundation investigation due to the use of the mud rotary drilling method and drilling at an active traffic lane with traffic control. Ground water was measured at elevation 64.4 feet in boring B-1 and 65.3 feet at boring B-2 in 1957 field investigation in the nearby San Joaquin River bridge (Br. NO. 30-0211). The surface water was observed in the channel during the fall of 2006 foundation investigation. We consider the ground water elevation as the water elevation in the overflow channel. However, ground water elevations may fluctuate with seasonal precipitation.

SCOUR EVALUATION

The "Final Hydrology and Hydraulics Report" for San Joaquin River Overflow bridge (December 22, 2008) implies that there are no significant migration, degradation, debris or scour problems occurring at this structure. According to the report a total scour depth of 2.7 feet is anticipated, reaching an elevation of 63.7 feet. Based on Foundation Plan the lowest channel bed elevation is approximately 66.4 feet.

CORROSIVITY EVALUATION

Representative samples taken during the foundation investigation were tested for corrosion potential. The results of the laboratory tests indicated this site is not corrosive. The following table 1 is a summary of the corrosion testing for San Joaquin River Overflow Bridge. The table 2 is a summary of the corrosion testing for San Joaquin River Bridge next to San Joaquin River Overflow Bridge.

Table 1, Corrosive Test Summary

Boring No.	Sample Depth (ft)	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
B-1-06	65-70	8.24	1700	--	--
B-1-06	90-95	8.6	800	100	60

Table 2, Corrosive Test Summary

Boring No.	Sample Depth (ft)	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
B-1-06	8-10	6.90	1900	--	--
B-1-06	35-40	8.02	900	100	160
B-2-06	10-15	7.20	2100	--	--
B-2-06	86-90	8.20	1300	--	--

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water sample taken at the site: Chloride concentration is greater than or equal 500 ppm, sulfate concentration is greater than or equal 2000 ppm, or the pH is 5.5 or less.

SEISMIC STUDY

Based on Caltrans California Seismic Hazard Map 1996, the controlling fault is the Midway-San Joaquin/N (MSJ) with a maximum credible earthquake moment magnitude of M_w=6.75, and is located approximately 11.2 miles west of the site. The Peak Bedrock Acceleration, based on the above map is estimated to be 0.3g. Liquefaction potential is

consider high at the project site. Table 3 below presents the estimated liquefiable layers. There is no known active fault crossing the bridge site, therefore, the potential for surface rupture at the site is considered insignificant.

Based on the geologic map and field investigation, Caltrans Seismic Design Criteria Acceleration Response Spectrum curve corresponding to soil profile Type E is recommended for design (See Attachment).

Table 3 - Liquefaction Data

SUPPORT LOCATION	ESITMATED ORIGINAL GROUND ELEVATION (FT)	LIQUEFIABLE SOIL LAYER ELEVATIONS (FT)
ABUTMENT 1	82	74 TO 48
BENT 2	67	67 TO 50
ABUTMENT 3	82	74 TO 48

AS-BUILT FOUNDATION DATA

The existing bridge is approximately 55 feet long by 30 feet wide, and is supported by driven Raymond Concrete (RC) pile columns. The existing RC piles are tipped at elevation approximately 35 feet. The design load for the existing RC piles is 45 tons

FOUNDATION RECOMMENDATIONS

Based on the available information, we are providing following foundation recommendations for the proposed Widening of the existing bridge.

Driven Class 200 Alternative "W" pipe piles are recommended as suitable to support the proposed widening at the abutments. Driven Cast-In-Steel Shell (CISS) piles are recommended to support the proposed widening at the bent. The geotechnical capacity of the CISS piles has been calculated using the Nordlund method (1963, 1979) for cohesionless soils and the Tomlinson method (1980, 1985) for cohesive soils. The FHWA approved computer program DRIVEN 1.2 was used to calculate the driven pile capacity for the project.

Table 4 -Pile Data

Support Location	Pile Type	Design Load (kips)	Nominal Resistance (kips)		Bottom of Footing Elev. (ft)	Design Tip Elevations (ft)	Specified Tip Elevations (ft)	Nominal Driving Resistance kips
			Compression	Tension				
Abut 1	CLASS 200 ALT. "W" (16"X0.5")	90 (1)	180 (2)	N/A	71.0	+ 22.3 (3b)	+ 22.3	500
Pier 2	CISS (18"X0.5")	N/A	180	N/A	N/A	+ 23.7 (3b)	+ 23.7	500
Abut 3	CLASS 200 ALT. "W" (16"X0.5")	90 (1)	180 (2)	N/A	71.0	+ 16.8 (3b)	+ 16.8	450

Design tip elevations are controlled by the following demands.

1. Design load using working stress design.
2. Factor of safety 2 is applied to the Design load.
3. Compression controls tip elevation: a) Scour Control, b) Liquefaction Control.

GENERAL NOTES TO DESIGNER

1. The structure engineer shall show on the plans, in the pile data table, the minimum pile tip elevation required to meet the lateral load demands.

2. Should the specified pile tip elevation required to meet lateral load demands exceed the specified pile tip elevation given within this report, the Office of Geotechnical Design North should be contacted for further recommendations.

3. Pile center-to-center spacing for piles should not be less than 3.0 times the pile diameter.

4. Support locations are to be plotted on the Log of Test Borings, in plan view, as stated in "Memos to Designers" 4-2. The plotting of the support locations should be made prior to the foundation review.

5. To ensure the geotechnical resistance, a minimum 10 feet soil plug has to remain in the steel shell undisturbed.

6. Prior to installing driven piles, the contractor shall provide a driving system submittal.

Construction Considerations

1. Water is anticipated to be encountered during the construction in the river channel, and in the abutment areas below the elevation of the River water.

2. To ensure the geotechnical resistance, a minimum 10 feet soil plug has to remain in the steel shell.

3. Due to high ground water elevation and subsurface uncemented granular soils nature, the equipments and/or methods used to clean the steel shell should not cause quick soil conditions.

4. Pile acceptance criteria for all driven pile types will be based on the Caltrans Standard Specifications in Section 49-1.08, 2002.

5. In general, the driving of pipe piles for the project should go smoothly and no major difficulties are anticipated. The contractor should note that the very dense (high Standard Penetration Test (SPT) blow counts) soil layers were shown in the LOTBs. The contractor should prepare to deal with the situation based on their experiences.

6. We recommend all pipe pile should have a cut-off allowance to compensate for material damaged at the top of the pile by the impact of the hammer during pile driving. A 1.5 to 5 foot pile section for cut-off allowance is normally recommended (API 1993).

7. The pile may be cut off under the Caltrans engineer's approval in the case where the pipe piles are driven to refusal before reaching the specified tip elevation, if the pile vertical and lateral capacity requirements are met.

PROJECT INFORMATION

Standard Special Provisions S5-280, "Project Information," discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the information Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

