

INFORMATION HANDOUT

For Contract No. 05-330784

At 05-SLO-46-46.0/50.2

Identified by

Project ID 0512000076

PERMITS

1. California Department of Fish and Wildlife Incidental Take Permit (ITP No. 2081-2007-020-04)
Letter of Clarification for California Department of Fish and Wildlife Incidental Take Permit (ITP No. 2081-2007-020-04)
2. US Army Corps of Engineers 404 Provisional Permit Modification

AGREEMENTS

3. California Department of Fish and Wildlife Streambed Alteration Agreement No. 1600-2015-0045-R4
4. US Department of the Interior Fish and Wildlife Service (Biological Opinion Document #P43727 for SR 46 (1-8-03-F-59))

CERTIFICATIONS

5. Central Coast Regional Water Quality Control Board Water Quality Certification No. 34015WQ02

MATERIALS INFORMATION

6. Asbestos and lead Containing Paint Survey Report
7. Revised Foundation Report for Cholame Creek Bridge (Replace), Bridge Number 49-0262 R/L, dated October 7, 2014
8. Final Hydraulic Report for Cholame Creek Bridge (Replace), Bridge Number 49-0262 R/L, dated December 10, 2012
9. Water Source Information
10. Temporary Alternative Crash Cushion System
 - A. ABSORB 350 (TL-3)
 - B. SLED (TL-3)
 - C. ACZ-350 (TL-3)
11. Alternative Flared Terminal System
 - A. Type FLEAT-SP-MGS Terminal System
 - B. Type SRT-31 Terminal System
 - C. Type 31" X-TENSION Terminal System
12. Alternative Crash Cushion System
 - A. Crash Cushion (TYPE CAT)
 - B. Crash Cushion (TYPE BRAKEMASTER 350)
 - C. Crash Cushion (TYPE X-MAS)

PERMITS

1. California Department of Fish and Wildlife Incidental Take Permit (ITP No. 2081-2007-020-04)
Letter of Clarification for California Department of Fish and Wildlife Incidental Take Permit (ITP No. 2081-2007-020-04)



California Department of Fish and Game
Central Region
1234 East Shaw Avenue
Fresno, California 93710

California Endangered Species Act
Incidental Take Permit No. 2081-2007-020-04

CALIFORNIA DEPARTMENT OF TRANSPORTATION
ROUTE 46 CORRIDOR IMPROVEMENT PROJECT
SAN LUIS OBISPO COUNTY

Authority: This California Endangered Species Act (CESA) Incidental Take Permit (ITP) is issued by the Department of Fish and Game (DFG) pursuant to Fish and Game Code sections 2081(b) and 2081(c), and California Code of Regulations, title 14, subdivision 3, chapter 6, article 1, commencing with section 783. CESA prohibits the take¹ of any species of wildlife designated as an endangered, threatened, or candidate species² by the Fish and Game Commission. DFG, however, may authorize the take of such species by permit if the conditions set forth in Fish and Game Code sections 2081(b) and 2081(c) are met. (See also Cal. Code Regs., tit. 14, § 783.4.)

Permittee:	California Department of Transportation (Caltrans), District 5
Name and title of principal officer:	Mr. Chuck Cesena, Branch Chief, Central Coast Environmental Management
Contact person:	Ms. Cecilia Boudreau, Environmental Planner, (805) 549-3376 Central Coast Environmental Branch
Mailing address:	50 Higuera Street San Luis Obispo, California 93401

Effective Date and Expiration Date of the ITP:

This ITP shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by signature of the Permittee on the last page of the ITP and returned to DFG's Habitat Conservation Branch at the address listed in the Notices section of this ITP. Unless renewed by DFG, this ITP's authorization to take the Covered Species shall expire on **December 31, 2020**.

¹Pursuant to Fish and Game Code section 86, "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

²"Candidate species" are species of wildlife that have not yet been placed on the list of endangered species or the list of threatened species, but which are under formal consideration for listing pursuant to Fish and Game Code section 2074.2.

Project Location:

The project site is located along State Route (SR) 46 beginning on the east side of Huer Huero Creek Bridge within the City of Paso Robles and ending on the east side of Cholame Valley in the County of San Luis Obispo. (See Figure 1.)

Project Description:

The proposed project (Project) will widen SR 46 between Airport Road and the Cholame Valley from two lanes to four lanes by constructing two new eastbound lanes to the south of the current SR 46, which will become the two westbound lanes. There will be a 61-foot wide median, except between post mile (PM) 32.2 and PM 34.4 where it will be 46.3 feet wide to minimize environmental impacts. The shoulders will be widened and left-turn lanes added at all public road intersections, which will be constructed to Caltrans' full expressway standards. No median barriers will be constructed, and the existing k-rail west of Jack Ranch will be removed. The Project will be constructed in five phases. (See Table 1 below.) The Project will result in the permanent loss of 333.5 acres and temporary impacts to 280.1 acres of San Joaquin kit fox (*Vulpes macrotis mutica*) habitat. These activities and impacts are likely to result in the incidental take of individual kit fox, a species designated as threatened under CESA. (Cal. Code Regs., tit. 14, § 670.5, subd. (b)(6)(E).)