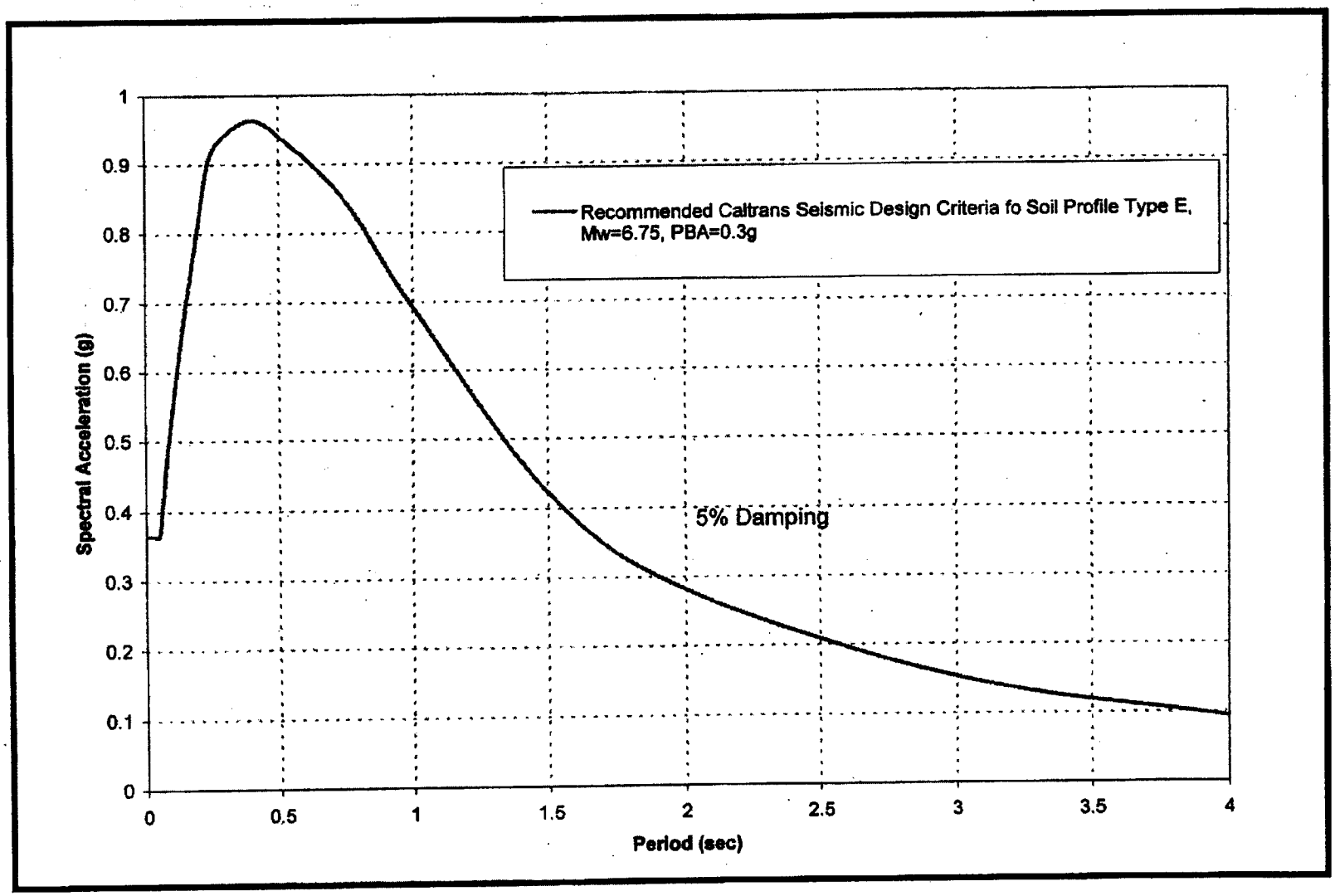


Figure 1. Acceleration Response Spectrum Recommended for Design

State of California
Department of Transportation

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: ROD SIMMONS
Acting Chief, Senior Bridge Engineer
Division of Structure Design Central
Bridge Design Branch 17
Structure Design
Division of Engineering Services (MS 9-DES17)

Date: November 18, 2009

File: 10-MER-165-PM 41.2
EA 10-279801
San Joaquin River Bridge
(Replace)
Br. No. 39-0246

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Revised Foundation and Seismic Report (Revises Report dated August 11, 2009)

Per your request, the Office of Geotechnical Design North (OGD-N) has prepared this revised Foundation and Seismic Report for the proposed bridge replacement. This report was revised to reflect the latest Pile Driving Analysis (PDA) schedule and supercedes the older version in the reported dated August 11, 2009. The report is based on review and evaluation of the existing bridge files, field investigations in 2006 and 2008 and pile loads and pile sizes provided by Rod Simmons (October 2, 2008) and the General Plan dated August 8, 2006 and Foundation Plan dated August 8, 2006.

SCOPE OF WORK

The scope of this report includes:

1. Review of "As-Built" information of the existing bridge, 1957 test boring data and site reconnaissance.
2. Review of available published information about the site including site geology and Seismicity.
3. Conducting the field investigation including two soil test borings.
4. Review of field findings.
5. Performing laboratory tests on the soil samples gathered from the field investigation.
6. Discussion of the project with Structure Design project engineer and Structure Hydraulics.
7. Performing engineering analysis, calculations, and developing recommendations.

PROJECT DESCRIPTION

The project site is located on State Highway 165 south of the town of Stevenson in the Great Valley Grasslands State Park in Merced County. In general, the sites natural topography is relatively flat with an elevation of approximately 72 feet above sea level. The elevation variation of the river channel bottom at the proposed pier locations ranges from approximately 57 to 59 feet. At the abutments road grade (maximum height of the bridge embankment fill and pavement) the elevation is 82 feet (Foundation Plan dated December 16, 2008; E-mail communication from Rodney Simmons dated January27, 2009).

The existing 15-span continuous reinforced concrete slab bridge that was built in 1959. The proposed new bridge is to be a four span Precast, Pre-stressed Bulb-Tee Girder Bridge, supported on driven Cast-In Steel Shell (CISS) pile at the bents. The abutments will be a short-seated type supported on Class 200 Alternative "W" pile foundations.

The elevations used in this report are based on the NGVD29.

SITE GEOLOGY AND SUBSURFACE CONDITIONS

The subject site is situated within the approximate central portion of the Great Valley geomorphic province of California. Surficial Holocene alluvium (active stream and river deposits) and Pleistocene older alluvium of the Modesto Formation (river bank deposits) underlie the bridge site according to the Geologic Map of the San Francisco-San Jose Quadrangle, scale 1:250,000, compiled by D.L. Wagner, E.J. Bortugno, and R.D. McJunkin, 1990, second printing 2005, California Geological Survey.

Subsurface investigations consisting of drilling mud rotary soil test borings were drilled in September 2006, October 2006 and January 2008. The maximum depth of these borings was approximately 230 feet. The results of this drilling investigation and the 1957 investigation indicated that the distribution of the alluvial and fill soils underlying the bridge site is relatively consistent. These soils are predominately fine to medium grained sand with some coarse sand and gravel, and lesser amounts of silts and mixtures of silt, clay and sand.
Specifically, the soils encountered in our investigation may be divided into three relatively distinct zones distributed by depth and are described below.
The upper zone confined to the abutment approaches from the ground surface to a depth of about 10 feet (Elevation 72 ft) consists of embankment Fill. These materials, encountered at both recent soil test borings consisted of medium dense to loose silty sand and silt with clay.

The middle zone composed of alluvium that also underlie the abutment approaches as well as the river channel extends from Elevation 72 ft to elevation 57 feet at the bents and

extends to Elevation 32 at Abutment 1 and elevation 34 at Abutment 5. These deposits consist predominately of loose to medium dense fine to medium grained, poorly graded sand, silty sand and scattered thin sandy silt layers.

The lower zone composed of alluvium extends from the bottom of the middle zone noted above to at least to the maximum depth explored (230 feet). These deposits are composed of predominately medium dense to dense sand, clayey and silty sand, silt, and very stiff clay. Very dense sand was encountered below elevation approximately –38 feet in the boring B-2-06.

A detailed description of the subsurface soils is presented in the Log of Test Borings (LOTB).

GROUND WATER

Ground water depth was not measured during the 2006 and 2008 foundation investigations due to the use of the mud rotary drilling method and drilling at an active traffic lane. Ground water was measured at elevation 64.4 feet in boring B-1 and 65.3 feet at boring B-2 in 1957 field investigation. Running water was observed in the River during the fall of 2006 foundation investigation. We consider the ground water elevation as the running water elevation in the River. However, ground water elevations may fluctuate with seasonal precipitation.

SCOUR EVALUATION

The draft "Hydrology and Hydraulics Report" for San Joaquin River bridge (dated December 22, 2008) state "The scour noted in this report is the Total Scour anticipated at the structure, including thalweg migration, long-term degradation, pressure and local pier scour. The San Joaquin River and Salt Slough are considered to be active, meandering channels. Since the abutments will be placed on the floodplain, inside the levees, they will also be subject to potential channel migration and scour. Therefore, all piles at each structure, including the abutment piles are potentially subject to the same scour depth and elevation." A hydrology summary is presented in the following table.

Table 1- Scour Summary

Scour Summary for San Joaquin River Bridge, 39-0211	
Minimum Soffit Elevation	75.0 ft
(Total) Scour, All Piles	8.7 ft
(Total) Scour Elevation, All piles	47.0 ft

CORROSIVITY EVALUATION

Representative samples taken during the foundation investigation were tested for corrosion potential. The results of the laboratory tests indicated this site is not corrosive. The following is a summary of the corrosion testing:

Table 2-Corrosive test Summary

Boring No.	Sample Depth (m/ft)	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
B-1-06	2.44-3.0/8-10	6.90	1900	--	--
B-1-06	10.7-12.2/35-40	8.02	900	100	160
B-2-06	3.5-4.6/10-15	7.20	2100	--	--
B-2-06	26.2-27.4/86-90	8.20	1300	--	--

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water sample taken at the site: Chloride concentration is greater than or equal 500 ppm, sulfate concentration is greater than or equal 2000 ppm, or the pH is 5.5 or less.

SEISMIC STUDY

Based on Caltrans California Seismic Hazard Map 1996, the controlling fault is the Midway-San Joaquin/N (MSJ) with a maximum credible earthquake moment magnitude of M_w=6.75, and is located approximately 11 miles west of the site. The Peak Bedrock Acceleration, based on the above map is estimated to be 0.3g. Liquefaction potential is considered high at all support locations. The liquefaction base elevation is presented in Table 2 below.

Table 3 - Liquefaction Data

Support Location	Estimated Original Ground Elevation (ft)	Estimated Elevations of Liquefiable Layers (ft)
Abutment 1	82	68 to 47 40 to 32
Pier 2	59	65 to 39 32 to 24
Pier 3	57	62 to 51
Pier 4	57	55 to 38
Abutment 5	82	72 to 52

There is no known active fault crossing the bridge site, therefore, the potential for surface rupture at the site is considered insignificant.

Based on the geologic map and field investigation, Caltrans Seismic Design Criteria Acceleration Response Spectrum corresponding to soil profile Type E is recommended for design (see Attachment).

FOUNDATION RECOMMENDATIONS

Based on the available information, we are providing following foundation recommendations for the proposed new bridge.

36-inch diameter Cast-in-Steel-Shell (CISS) piles are selected as foundation support at the proposed bridge bents. 16-inch diameter Class 200 Alternative "W" Standard Open-ended driven steel pipe piles are recommend to support the abutments.

The use of Spread footings was not considered a suitable foundation type based on the subsurface liquefiable sandy soil conditions. Cast-in-Drilled-Hole (CIDH) piles were not specifically recommend for this project due to liquefiable soils, loose to medium dense sandy soils, and high ground water level. High ground water level, liquefiable soils, and even dense to very dense soil will caused serious soil caving and high potential pile anomaly. If CIDH piles are selected, temporary and/or permanent steel casing should be used to prevent soil caving. Wet Specification Method, shall be used for pile installation. Driven steel "H" piles may not suitable pile type for this project due to "H" piles may not provide required lateral capacity. The pile design recommendations are presented in the following tables.

Table – 4. Abutment Foundation Design Recommendations.

Support Location	Pile Type	Cut-off Elev (ft)	LRFD Service-I Limit State Load per Support – Compression (kips)		LRFD Service-I Limit State Load per Pile-Compression (kips)	Nominal Resistance (kips)	Design Tip Elevation (ft)	Spec Tip Elev (ft)	Nominal Driving Resistance Required (kips)
			Total	Permanent					
Abut 1	16" Class 200 Alt. W	67.8	1160	970	115	230	+9.0(a)	+9.0	349
Abut 5	16" Class 200 Alt. W	67.8	1160	970	115	230	+24.0(a)	+24.0	349

Notes:
1) Design tip elevations are controlled by (a) Compression.
2) The specified tip elevation shall not be raised above the design tip elevations for lateral loads.
3) The nominal driving resistance required is equal to the nominal resistance needed to support the factored load plus driving resistance from the unsuitable penetrated soil layers (very soft/loose, liquefiable, scourable, etc.), which do not contribute to the design resistance.
4) Structure Design typically provides design tip elevation for Lateral Load.

Table 5. Bent foundations Design Recommendations.

Support Location	Pile Type	Cut-off Elevation (ft)	Permanent Load Service-I Limit State Load per Support (kips)	Total Permissible Support Settlement (inches)	Required Factored Nominal Resistance (kips)				Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resist. Required (kips)
					Strength Limit		Extreme Event				
					Comp. (φ=0.7	Tension (φ=0.7)	Comp (φ=1)	Tension (φ=1)			
Bent 2	36" CISS	70.5	310	1.0	630	N/a	500	N/a	-24.1 (a-I) -7.8 (a-II)	-24.1	1626
Bent 3	36" CISS	70.5	325	1.0	690	N/a	500	N/a	-19.4 (a-I) +15.8 (a-II)	-19.4	1290
Bent 4	36" CISS	70.5	310	1.0	630	N/a	500	N/a	-16.0 (a-I) +12.3 (a-II)	-16.0	1426

Notes:
1) Design tip elevations are controlled by: (a-I) Compression (Strength Limit).(a-II) Compression (Extreme Event).
2) Unsuitable soil layers (very soft, liquefiable and scourable) that do not contribute to the design nominal resistance exists at all abutments and bents
3) There is no design tip elevation for Settlement.
4) Structure Design Typically provides Design tip elevations for Lateral Load.

Table 6- Pile Data Table.

Location	Pile Type	Nominal Resistance (kips)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut 1	16" Class 200 Alt. "W"	230	N/a	+9.0 (a)	+9.0	349
Bent 2	36" CISS	900	N/a	-24.1 (a)	-24.1	1626
Bent 3	36" CISS	990	N/a	-19.4 (a)	-19.4	1290
Bent 4	36" CISS	900	N/a	-16.0 (a)	-16.0	1426
Abut 5	16" Class 200 Alt. "W"	230	N/a	+24 (a)	+24.0	349

Notes:

1) Design tip elevations for Abutments and Bents are controlled by: (a) Compression.
2) Unsuitable soil layers (very soft, liquefiable, scourable) that do not contribute to the design nominal resistance exist a all abutment and bents.
3) Structure Design Typically provides Design tip elevations for Lateral Load.
4) There is no design tip elevation for Settlement.

GENERAL NOTES TO DESIGNER

1. The structure engineer shall show on the plans, in the pile data table, the minimum pile tip elevation required to meet the lateral load demands.

2. Should the specified pile tip elevation required to meet lateral load demands exceed the specified pile tip elevation given within this report, the Office of Geotechnical Design North should be contacted for further recommendations.

3. Pile center-to-center spacing for piles should not be less than 3.0 times the pile diameter.

4. Support locations are to be plotted on the Log of Test Borings, in plan view, as stated in "Memos to Designers" 4-2. The plotting of the support locations should be made prior to the foundation review.

5. To ensure the geotechnical resistance, a minimum 16 feet of soil plug has to remain in the steel shell.

Notes to Special Provisions

1. Prior to installing driven piling, the contractor shall provide a driving system submittal.

2. Pile acceptance criteria for Bent piles will be developed using a wave equation analysis in conjunction with dynamic monitoring. Bearing acceptance criteria curves will be provided by the Foundation Testing and Instrumentation (FT&I) Branch of the Office of Geotechnical Support. Please coordinate with Brian Liebich from the FT&I Branch for this information.

3. The contractor shall select one pile from each of the Bent locations (2 through 4) to be dynamically monitored. These three piles shall be the first piles driven. No other piles shall be driven until the engineer has provided the wave equation acceptance criteria.

4. The Engineer shall be allowed 3 working days to complete dynamic monitoring and revise pile tip elevations for a given control location. Day one of 3 shall be the first day after the dynamically monitored pile has been installed.

Construction Considerations

1. Water is anticipated to be encountered during the construction in the river channel, and in the abutment areas below the elevation of the River water.

2. To ensure the geotechnical resistance, a minimum 16-foot soil plug has to remain in the steel shell.

3. Due to high ground water elevation and subsurface uncemented granular soils nature, the equipments and/or methods used to clean the steel shell should not cause quick soil conditions.

4. Pile acceptance criteria for all abutment driven piles will be based on the Caltrans Standard Specifications 2006 in Section 49-1.08.

5. The piles should be driven to the estimated geotechnical resistances presented in Table 6 above.

6. In general, the driving of CISS piles for the project should be smooth and no difficulties, but the contractor should note that the very dense (high Standard Penetration Test (SPT) blow counts) soil layers were shown in the LOTB(s). The contractor should prepare to deal with the situation based on their experiences.

7. We recommend all CISS piles should have a cut-off allowance to compensate for material damaged at the top of the pile by the impact of the hammer during pile driving. A 1.5 to 5 feet pile section for cut-off allowance is normally recommended (API 1993).

8. To help insure that the 90 day construction schedule is met, the contract allows for an additional 200 feet of piling to be available for use as required by the engineer.