Table 1:

Phase	Approximate Location	Schedule
1 - Union	Airport Road (PM 32.2) to Geneseo Road (PM 37.2)	April 2008
2 - Whitley	Geneseo Road through Whitley Gardens (PM 41.2)	July 2010
3 - Shandon	East of Whitley Gardens through Shandon Rest Area (PM 50.2)	2013 (no funding yet)
4 - Cholame	East of Shandon Rest Area to Jack Ranch Café (PM 54.8)	2016 (no funding yet)
5 - Wye	Jack Ranch Café through Cholame Valley (PM 56.3)	2018 (no funding yet)

Covered Species Subject to the Take Authorization Provided by this ITP:

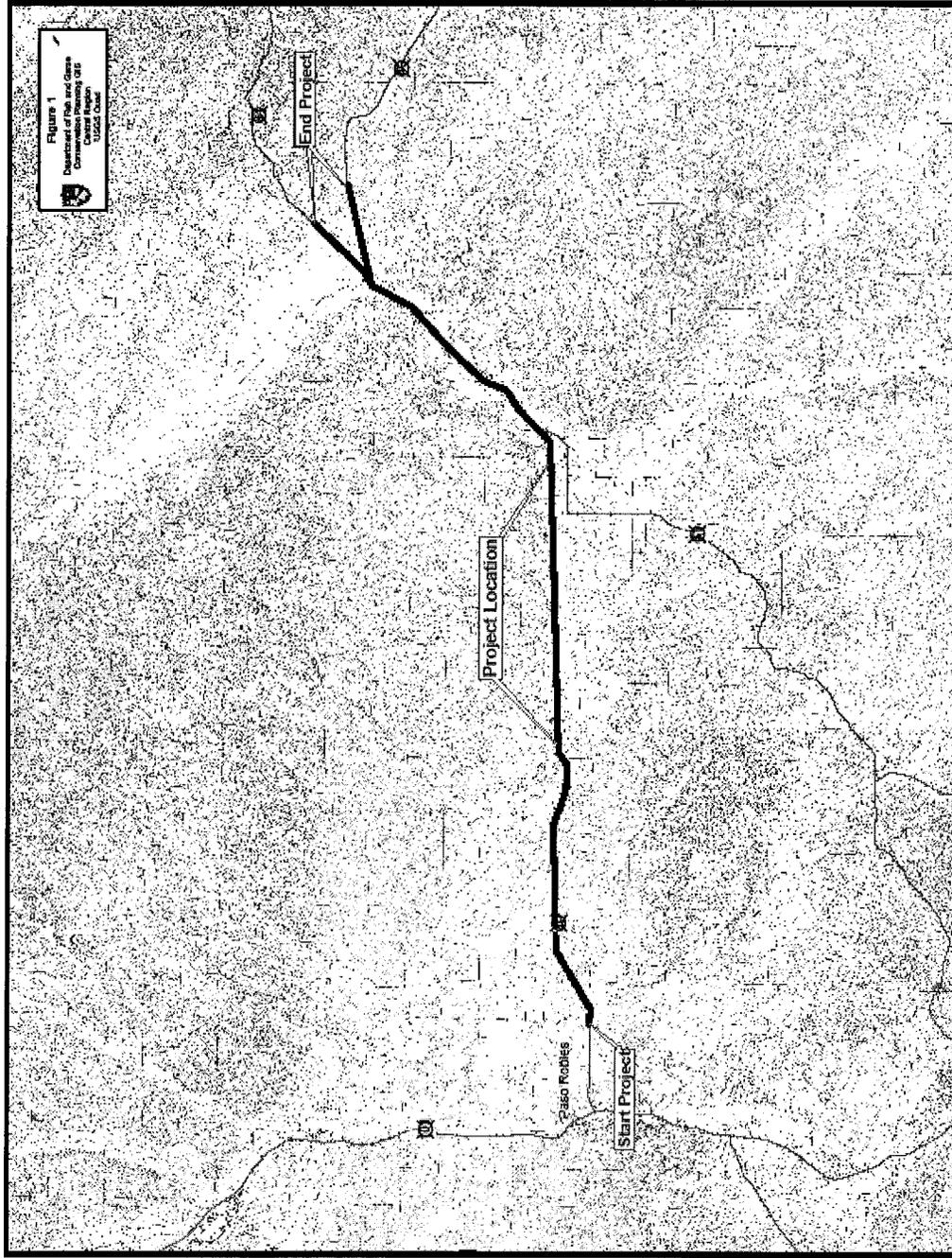
This ITP covers the following species:

Name	CESA Status ³
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	Threatened

This species, and only this species, is hereinafter referred to as the "Covered Species."

³Under CESA, a species may be on the list of endangered species, the list of threatened species, or the list of candidate species. All other species are "unlisted."