PROJECT INFORMATION

Standard Special Provisions S5-280, "Project Information," discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the information Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans are:

A. Log of Test Borings for San Joaquin River Bridge Bridge, Bridge Number 39-0246.

Data and Information included in the Information Handout provided to the bidders and Contractors are:

A. Revised Foundation Report for San Joaquin River Bridge, Number 39-0246, dated November 18, 2009.

B. Foundation Report for San Joaquin River Bridge, Bridge Number 39-0246, dated August 11, 2009.

Data and Information available for inspection at the district Office:

A. None

Data and information available for inspection at the Transportation Laboratory:

A. Existing *San Joaquin River Bridge, Bridge Number 39-0211, file.*

If any conceptual changes are made during final project design, the Office of Geotechnical Design North should review those changes to determine if these foundation recommendations are still applicable. If there are any questions, please contact William Bertucci at (916)-227-1045 or John Huang at (916)-227-1037.

Report By:

William Bertucci
Associate Engineering Geologist
Geotechnical Design – North

Reviewed By:

John Huang
Senior Materials and Research Engineer
Geotechnical Design – North

Reza Mahallati, P.E.
Senior Materials and Research Engineer
Geotechnical Design – North

Attachment – ARS Curve

c: R.E. Pending, Structure OE, GDN File, GS File Room

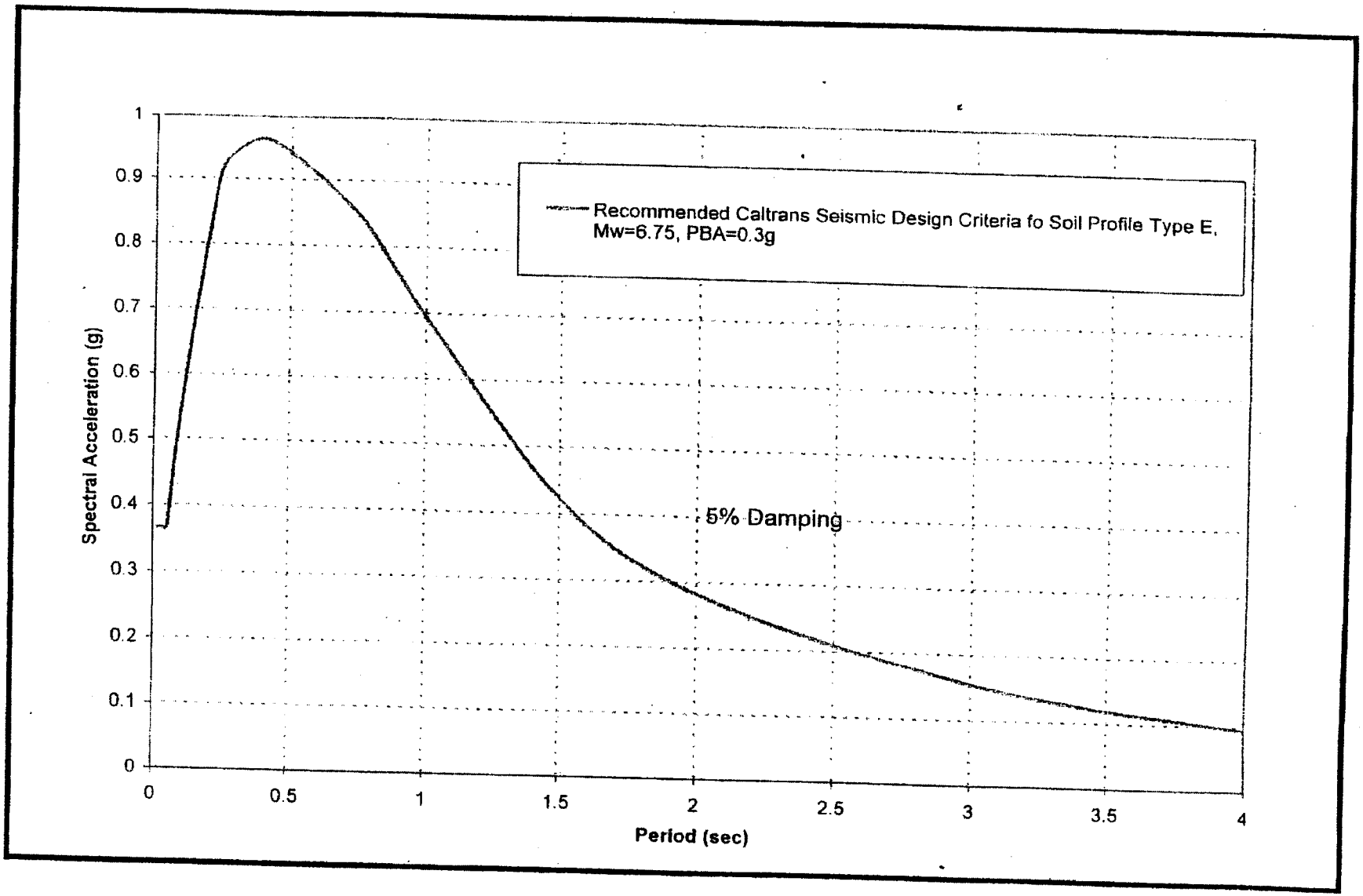


Figure 1. Acceleration Response Spectrum Recommended for Design

State of California
Department of Transportation

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: ROD SIMMONS
Acting Chief, Senior Bridge Engineer
Division of Structure Design Central
Bridge Design Branch 17
Structure Design
Division of Engineering Services (MS 9-DES17)

Date: August 11, 2009

File: 10-MER-165-PM 41.2
EA 10-279801
San Joaquin River Bridge
(Replace)
Br. No. 39-0246

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES – MS 5

Subject: Foundation and Seismic Report (Revises Report Dated January 12, 2009)

Per your request, the Office of Geotechnical Design North (OGD-N) has prepared this Foundation and Seismic Report for the proposed bridge replacement with revised construction notes. The report is based on review and evaluation of the existing bridge files, field investigations in 2006 and 2008 and pile loads and pile sizes provided by Rod Simmons (October 2, 2008) and the General Plan dated August 8, 2006 and Foundation Plan dated August 8, 2006.

SCOPE OF WORK

The scope of this report includes:

1. Review of "As-Built" information of the existing bridge, 1957 test boring data and site reconnaissance.
2. Review of available published information about the site including site geology and Seismicity.
3. Conducting the field investigation including two soil test borings.
4. Review of field findings.
5. Performing laboratory tests on the soil samples gathered from the field investigation.
6. Discussion of the project with Structure Design project engineer and Structure Hydraulics.
7. Performing engineering analysis, calculations, and developing recommendations.

PROJECT DESCRIPTION

The project site is located on State Highway 165 south of the town of Stevenson in the Great Valley Grasslands State Park in Merced County. In general, the sites natural topography is relatively flat with an elevation of approximately 72 feet above sea level. The elevation variation of the river channel bottom at the proposed pier locations ranges from approximately 57 to 59 feet. At the abutments road grade (maximum height of the bridge embankment fill and pavement) the elevation is 82 feet (Foundation Plan dated December 16, 2008; E-mail communication from Rodney Simmons dated January27, 2009).

The existing 15-span continuous reinforced concrete slab bridge that was built in 1959. The proposed new bridge is to be a four span Precast, Pre-stressed Bulb-Tee Girder Bridge, supported on driven Cast-In Steel Shell (CISS) pile at the bents. The abutments will be a short-seated type supported on Class 200 Alternative "W" pile foundations.

The elevations used in this report are based on the NGVD29.

SITE GEOLOGY AND SUBSURFACE CONDITIONS

The subject site is situated within the approximate central portion of the Great Valley geomorphic province of California. Surficial Holocene alluvium (active stream and river deposits) and Pleistocene older alluvium of the Modesto Formation (river bank deposits) underlie the bridge site according to the Geologic Map of the San Francisco-San Jose Quadrangle, scale 1:250,000, compiled by D.L. Wagner, E.J. Bortugno, and R.D. McJunkin, 1990, second printing 2005, California Geological Survey.

Subsurface investigations consisting of drilling mud rotary soil test borings were drilled in September 2006, October 2006 and January 2008. The maximum depth of these borings was approximately 230 feet. The results of this drilling investigation and the 1957 investigation indicated that the distribution of the alluvial and fill soils underlying the bridge site is relatively consistent. These soils are predominately fine to medium grained sand with some coarse sand and gravel, and lesser amounts of silts and mixtures of silt, clay and sand.
Specifically, the soils encountered in our investigation may be divided into three relatively distinct zones distributed by depth and are described below.

The upper zone confined to the abutment approaches from the ground surface to a depth of about 10 feet (Elevation 72 ft) consists of embankment Fill. These materials, encountered at both recent soil test borings consisted of medium dense to loose silty sand and silt with clay.

The middle zone composed of alluvium that also underlie the abutment approaches as well as the river channel extends from Elevation 72 ft to elevation 57 feet at the bents and extends to Elevation 32 at Abutment 1 and elevation 34 at Abutment 5. These deposits consist predominately of lose to medium dense fine to medium grained, poorly graded sand, silty sand and scattered thin sandy silt layers.

The lower zone composed of alluvium extends from the bottom of the middle zone noted above to at least to the maximum depth explored (230 feet). These deposits are composed of predominately medium dense to dense sand, clayey and silty sand, silt, and very stiff clay. Very dense sand was encountered below elevation approximately –38 feet in the boring B-2-06.

A detailed description of the subsurface soils is presented in the Log of Test Borings (LOTB).

GROUND WATER

Ground water depth was not measured during the 2006 and 2008 foundation investigations due to the use of the mud rotary drilling method and drilling at an active traffic lane. Ground water was measured at elevation 64.4 feet in boring B-1 and 65.3 feet at boring B-2 in 1957 field investigation. Running water was observed in the River during the fall of 2006 foundation investigation. We consider the ground water elevation as the running water elevation in the River. However, ground water elevations may fluctuate with seasonal precipitation.

SCOUR EVALUATION

The draft "Hydrology and Hydraulics Report" for San Joaquin River bridge (dated December 22, 2008) state "The scour noted in this report is the Total Scour anticipated at the structure, including thalweg migration, long-term degradation, pressure and local pier

scour. The San Joaquin River and Salt Slough are considered to be active, meandering channels. Since the abutments will be placed on the floodplain, inside the levees, they will also be subject to potential channel migration and scour. Therefore, all piles at each structure, including the abutment piles are potentially subject to the same scour depth and elevation." A hydrology summary is presented in the following table.

Table 1- Scour Summary

Scour Summary for San Joaquin River Bridge, 39-0211	
Minimum Soffit Elevation	75.0 ft
(Total) Scour, All Piles	8.7 ft
(Total) Scour Elevation, All piles	47.0 ft

CORROSIVITY EVALUATION

Representative samples taken during the foundation investigation were tested for corrosion potential. The results of the laboratory tests indicated this site is not corrosive. The following is a summary of the corrosion testing:

Table 2-Corrosive test Summary

Boring No.	Sample Depth (m/ft)	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
B-1-06	2.44-3.0/8-10	6.90	1900	--	--
B-1-06	10.7-12.2/35-40	8.02	900	100	160
B-2-06	3.5-4.6/10-15	7.20	2100	--	--
B-2-06	26.2-27.4/86-90	8.20	1300	--	--

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water sample taken at the site: Chloride concentration is greater than or equal 500 ppm, sulfate concentration is greater than or equal 2000 ppm, or the pH is 5.5 or less.

SEISMIC STUDY

Based on Caltrans California Seismic Hazard Map 1996, the controlling fault is the Midway-San Joaquin/N (MSJ) with a maximum credible earthquake moment magnitude of M_w=6.75, and is located approximately 11 miles west of the site. The Peak Bedrock Acceleration, based on the above map is estimated to be 0.3g. Liquefaction potential is considered high at all support locations. The liquefaction base elevation is presented in Table 2 below.

Table 3 - Liquefaction Data

Support Location	Estimated Original Ground Elevation (ft)	Estimated Elevations of Liquefiable Layers (ft)
Abutment 1	82	68 to 47 40 to 32
Pier 2	59	65 to 39 32 to 24
Pier 3	57	62 to 51
Pier 4	57	55 to 38
Abutment 5	82	72 to 52

There is no known active fault crossing the bridge site, therefore, the potential for surface rupture at the site is considered insignificant.

Based on the geologic map and field investigation, Caltrans Seismic Design Criteria Acceleration Response Spectrum corresponding to soil profile Type E is recommended for design (see Attachment).

FOUNDATION RECOMMENDATIONS

Based on the available information, we are providing following foundation recommendations for the proposed new bridge.

36-inch diameter Cast-in-Steel-Shell (CISS) piles are selected as foundation support at the proposed bridge bents. 16-inch diameter Class 200 Alternative "W" Standard Open-ended driven steel pipe piles are recommend to support the abutments.

The use of Spread footings was not considered a suitable foundation type based on the subsurface liquefiable sandy soil conditions. Cast-in-Drilled-Hole (CIDH) piles were not specifically recommend for this project due to liquefiable soils, loose to medium dense sandy soils, and high ground water level. High ground water level, liquefiable soils, and even dense to very dense soil will caused serious soil caving and high potential pile anomaly. If CIDH piles are selected, temporary and/or permanent steel casing should be used to prevent soil caving. Wet Specification Method, shall be used for pile installation. Driven steel "H" piles may not suitable pile type for this project due to "H" piles may not provide required lateral capacity. The pile design recommendations are presented in the following tables.

Table – 4. Abutment Foundation Design Recommendations.

Support Location	Pile Type	Cut-off Elev (ft)	LRFD Service-I Limit State Load per Support – Compression (kips)		LRFD Service-I Limit State Load per Pile-Compression (kips)	Nominal Resistance (kips)	Design Tip Elevation (ft)	Spec Tip Elev (ft)	Nominal Driving Resistance Required (kips)
			Total	Permanent					
Abut 1	16" Class 200 Alt. W	67.8	1160	970	115	230	+9.0(a)	+9.0	349
Abut 5	16" Class 200 Alt. W	67.8	1160	970	115	230	+24.0(a)	+24.0	349

Notes:
1) Design tip elevations are controlled by (a) Compression.
2) The specified tip elevation shall not be raised above the design tip elevations for lateral loads.
3) The nominal driving resistance required is equal to the nominal resistance needed to support the factored load plus driving resistance from the unsuitable penetrated soil layers (very soft/loose, liquefiable, scourable, etc.), which do not contribute to the design resistance.
4) Structure Design typically provides design tip elevation for Lateral Load.

Table 5. Bent foundations Design Recommendations.

Support Location	Pile Type	Cut-off Elevation (ft)	Permanent Load Service-I Limit State Load per Support (kips)	Total Permissible Support Settlement (inches)	Required Factored Nominal Resistance (kips)				Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resist. Required (kips)
					Strength Limit		Extreme Event				
					Comp. (φ=0.7	Tension (φ=0.7)	Comp (φ=1)	Tension (φ=1)			
Bent 2	36" CISS	70.5	310	1.0	630	N/a	500	N/a	-24.1 (a-I) -7.8 (a-II)	-24.1	1626
Bent 3	36" CISS	70.5	325	1.0	690	N/a	500	N/a	-19.4 (a-I) +15.8 (a-II)	-19.4	1290
Bent 4	36" CISS	70.5	310	1.0	630	N/a	500	N/a	-16.0 (a-I) +12.3 (a-II)	-16.0	1426

Notes:

1) *Design tip elevations are controlled by: (a-I) Compression (Strength Limit).(a-II) Compression (Extreme Event).*
2) *Unsuitable soil layers (very soft, liquefiable and scourable) that do not contribute to the design nominal resistance exists at all abutments and bents*
3) *There is no design tip elevation for Settlement.*
4) Structure Design Typically provides Design tip elevations for Lateral Load.

Table 6- Pile Data Table.

Location	Pile Type	Nominal Resistance (kips)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut 1	16" Class 200 Alt. "W"	230	N/a	+9.0 (a)	+9.0	349
Bent 2	36" CISS	900	N/a	-24.1 (a)	-24.1	1626
Bent 3	36" CISS	990	N/a	-12.9 (a)	-19.4	1290
Bent 4	36" CISS	900	N/a	-12.5 (a)	-16.0	1426
Abut 5	16" Class 200 Alt. "W"	230	N/a	+24 (a)	+24.0	349

Notes:

1) Design tip elevations for Abutments and Bents are controlled by: (a) Compression.
2) Unsuitable soil layers (very soft, liqueflable, scourable) that do not contribute to the design nominal resistance exist a all abutment and bents.
3) Structure Design Typically provides Design tip elevations for Lateral Load.
4) There is no design tip elevation for Settlement.

GENERAL NOTES TO DESIGNER

1. The structure engineer shall show on the plans, in the pile data table, the minimum pile tip elevation required to meet the lateral load demands.

2. Should the specified pile tip elevation required to meet lateral load demands exceed the specified pile tip elevation given within this report, the Office of Geotechnical Design North should be contacted for further recommendations.