Figure 1. Project Location



Impacts to Covered Species:

The Project will result in permanent impacts to 333.5 acres and temporary impacts to 280.1 acres of Covered Species habitat. (See Table 2) Incidental take of individuals of the Covered Species may occur as a result of mortality due to development activities, Project-related traffic on and off the Project site, and direct loss of habitat caused by the Project. Impacts of the taking on the Covered Species also includes increased incidence of vehicle strikes after construction, temporal losses of habitat, increased habitat fragmentation and edge effects, and the Project's incremental contribution to cumulative impacts on the Covered Species (indirect impacts). Impacts of the taking also include temporary impacts to the Covered Species associated with Project-related temporary ground disturbance within the construction boundary, including storage and staging areas and temporary roads, which may also cause additional incidental take of Covered Species.

Table 2:

San Joaquin kit fox habitat	Permanent Impacts			Temporary Impacts			Total
	# of acres Impacted	Mitigation Ratio	Compensation (acres)	# of acres Impacted	Mitigation Ratio	Compensation (acres)	Compensation (acres)
Airport Road to Jardin Road	23.03	3:1	69.09	25.48	1/3:1	8.49	77.58
Jardin Road to Post Mile 37.6	33.66	2:1	67.32	30.26	1/3:1	10.09	77.41
Total for Phase 1	56.69		136.41	55.74		18.58	154.99
Phase 2 starting at PM 37.6	50.36	4:1	201.44	36.50	1/3:1	12.17	213.61
Phase 3	91.46	4:1	365.84	108.20	1/3:1	36.07	401.91
Phase 4	68.59	4:1	274.36	35.04	1/3:1	11.68	286.04
Phase 5	66.40	4:1	265.60	44.62	1/3:1	14.87	280.47
Total for all Phases	333.50		1,243.65	280.10		93.37	1,337.02

Other Species Not Subject to the Take Authorization Provided by this ITP:

Fully Protected Species:

This ITP does not authorize the take of any fully protected species. (See Fish & G. Code, §§ 3511, 4700, 5050, 5515.) DFG believes Caltrans can implement the Project as described in this ITP in a manner consistent with the Fish and Game Code provisions governing fully protected species. DFG's determination regarding Project consistency with Fish and Game Code provisions governing fully protected species is based, in part, on the Permittee's commitment independent of this ITP to implement and adhere to the following general avoidance and minimization measures during Project implementation related to blunt-nosed

leopard lizard (*Crotaphytus wislizenii silus*), a fully protected and CESA designated endangered species (*id.*, § 5050, subd. (b)(1); Cal. Code Regs., tit. 14, § 670.5, subd. (a)(4)(B)):

- Permittee commits to perform a protocol-level survey within the construction boundary for each phase of the Project as designated above in Table 2. DFG's Approved Survey Methodology for blunt-nosed leopard lizard is included with this ITP as Attachment 1.
- If the results of any protocol-level survey detect the presence of blunt-nosed leopard lizard within the construction boundary of any phase of the Project, Permittee commits to notify and consult with DFG prior to any activity that could result in the take of blunt-nosed leopard lizard in order to develop and implement measures acceptable to DFG that will avoid take of individuals of the species.

Giant Kangaroo Rat:

This ITP does not authorize take of giant kangaroo rat (*Dipodomys ingens*), a species designated as endangered under CESA. (Cal. Code Regs., tit. 14, § 670.5, subd. (a)(6)(C).) Phase 4 of the Project (between PM 50.2 and PM 54.8) is the only area of the Project site that contains potential habitat for giant kangaroo rats. No giant kangaroo rats were found within the Project area during prior biological surveys. Implementation of the Project is not expected to result in the take of giant kangaroo rat as a result.

DFG and the Permittee acknowledge that, due to the extended time line for the Project, with construction occurring in multiple separate phases, there is a possibility giant kangaroo rat could establish new populations in the Project area during and prior to completion of Project construction. Because of this possibility, the Permittee has committed to take the following actions to avoid unauthorized incidental take of giant kangaroo rat during Phase 4 of the Project:

- Permittee commits to conduct a survey for giant kangaroo rat a maximum of 30 days prior to initiating ground- or vegetation-disturbing activities in the Cholame Valley between PM 50.2 and PM 54.8. These surveys shall be conducted by a biologist, approved by DFG, with knowledge of and experience in the biology and natural history of the giant kangaroo rat. The biologist approved by DFG to conduct the survey shall hold or acquire prior to the survey a scientific collecting permit from DFG for giant kangaroo rat.
- Permittee commits to immediately notify DFG if the survey conducted by the approved biologist prior to any ground- or vegetation- disturbing activities associated with Phase 4 of the Project identifies any potential signs of giant kangaroo rat, including burrows, scat, or tail drag marks.

Incidental Take Permit
No. 2081-2007-020-04
CALIFORNIA DEPARTMENT OF TRANSPORTATION
ROUTE 46 CORRIDOR IMPROVEMENT PROJECT

Incidental Take Authorization of Covered Species:

This ITP authorizes incidental take of the Covered Species and only the Covered Species. With respect to incidental take of the Covered Species, DFG authorizes the Permittee, its employees, contractors, and agents to take the Covered Species incidentally in carrying out the Project, subject to the limitations described in this section and the Conditions of Approval identified below. This ITP does not authorize: take of Covered Species from activities outside the scope of the Project as described above, take of Covered Species resulting from violation of this ITP, or intentional take of Covered Species except for capture and relocation of Covered Species as authorized by this ITP. In addition, as set forth above, this ITP does not authorize take of any species designated as fully protected under the Fish and Game Code or giant kangaroo rat.