3. Pile center-to-center spacing for piles should not be less than 3.0 times the pile diameter.

4. Support locations are to be plotted on the Log of Test Borings, in plan view, as stated in "Memos to Designers" 4-2. The plotting of the support locations should be made prior to the foundation review.

5. To ensure the geotechnical resistance, a minimum 16 feet of soil plug has to remain in the steel shell.

Notes to Special Provisions

1. Prior to installing driven piling, the contractor shall provide a driving system submittal.

2. Pile acceptance criteria for Bent piles will be developed using a wave equation analysis in conjunction with dynamic monitoring. Bearing acceptance criteria curves will be provided by the Foundation Testing and Instrumentation (FT&I) Branch of the Office of Geotechnical Support. Please coordinate with Brian Liebich from the FT&I Branch for this information.

3. The contractor shall select one pile from each of the Bent locations (2 through 4) to be dynamically monitored. These three piles shall be the first piles driven. No other piles shall be driven until the engineer has provided the wave equation acceptance criteria.

4. The contractor shall allow the Engineer 15 working days to complete dynamic monitoring analysis and provide bearing acceptance curves. Day one of fifteen shall be the first day after the dynamically monitored pile has been installed.

Construction Considerations

1. Water is anticipated to be encountered during the construction in the river channel, and in the abutment areas below the elevation of the River water.

2. To ensure the geotechnical resistance, a minimum 16-foot soil plug has to remain in the steel shell.

3. Due to high ground water elevation and subsurface uncemented granular soils nature, the equipments and/or methods used to clean the steel shell should not cause quick soil conditions.

4. Pile acceptance criteria for all abutment driven piles will be based on the Caltrans Standard Specifications 2006 in Section 49-1.08.

5. The piles should be driven to the estimated geotechnical resistances presented in Table 6 above.

6. In general, the driven for CISS piles for the project should be smooth and no difficulties, but the contractor should note that the very dense (high Standard Penetration Test (SPT) blow counts) soil layers were shown in the LOTB(s). The contractor should prepare to deal with the situation based on their experiences.

7. We recommend all CISS piles should have a cut-off allowance to compensate for material damaged at the top of the pile by the impact of the hammer during pile driving. A 1.5 to 5 feet pile section for cut-off allowance is normally recommended (API 1993).

PROJECT INFORMATION

Standard Special Provisions S5-280, "Project Information," discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is an excerpt from SSP S5-280 disclosing information originating from Geotechnical Services. Items listed to be included in the information Handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans are:

A. Log of Test Borings for San Joaquin River Bridge Bridge, Bridge Number 39-0246. Data and Information included in the Information Handout provided to the bidders and Contractors are:

A. Foundation Report for San Joaquin River Bridge, Bridge Number 39-0246, dated August 11, 2009.

Data and Information available for inspection at the district Office:
A. None

Data and information available for inspection at the Transportation Laboratory:
A. Existing *San Joaquin River Bridge, Bridge Number 39-0211, file.*

If any conceptual changes are made during final project design, the Office of Geotechnical Design North should review those changes to determine if these foundation recommendations are still applicable. If there are any questions, please contact William Bertucci at (916)-227-1045 or John Huang at (916)-227-1037.

Report By:

William Bertucci
Associate Engineering Geologist
Geotechnical Design – North

Reviewed By:

John Huang
Senior Materials and Research Engineer
Geotechnical Design – North

Reza Mahallati, P.E.
Senior Materials and Research Engineer
Geotechnical Design – North

REGISTERED PROFESSIONAL ENGINEER
REZA MAHALLATI
No. 49374
Exp. 9/30/10
CIVIL
STATE OF CALIFORNIA

Attachment – ARS Curve

c: R.E. Pending, Structure OE, GDN File, GS File Room

REGISTERED PROFESSIONAL ENGINEER
QIANG HUANG
No. C055571
Exp. 12/31/10
CIVIL
STATE OF CALIFORNIA

San Joaquin River Bridge (Replace)
Br. No. 39-0246
10-279801

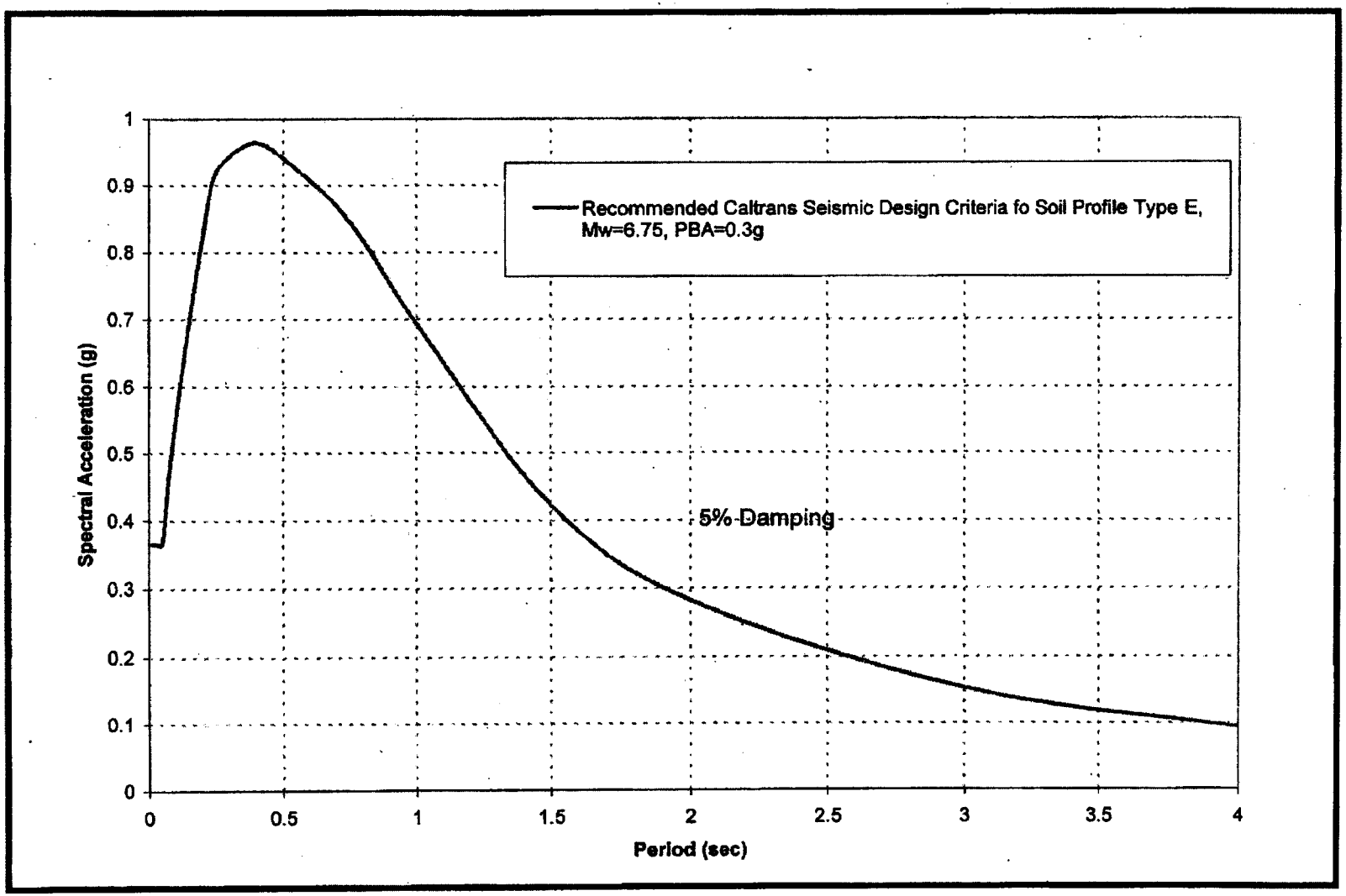


Figure 1. Acceleration Response Spectrum Recommended for Design

State of California Department of Transportation

Structure Hydraulics

DIVISION OF STRUCTURES
FINAL HYDRAULIC REPORT

San Joaquin River
San Joaquin River Overflow
Salt Slough

Located in Merced County on State Route 165 between Stevinson and Los Banos.