Conditions of Approval:

Unless specified otherwise, the following measures shall pertain to all ground- or vegetation-disturbing activities within the Project construction boundaries, including areas used for ingress and egress routes during construction. DFG's issuance of this ITP and Permittee's authorization to take the Covered Species are subject to Permittee's compliance with and implementation of the following conditions of approval:

1. Permittee shall comply with all applicable State, federal, and local laws in existence on the effective date of this ITP or adopted thereafter.
2. Permittee shall implement and adhere to the mitigation measures related to the Covered Species in the Biological Resources section of the Environmental Assessment/Final Environmental Impact Report (SCH Number: 2000011033) adopted by the Permittee as lead agency for the Project under the California Environmental Quality Act (CEQA) on May 10, 2006. Permittee shall also implement and adhere to all conservation measures, terms and conditions related to the Covered Species in the December 2005 Biological Opinion, Biological Opinion for State Route 46 Corridor Improvement Project"" (Number 1-8-03-F59) issued to the Permittee for the Project by the United States Fish and Wildlife Service (USFWS).
3. Permittee shall fully implement and adhere to the conditions of this ITP within the time frames set forth below and as set forth in the Mitigation Monitoring and Reporting Program (MMRP), which is included as Attachment 2 to this ITP.

4. General Provisions:

- 4.1 Before initiating ground- or vegetation-disturbing activities, Permittee shall designate a representative (Designated Representative) responsible for communications with DFG and for overseeing compliance with this ITP. The Permittee shall notify DFG in writing prior to commencement of ground- or vegetation-disturbing activities of the

Designated Representative's name, business address and contact information, and shall notify DFG in writing if a substitute Designated Representative is selected or identified at any time during the term of this ITP.

- 4.2 At least 30 days before initiating ground- or vegetation-disturbing activities, Permittee shall submit to DFG in writing the name, qualifications, business address, and contact information for a biological monitor (Designated Biologist). The Designated Biologist shall be knowledgeable and experienced in the biology and natural history of the Covered Species. The Designated Biologist will be responsible for monitoring construction and/or ground- or vegetation-disturbing activities in areas of Covered Species' habitat to help minimize or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species' habitat. Permittee shall obtain DFG approval of the Designated Biologist prior to the commencement of Project-related activities that may result in the incidental take of the Covered Species.
- 4.3 To ensure compliance with the Conditions of Approval of this ITP, the Designated Biologist shall have authority to immediately stop any activity that is not in compliance with this ITP and/or to order any reasonable measure to avoid the take of an individual of the Covered Species or any fully protected species. Neither the Authorized Biologist(s) nor DFG shall be liable for any costs incurred in complying with the management measures, including cease-work orders.
- 4.4 Permittee shall conduct an education program for all persons employed or otherwise working on the Project site prior to performing any work on-site. Instruction shall consist of a presentation by the Designated Biologist that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status under CESA including legal protection, recovery efforts, penalties for violations, and Project-specific protective management measures provided in this ITP. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site Project activity. Copies of this ITP shall be maintained at the worksite. Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program and understand all protection measures. These forms shall be filed at the worksite offices and be available to DFG upon request.
- 4.5 Permittee shall initiate a trash abatement program during pre-construction phases of the Project and continue the program throughout the duration of the Project. Trash and food items shall be contained in closed (raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.

- 4.6 Permittee shall implement dust control measures during Project activities to facilitate visibility for monitoring of the Covered Species by the Designated Biologist.
- 4.7 Permittee shall prohibit firearms and domestic dogs from the Project site and site access routes during construction and development of the Project, except those in the possession of authorized security personnel or local, State, or Federal law enforcement officials.
- 4.8 Permittee shall clearly delineate property boundaries of the Project site with fencing, stakes, or flags and shall similarly delineate the limits of construction areas.
- 4.9 Permittee shall clearly delineate habitat of the Covered Species on the Project site with posted signs, posting stakes, flags, and/or rope or cord, and place Environmentally Sensitive Area (ESA) fencing as necessary to minimize disturbance of Covered Species' habitat.
- 4.10 Project-related personnel shall access the Project site during construction and development activities using existing routes and shall not cross Covered Species' habitat outside of and in route to the Project site. Project-related vehicle traffic shall be restricted to established roads, staging and parking areas. Vehicle speeds shall not exceed 20 miles per hour, except when traveling on existing highway, in order to avoid Covered Species on or traversing the roads. If the Permittee determines construction of off-site routes for travel are necessary, Permittee shall contact DFG prior to carrying out any such an activity. DFG may require an amendment to this ITP if additional take of Covered Species may result from Project modification.
- 4.11 Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project site using, to the extent possible, previously disturbed areas. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project boundaries unless specifically provided for in this ITP.
- 4.12 Permittee shall immediately stop/repair any fuel or hazardous waste leaks or spills on the Project site during construction and development activities and immediately clean up such spills at the time of occurrence. Permittee shall exclude the storage and handling of hazardous materials from the construction zone and shall properly contain and dispose of any unused or leftover hazardous products off-site.
- 4.13 Permittee shall provide DFG staff with reasonable access to the Project site and mitigation lands under Permittee control, and shall otherwise fully cooperate with DFG efforts to verify compliance with or effectiveness of mitigation measures set forth in the ITP. Neither the Designated Biologist nor DFG shall be liable for any costs incurred in complying with the Conditions of Approval, including cease-work orders issued by DFG.

4.14 Upon completion of Project construction, Permittee shall remove from the Project site and properly dispose of all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

4.15 Notwithstanding any expiration date on the take authorization provided by this ITP, Permittee's obligations under this ITP do not end until DFG accepts as complete the Permittee's Final Mitigation Report required by Condition 5.9 of this ITP.

5. Notification, Reporting and Monitoring:

5.1 Permittee shall provide DFG with written detailed construction plans, including engineering drawings, a minimum of 30 days prior to ground- or vegetation-disturbing activities authorized by this ITP. These plans as provided to DFG by the Permittee shall include the protection and restoration features and techniques made part of the Permittee's construction contract for the Project, including the features and techniques and any other modifications to the Project made since the Permittee submitted its application to DFG for this ITP.

5.2 Permittee shall notify DFG 14 calendar days before initiating ground- or vegetation-disturbing activities for each phase of the Project and document compliance with all pre-Project Conditions of Approval before initiating ground- or vegetation-disturbing activities.

5.3 Permittee shall immediately notify DFG in writing if it determines that it is not in compliance with any Conditions of Approval of this ITP, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods indicated in this ITP and MMRP. Permittee shall report any non-compliance with the ITP during the construction phase of the Project to DFG within 24 hours.

5.4 Monthly Report: The Designated Biologist shall be on-site daily while construction and/or surface-disturbing activities are taking place to minimize take of the Covered Species; to ensure compliance with all mitigation and avoidance measures; to check all exclusion zones; and to ensure that signs, stakes, and fencing are intact, and that human activities are restricted to outside of these protective zones. Weekly compliance inspections shall be conducted after clearing, grubbing, and grading are completed. These inspections shall be compiled into Monthly Compliance Reports along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure. Monthly Compliance Reports shall be submitted to DFG's Regional Office at the address listed in the Notices section of this ITP or via e-mail to DFG's Regional Representative. At the time of this ITP's approval, the DFG Regional Representative is Laura Peterson-Diaz (e-mail address lpdiaz@dfg.ca.gov). DFG may

at any time increase the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections (see Condition 5.5).

- 5.5 All observations of Covered Species and their sign, oversight activities, verifications, compliance inspections, surveys, monitoring, and records required by this ITP shall be reported in writing to DFG by the Designated Representative or Designated Biologist. Permittee shall submit reports of these activities to DFG in the next Monthly Compliance Report.
- 5.6 All Covered Species sightings confirmed by the Designated Biologist shall include the following documented information: the date, time, and location of each occurrence using GPS technology, the name of the party that actually identified the animal, circumstances of the incident, the general condition and health of each individual, any diagnostic markings, sex, age (juvenile or adult), and actions undertaken and habitat description. The Permittee shall submit this information to the California Natural Diversity Database (CNDDDB).
- 5.7 Annual Report: Permittee shall provide DFG with an Annual Status Report (ASR) no later than January 31 of every year beginning with the issuance of the ITP and continuing until DFG accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum: 1) a general description of the status of the Project site and construction activities, including actual or projected completion dates, if known; 2) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; 3) a copy of the Monthly Compliance Reports from the previous year; and 4) a description of any site-specific avoidance and minimization measures that were employed and an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for Project impacts.
- 5.8 Restoration of Project lands where temporary impacts occur shall be monitored and the status of the restoration included in the Annual Reports beginning after completion of Phase I of the Project. Restoration of all areas subject to temporary ground- or vegetation disturbance shall be recontoured, as necessary, covered with stockpiled top-soil, and seeded with native species. Monitoring for 2 years post-construction of each Phase shall insure that noxious weeds do not become dominant in the restored area and that native species found in the vicinity are successfully reintroduced. If the temporary impact lands have not returned to pre-Project conditions two years after completion of each Phase, additional mitigation and an amendment to this ITP might be required.
- 5.9 Final Mitigation Report: No later than 60 days after completion of the Project, including completion of all mitigation measures, Permittee shall provide DFG with a Final

Mitigation Report. The Final Mitigation Report shall be prepared by the Designated Biologist and shall include, at a minimum: 1) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; 2) all available information about Project-related incidental take of the Covered Species; 3) information about other Project impacts on the Covered Species; 4) construction dates; 5) an assessment of the effectiveness of the ITP's Conditions of Approval in minimizing and compensating for Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the Covered Species; and 7) any other pertinent information, including the level of take of the Covered Species associated with the Project.