JOB:

San Joaquin River (replace)	39-0211
San Joaquin River Overflow (widen)	39-0212
Salt Slough (widen)	39-0209

LOCATION:
10-MER-165-PM 11.7/26.9

WRITTEN BY:
Juan Jauregui
Tony Nedwick

DATE:
December 22, 2008

REVIEWED BY:
Steve Ng

Hydrology/Hydraulics Report

General:

It is proposed to widen the Salt Slough (39-0209) and San Joaquin River Overflow (39-0212) bridges in kind with CIP slab superstructures on pile extensions. Both of these structures are to be widened symmetrically, adding 6.42 feet on both the right and left edge of the existing structure, to accommodate standard 8 foot shoulders. The widened portions will incorporate two additional 18" diameter CISS piles at each bent, one each for the left and right side widened portions.

It is also proposed to replace the San Joaquin River Bridge (39-0211) with a 4-span structure utilizing 61"deep PC/PS Bulb-T girders founded on 3'-0" diameter CISS piles, with 5 piles per bent. Bent caps will be 4'-6" wide and 4'-6" tall and the structural depth will be 5'-10". The abutments and bents will have a 20° right skew so as to minimize the hydraulic skew and associated scour by aligning the bents with the flow. Spans 1 and 4 will be 88 feet, center-to-center and Spans 2 and 3 will be 118 feet, center-to-center. The proposed span lengths are adequate to convey anticipated drift. The longer spans require fewer bents. Fewer bents and precast girders will reduce the construction time required, which is important since the route will be closed during the replacement.

Datum:

According to the Vertical Datum Transformation sheets provided by Preliminary Investigations-North, the elevations differed between the as-built plans and the NGVD 1929 datum for all of the existing structures.

For the Salt Slough structure, the bridge datum (NGVD 1929) for the project is 1.15 feet lower than the elevations calculated from the as-built plans.

For the San Joaquin River structure, the bridge datum (NGVD 1929) for the project is 0.79 feet lower than the elevations calculated from the as-built plans.

For the San Joaquin River Overflow structure, the bridge datum (NGVD 1929) for the project is 0.89 feet lower than the elevations calculated from the as-built plans.

The elevations used in this report are adjusted to the NGVD 1929 datum, as provided by Preliminary Investigations-North.

Basin:

Salt Slough is a tributary to the San Joaquin River and drains a low-lying portion of the San Joaquin Valley, which includes large areas of wetlands and cotton fields; the slough does not have a significant upland area within its basin, and its streamflow is dominated by agricultural drainage much of the year. Most of the water in Salt Slough originates from either operational spills or from return flow from the Grassland Water District, San Luis Canal Company and the Central California Irrigation District. Salt Slough flows roughly 30 miles to the San Joaquin River and is formed by the confluence of Wood Slough and Santa Rita Slough which originate at the San Joaquin River south of State Route 152. It is likely that Salt Slough is an old natural branch of the San Joaquin River. In 1996, the Grasslands Bypass project reopened the San Luis Bypass to reduce the amount of contaminated agricultural runoff from flowing through the wildlife refuges and wetland areas around Salt Slough.

The San Joaquin River Basin covers about 13,500 mi^2 at the southern boundary of the delta with a total watershed of 16,700 mi^2. The cities of Stockton, Modesto, Merced, and Fresno are major municipal and industrial centers in the basin. The basin is comprised of the western slope of the Sierra Nevada mountain range as well as a large portion of the fertile San Joaquin Valley. The San Joaquin River runs approximately 270 miles from Friant Dam to the river mouth about 4 miles below the town of Antioch. It originates in the Sierra Nevada Mountains with elevations of over 10,000 feet. The watershed experiences significant snowmelt runoff during the late spring and early summer, and as the flood flows reach the flat San Joaquin Valley floor they create numerous seasonally flooded wetlands, many of which are protected and encompass wildlife and waterfowl preserves. The basin also has numerous reservoirs and diversion canals for flood control as well as irrigation and drinking water supply. At the San Joaquin River and Overflow bridges, the river has a watershed of approximately 7500 mi^2. The river is bounded by levees throughout much of the reach around the project site.

Discharge:

There is a USGS Stream Gage, #11261100, located at the Salt Slough Bridge. Historical records for this gage provided 21 years of peak flow rates were used to estimate statistical 50-year and 100-year discharge rates for Salt Slough. For Salt Slough (39-0209), the 50-year flow rate is 900 cfs, while the 100-year flow rate is 1000 cfs.

For the San Joaquin River, USGS Gage # 11261500 was used to estimate the 50-year and 100-year discharge rates. This gage is located at the Fremont Ford Bridge, approximately 7 miles downstream from the project site. This gage provided 44 years of peak stream flow data. The only significant tributary between the gage and the bridge site is that of Salt Slough. To approximate the flow rates at the site, the 50-year and 100-year discharge rates for Salt Slough were subtracted from the 50-year and 100-year rates determined from the downstream gage.

These overall flow rates were then used to determine the split between the main channel of the San Joaquin River and the San Joaquin River Overflow at the project site. It was determined that at the 50-year flow rate of 16,800 cfs, the flow conveyed through the Overflow bridge (39-0212) would be negligible, since the calculated water surface elevation of approximately 72.0 feet is lower than the top of the bank and typical ground elevations on the floodplain upstream of the both structures. Therefore, the 50-year flow rate is listed as N/A (Not Applicable) in the Summary Table for the San Joaquin River Overflow Bridge, shown at the end of this report.

For the 100-year flow, it was assumed that the water surface elevation would be the same for both the San Joaquin River and the San Joaquin River Overflow. The modeling for each structure was then correlated to determine the split flow discharges at these structures. The 100-year water surface elevation was calculated to be 74.4 feet.

The Flood of Record flows were also split accordingly, using the same methodology. The USGS gage data indicated that a flow of 23,000 cfs was recorded on April 8, 2006.

For the San Joaquin River Overflow (39-0212), the 50-year flow rate is negligible, while the 100-year flow rate is 405 cfs with a water surface elevation of 74.4 feet.

For the San Joaquin River (39-0211), the 50-year flow rate is 16,800 cfs with a water surface elevation of 72.0 feet, while the 100-year flow rate is 21,654 cfs with a water surface elevation of 74.4 feet.

Velocity:

For Salt Slough, the channel has a very flat average slope of approximately 0.03 %. The 50-year and 100-year discharges were modeled along the reach using HEC-RAS version 3.1 and an estimated Manning's roughness coefficient of 0.035. Average velocity at Salt Slough was approximately 2.2 ft/s, with a maximum velocity of approximately 2.7 ft/s.

For the San Joaquin River, the channel also has a very flat average slope of approximately 0.03 %. The 50-year and 100-year discharges were modeled along the

reach using HEC-RAS version 3.1 and an estimated Manning's roughness coefficient of 0.036. Average velocity at the San Joaquin River Bridge is approximately 4.5 ft/s, with a maximum velocity of approximately 4.9 ft/s.

For the San Joaquin River Overflow, the channel also has a very flat average slope of approximately 0.03 %. The 100-year discharge was modeled along the reach using HEC-RAS version 3.1 and an estimated Manning's roughness coefficient of 0.035. Average velocity at the San Joaquin River Bridge is approximately 2.0 ft/s, with a maximum velocity of approximately 2.5 ft/s.

Streambed:

According to the draft Final Foundation and Seismic Report, the channel bed material consists of medium dense silty fine to medium grained, poorly graded sand, with silty sand and clayey sand also being found at the San Joaquin River Bridge site. This material is considered to be scourable.

Scour:

BrEase 3.1 was used to estimate scour depths utilizing the methods set forth in the FHWA HEC-18, "Evaluating Scour at Bridges." The scour noted in this report is the Total Scour anticipated at the structure, including thalweg migration, long-term degradation, contraction, pressure and local pier scour. The San Joaquin River and Salt Slough are considered to be active, meandering channels. Since the abutments will be placed on the floodplain, inside the levees, they will also be subject to potential channel migration and scour. Therefore, all piles at each structure, including the abutment piles are potentially subject to the same scour depth and elevation.

For the Salt Slough Bridge, a total scour depth of 2.8 feet is anticipated, reaching an elevation of 58.3 feet.

For the San Joaquin River Bridge, a total scour depth of 8.7 feet is anticipated, reaching an elevation of 47.0 feet.

For the San Joaquin River Overflow Bridge, a total scour depth of 2.7 feet is anticipated, reaching an elevation of 63.7 feet.

Summary Information for Bridge Designer:

Below is a summary of key design parameters based on the hydrology and hydraulic analysis performed for this structure.
For Salt Slough and the San Joaquin Overflow structures since they are being widened in kind, the minimum soffit elevations should be approximately equal to the existing soffit elevation, with an allowance for the super elevation of the deck.