5.10 If a Covered Species is killed by a Project-related activity during construction of the Project or if a Covered Species is otherwise found dead, the Designated Biologist shall be immediately notified and initial notification shall be made to the Sacramento Office of the USFWS at (916) 414-6620, and DFG by calling the DFG Regional Office at (559) 243-4017. The initial notification to the USFWS and DFG shall include information regarding the location, species, number of animals injured or killed, and the DFG ITP Number. Following initial notification, Permittee shall send DFG a written report within 2 calendar days. The report shall include the date and time of the finding or incident, location of the carcass, and if possible provide a photograph, explanation as to cause of death, and any other pertinent information. The Designated Biologist shall collect the carcass, place it in plastic, and keep it on ice or in a freezer until a DFG representative can either collect the specimen or issue alternative instructions.

6. Take Minimization Measures:

Take avoidance of Covered Species is the first priority of this ITP. Relocation of Covered Species discovered within the work area prior to ground- or vegetation-disturbing activities, as well as during Project construction, is the second priority of this ITP. Permittee shall implement and adhere to the following conditions to avoid or minimize take of Covered Species.

6.1 Workers shall inspect for Covered Species under vehicles and equipment before vehicles and equipment are moved. If a Covered Species is present, the worker shall wait for the Covered Species to move on its own to a safe location.

6.2 If a Covered Species is injured as a result of Project-related activities, it shall be immediately taken to a DFG-approved wildlife rehabilitation or veterinary facility. The Permittee shall identify the facility prior to the start of ground- or vegetation-disturbing activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify the USFWS and DFG immediately unless the incident occurs outside of normal business hours. In that event the USFWS and DFG shall be notified no later than noon on the next business day. Notification to DFG shall be via telephone or e-mail, followed by a written incident report. Notification

shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.

- 6.3 The Designated Biologist shall perform a pre-construction survey for Covered Species no more than 30 days prior to ground- or vegetation-disturbing activities for each Phase of the Project. Surveys shall cover the proposed construction right-of-way (ROW) with a 200-foot buffer for all areas along the Project length with habitat to support Covered Species. A report documenting the results of the pre-construction surveys shall be submitted to DFG within 30 days after performing any such survey.
- 6.4 If a potential Covered Species den (one that shows evidence of current use or was used in the past) is discovered or a Covered Species is found in an "atypical" den (e.g., a pipe or culvert), a 50-foot buffer shall be established using flagging. If a known Covered Species den is discovered, a buffer of at least 100 feet shall be established using fencing. If a natal den (den in which Covered Species young are reared) is discovered, a buffer of at least 200 feet shall be established using fencing. Buffer zones shall have restricted entry. Permittee shall notify the USFWS and DFG's Regional Representative immediately via telephone or email if any Covered Species dens, natal dens or atypical dens are discovered.
- 6.5 For dens found within the portion of the Project area to be disturbed, natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and DFG. If, after 4 consecutive days of monitoring with tracking medium or infrared camera the Designated Biologist has determined that a Covered Species is not currently present, known dens may be destroyed. Potential dens (any hole 3 inches or larger) may be excavated without monitoring if a take permit has been obtained from the USFWS, but if the process reveals evidence of use inside then destruction shall cease and the USFWS and DFG shall be notified immediately.
- 6.6 Destruction of Covered Species dens shall be accomplished by careful excavation until it is certain no Covered Species are inside. The den should be fully excavated, filled with dirt and compacted to ensure that Covered Species cannot reenter or use the den during the construction period. If at any point during excavation a Covered Species is discovered inside the den, excavation shall cease immediately and monitoring of the den as described above shall be resumed. Destruction of the den shall only be completed when, in the judgment of the Designated Biologist, the animal has escaped from or otherwise vacated the partially destroyed den.
- 6.7 Any Covered Species' den that must be destroyed shall be replaced with an artificial den. This will compensate for the loss of important shelter used by Covered Species for protection, reproduction, and escape from predators. Den design and placement should be determined on a site-specific basis in consultation with the USFWS and DFG.

6.8 All open holes and trenches within the Project construction boundary shall be inspected at the beginning of the day, middle of the day, and end of the day for trapped animals. To prevent inadvertent entrapment of Covered Species or any other animals during the construction phase of the Project, all excavated, steep-walled holes or trenches more than 2 feet deep 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 shall be thoroughly inspected for trapped animals. If at any time a trapped or injured Covered Species is discovered, the USFWS and DFG will be notified within one (1) working day of the incident.

6.9 All construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (3 inches) or greater that are stored at the construction site for one or more overnight periods will be thoroughly inspected for Covered Species before the pipe is subsequently moved, buried, or capped. If a Covered Species is discovered inside a pipe during inspection, that section of pipe shall not be moved until the animal has escaped on its own.

7. Mitigation Measures/Compensation for Take:

DFG has determined that permanent protection of compensatory habitat is necessary and required under CESA to fully mitigate the impacts of the taking on the Covered Species that will result with implementation of the Project.

7.1 Permittee shall acquire and permanently preserve 1,337.02 acres as total compensation for the loss of Covered Species' habitat for the entire Project. The required acreage is based on factors including an assessment of the quality of the habitat at the Project site and DFG's estimate of the acreage required to provide for adequate biological carrying capacity at a replacement location.

7.2 Permittee has identified five Phases of the Project. (See Table 1.) Permittee shall complete all compensatory mitigation requirements separately and in their entirety for each Phase of the Project in sequential order prior to commencing ground- or vegetation-disturbing activities for the next Project Phase. As described in Table 2 of this ITP, the required compensation for each Phase of the Project is as follows: Phase 1 is 154.99 acres, Phase 2 is 213.61 acres, Phase 3 is 401.91 acres, Phase 4 is 286.04 acres, and Phase 5 is 280.47 acres; for a total of 1,337.02 acres.

7.3 For Project Phases 1 through 3, Permittee intends to mitigate at the Palo Prieto Conservation Bank, which approved DFG on February 26, 2008, as authorized to sell habitat mitigation credits for the Covered Species. Permittee is not authorized to commence ground- or vegetation-disturbing activities associated with the Project until this ITP is effective and the Permittee has complied with ITP Condition of Approval 5.2,

including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.

7.4 For Project Phases 4 and 5, the Permittee shall purchase credits at the Palo Prieto Conservation Bank or another conservation bank approved by DFG in San Luis Obispo County that is authorized to sell habitat mitigation credits for the Covered Species. Permittee shall not commence ground- or vegetation-disturbing activities associated with Project Phases 4 and 5 until the Permittee has complied with ITP Condition of Approval 5.2, including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.

Amendment:

This ITP may be amended without the concurrence of the Permittee if DFG determines that continued implementation of the Project under existing ITP conditions would jeopardize the continued existence of the Covered Species or that Project changes or changed biological conditions necessitate an ITP amendment to ensure that impacts to the Covered Species are minimized and fully mitigated. DFG may also amend the ITP at any time without the concurrence of the Permittee as required by law.

Stop-Work Order:

DFG may issue Permittee a written stop-work order to suspend any activity covered by this ITP for an initial period of up to 25 days to prevent or remedy a violation of ITP conditions (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. Permittee shall comply with the stop-work order immediately upon receipt thereof. DFG may extend a stop-work order under this provision for a period not to exceed 25 additional days, upon written notice to the Permittee. DFG shall commence the formal suspension process, pursuant to California Code of Regulations, Title 14, section 783.7, within five working days of issuing a stop-work order.

Compliance with Other Laws:

This ITP contains DFG's requirements for the Project pursuant to CESA. This ITP does not necessarily create an entitlement to proceed with the Project. Permittee is responsible for complying with all other applicable State, federal, and local laws.

Notices:

The Permittee shall deliver the fully executed duplicate original ITP by first class mail or overnight delivery to the following address:

Habitat Conservation Planning Branch
Attention: CESA Permitting Program
1416 Ninth Street, Suite 1260
Sacramento, California 95814

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Written notices, reports, and other communications relating to this ITP shall be delivered to DFG by first-class mail at the following addresses or at addresses DFG may subsequently provide the Permittee. Notices, reports, and other communications shall reference the Project name, Permittee, and ITP Number (2081-2007-020-04) in a cover letter and on any other associated documents.

Original cover with attachment(s) to:

Jeffrey R. Single, Ph.D., Regional Manager
1234 East Shaw Avenue
Fresno, California 93710
Phone (559) 243-4005, Fax (559) 243-4026

Copy of cover without attachment(s) to:

Office of the General Counsel
California Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, California 95814

And:

Habitat Conservation Planning Branch
California Department of Fish and Game
1416 Ninth Street, Suite 1260
Sacramento, California 95814

Unless Permittee is notified otherwise, DFG's Regional Representative for purposes of addressing issues that arise during implementation of the ITP is:

Ms. Laura Peterson-Diaz
1234 East Shaw Avenue
Fresno, California 93710
Phone (559) 243-4017, extension 225, Fax (559) 243-4020

Compliance with the California Environmental Quality Act (CEQA):

DFG's issuance of the ITP is subject to CEQA. DFG is a responsible agency under CEQA with respect to the ITP because of prior environmental review of the Project by the Permittee as lead agency. (See generally Pub. Resources Code, §§ 21067, 21069.) The Permittee's prior legal agency review of the Project is set forth in the State Route 46 Corridor Improvement Environmental Assessment with Finding of No Significant Impact/Final Environmental Impact Report (EIR) (SCH No. 2000011033), as approved on May 10, 2006. At the time that Permittee certified the EIR as lead agency and approved the Project, it also

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adopted all mitigation measures described in the EIR as conditions of Project approval. In fulfilling its obligations as a responsible agency, DFG's obligations under CEQA are more limited than the lead agency. (CEQA Guidelines, § 15096, subds. (a), (f).)⁵ DFG, in particular, is responsible for considering only the effects of those activities involved in the Project which it is required by law to carry out or approve and mitigating or avoiding only the direct or indirect environmental effects of those parts of the Project which it decides to carry out, finance, or approve. (Pub. Resources Code, § 21002.1, subd. (d); CEQA Guidelines, §§ 15041, subd. (b), 15096, subds. (f), (g).) Accordingly, because DFG's exercise of discretion is limited to issuance of the ITP, DFG is responsible for considering only the environmental effects that fall within its permitting authority under CESA.