The minimum soffit elevation for the San Joaquin River Bridge is required by the Board of Reclamation to provide 3 feet of freeboard above the water surface elevation for Design event flows. Therefore, the minimum soffit elevation for this structure is 75.0 feet.

Hydrologic Summary for Salt Slough Bridge, 39-0209		
Drainage Area: N/A mi^2		
	Design Flood	**Base Flood**
Frequency	50-year	100-year
Discharge	900 cfs	1,000 cfs
Water Surface Elevation at Bridge	69.3 ft	69.7 ft
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.		
Minimum Soffit Elevation	**Match Existing**	
Scour Depth	**2.8 ft**	
Scour Elevation	**58.3 ft**	

Hydrologic Summary for San Joaquin River Bridge, 39-0211		
Drainage Area: 7500 mi^2		
	Design Flood	**Base Flood**
Frequency	50-year	100-year
Discharge	16,800 cfs	21,655 cfs
Water Surface Elevation at Bridge	72.0 ft	74.4 ft
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.		
Minimum Soffit Elevation	**75.0 ft***	
Scour Depth, All Piles	**8.7 ft**	
Scour Elevation, All Piles	**47.0 ft**	

* The Board of Reclamation requires 3 feet of Freeboard over the Design Flood Water Surface Elevation for new structures.

Hydrologic Summary for San Joaquin River Overflow Bridge, 39-0212		
Drainage Area: 7500 mi^2		
	Design Flood	**Base Flood**
Frequency	50-year	100-year
Discharge	N/A	405 cfs
Water Surface Elevation at Bridge	N/A	74.4 ft
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.		
Minimum Soffit Elevation	**Match Existing**	
Scour Depth, All Piles	**2.7 ft**	
Scour Elevation, All Piles	**63.7 ft**	

All elevations given are referenced to the data provided by Structures Design and Preliminary Investigations-North, using the NGVD 29 vertical datum.

This report has been prepared under my direction as the professional engineer in responsible charge of the work, in accordance with the provisions of the Professional Engineers Act of the State of California.

Engineer – report prepared by (Signature) Tony Nedwick	
Registration Number: C60368	Date:

FOUNDATION REVIEW

DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES

To: Structure Design
1. Preliminary Report
2. R.E. Pending File
3. Specifications & Estimates
4. File

Geotechnical Services
1. GS (Sacramento)
2. GS

Date: 8/4/09

Salt Slough Br.
Structure Name

10 — Mer — 165 — 22.34
District County Route Post Km

District Project Development
District Project Engineer

6C-279801 39-0209
E.A. Number Structure Number

Foundation Report By: W Bertucci Dated: 4/1/09

Reviewed By: R. Simmons (OSD) R. Price (GS)

neral Plan Dated: 5/5/09 Foundation Plan Dated: 5/5/09

☒ No changes. ☐ The following changes are necessary.

FOUNDATION CHECKLIST

- ✓ Pile Types and Design Loads
- ✓ Pile Lengths
- ✓ Predrilling
- ✓ Pile Load Test
- Substitution of H Piles For Concrete Piles ☐ Yes ☒ No
- ✓ Footing Elevations, Design Loads, and Locations
- ✓ Seismic Data
- ✓ Location of Adjacent Structures and Utilities
- ✓ Stability of Cuts or Fills
- ✓ Fill Time Delay
- ✓ Effect of Fills on Abutments and Bents
- ✓ LOTB's
- ✓ Fill Surcharge
- ✓ Approach Paving Slabs
- ✓ Scour
- ✓ Ground Water
- ✓ Tremie Seals/Type D Excavation

Office of Structure Design 17 Branch No. Geotechnical Services

Rev. 10/02

FOUNDATION REVIEW

DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES

To: Structure Design
1. Preliminary Report
2. R.E. Pending File
3. Specifications & Estimates
4. File

Geotechnical Services
1. GS (Sacramento)
2. GS

Date: 8/4/09

San Joaquin River Overflow Br.
Structure Name

10 - Mer - 165 - 25.77
District County Route Post~~Km~~

District Project Development
District Project Engineer

06-279801 39-0212
E.A. Number Structure Number

Foundation Report By: W. Bertucci Dated: 4/1/09

Reviewed By: R. Simmons (OSD) R. Price (GS)

neral Plan Dated: 6/10/09 Foundation Plan Dated: 4/29/09

☒ No changes. ☐ The following changes are necessary.

FOUNDATION CHECKLIST

✓ Pile Types and Design Loads	✓ Footing Elevations, Design Loads, and Locations	✓ LOTB's
✓ Pile Lengths	✓ Seismic Data	✓ Fill Surcharge
✓ Predrilling	✓ Location of Adjacent Structures and Utilities	✓ Approach Paving Slabs
✓ Pile Load Test	✓ Stability of Cuts or Fills	✓ Scour
Substitution of H Piles For ✓ Concrete Piles ☐ Yes ☒ No	✓ Fill Time Delay	✓ Ground Water
	✓ Effect of Fills on Abutments and Bents	✓ Tremie Seals/Type D Excavation

Office of Structure Design 17 Branch No. Geotechnical Services

Rev. 10/02

FOUNDATION REVIEW

DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES

To: Structure Design
1. Preliminary Report
2. R.E. Pending File
3. Specifications & Estimates
4. File

Geotechnical Services
1. GS (Sacramento)
2. GS

Date: 8/4/09

San Joaquin River B/
Structure Name

10 - Mer - 165 - 25.61
District County Route Post ~~Km~~ M

06-279801
~~39-0246~~ 39-0246
E.A. Number Structure Number

District Project Development
District Project Engineer

Foundation Report By: W Bertucci Dated: 1/12/09

Reviewed By: R. Simmons (OSD) R. Price (GS)

General Plan Dated: 6/9/09 Foundation Plan Dated: 6/12/09

☐ No changes. ☒ The following changes are necessary.

(1) Add "Nominal Driving Resistance" Column to "Pile Data Table" in "Plans".

(2) Increase soil plug to 30' in 36" piles.

FOUNDATION CHECKLIST

- — Pile Types and Design Loads
- ✓ Pile Lengths
- — Predrilling
- ✓ Pile Load Test
- — Substitution of H Piles For Concrete Piles ☐ Yes ☒ No
- ✓ Footing Elevations, Design Loads, and Locations
- ✓ Seismic Data
- ✓ Location of Adjacent Structures and Utilities
- ✓ Stability of Cuts or Fills
- ✓ Fill Time Delay
- ✓ Effect of Fills on Abutments and Bents
- ✓ LQTB's
- ✓ Fill Surcharge
- ✓ Approach Paving Slabs
- ✓ Scour
- ✓ Ground Water
- ✓ Tremie Seals/Type D Excavation

Office of Structure Design 17 Branch No. Geotechnical Services

Rev. 10/02

Notice of Determination

Appendix D

To:

☒ Office of Planning and Research

For U.S. Mail — P.O. Box 3044, Sacramento, CA 95812-3044

Street Address — 1400 Tenth St., Sacramento, CA 95814

☐ County Clerk
County of: _____
Address: _____

From:
Public Agency: Caltans
Address: 2015 E Shields Ave., Suite 100
Fresno, CA 93726
Contact: David Farris
Phone: 559-243-8297

Lead Agency (if different from above):
_____
Address: _____
Contact: _____
Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2007011106

Project Title: Wolfsen Road Rehabilitation

Project Location (include county): On State Route 165 from Henry Miller Road to State Route 140

Project Description:

The California Department of Transportation (Caltrans) proposes to rehabilitate the roadway on State Route 165 from Henry Miller Road to State Route 140. Work would include replacing the San Joaquin River Bridge, widening two other bridges and realigning two roads that intersect with State Route 165.

This is to advise that the Caltrans ☒ Lead Agency or ☐ Responsible Agency has approved the above described project on _____ (Date) and has made the following determinations regarding the above described project:

1. The project [☐ will ☒ will not] have a significant effect on the environment
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project
6. Findings [☐ were ☒ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at: 2015 E Shields, Suite 100, Fresno, CA 93726

Signature (Public Agency) _____ Title Sr. Environmental Planner

Date 6-23-10 Date Received for filing at OPR _____

RECEIVED
JUN 25 2010
STATE CLEARING HOUSE

Authority cited: Sections 21083, Public Resources Code
Reference Section 21000-21174, Public Resources Code

Revised 2005