This ITP, along with DFG's CEQA findings for the ITP and Project, which are available as a separate document, provides evidence of DFG's consideration of the lead agency's EIR for the Project and the environmental effects related to issuance of the ITP. (CEQA Guidelines, § 15096, subd. (f).) DFG finds that issuance of the ITP will not result in any previously undisclosed potentially significant effects on the environment or a substantial increase in the severity of any potentially significant environmental effects previously disclosed by the lead agency. Furthermore, to the extent the potential for such effects exists, DFG finds adherence to and implementation of the lead agency's conditions of approval as well as adherence to and implementation of the Conditions of Approval of the ITP will avoid or reduce to below a level of significance any such potential effects. DFG consequently finds that issuance of the ITP will not result in any significant, adverse impacts on the environment.

Findings Under CESA:

These findings are intended to document DFG's compliance with the specific findings requirements set forth in CESA and related regulations. (Fish & G. Code, 2081, subs. (b)-(c); Cal. Code Regs., tit. 14, §§ 783.4, subds. (a)-(b), 783.5, subd. (c)(2).)

DFG finds that the issuance of this ITP complies and is consistent with the criteria governing the issuance of ITPs under CESA:

- (1) Take of Covered Species, as defined in the ITP, will be incidental to the otherwise lawful activities covered under the ITP;
- (2) Impacts of the taking of the Covered Species will be minimized and fully mitigated through the implementation of measures required by this ITP, as described in the MMRP. Measures include: 1) permanent habitat protection; 2) measures to avoid take of the Covered Species during Project activities; 3) worker education; and 4) Monthly Compliance Reports. DFG evaluated the quality of the habitat on the

⁵The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Project site, the scope and extent of direct impacts, the scope and extent of indirect impacts, and other relevant information available to DFG or provided by the Permittee. Based on this evaluation, DFG determined that the protection and management in perpetuity of 1,337.02 acres of compensatory habitat that is contiguous with other protected Covered Species habitat and/or is of higher quality than the habitat being destroyed by the Project, along with the minimization, monitoring, reporting, and funding requirements of this ITP, meet the CESA issuance criteria.

- (3) The take avoidance and mitigation measures required pursuant to the conditions of this ITP and its attachments are roughly proportional to the impacts of the taking authorized by this ITP;
- (4) The measures required by this ITP maintain Permittee's objectives to the greatest extent possible;
- (5) All required measures are capable of successful implementation;
- (6) The ITP is consistent with any regulations adopted, pursuant to Fish and Game Code sections 2112 and 2114;
- (7) Permittee has ensured adequate funding to implement the measures required by the ITP as well as for monitoring compliance with and the effectiveness of those measures for the Project; and
- (8) Issuance of the ITP will not jeopardize the continued existence of the Covered Species based on the best scientific and other information reasonably available, and this finding includes consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (a) known population trends; (b) known threats to the species; and (c) reasonably foreseeable impacts on the species from other related projects and activities. Moreover, DFG's finding is based, in part, on DFG's express authority to amend the terms and conditions of the ITP without concurrence of the Permittee as necessary to avoid jeopardy and as required by law.

Attachments:

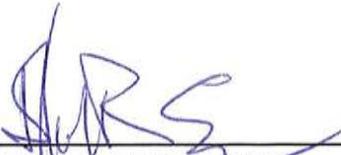
ATTACHMENT 1
ATTACHMENT 2

Approved Survey Methods for Blunt-Nosed Leopard Lizard
Mitigation Monitoring and Reporting Program

Incidental Take Permit
No. 2081-2007-020-04
CALIFORNIA DEPARTMENT OF TRANSPORTATION
ROUTE 46 CORRIDOR IMPROVEMENT PROJECT

ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME

on 1-27-09.



JEFFREY R. SINGLE, PH.D.,
Regional Manager
CENTRAL REGION

APPROVED AS TO FORM:



John H. Mattox
Senior Staff Counsel
Lead Counsel for CESA Permitting

ACKNOWLEDGMENT

The undersigned: 1) warrants that he or she is acting as a duly authorized representative of the Permittee, 2) acknowledges receipt of this ITP, and 3) agrees on behalf of the Permittee to comply with all terms and conditions of the ITP.

By: Chuck Cesena

Date: 3/24/09

Printed Name: Chuck Cesena

Title: Senior Environmental Planner

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Attachment 1

July 2008

Dear Blunt-nosed Leopard Lizard Surveyor,

Attached is the revised survey methodology for the blunt-nosed leopard lizard (*Gambelia sila*). The protocol was developed by the Central Region of the California Department of Fish and Game (DFG) with input from the United States Fish and Wildlife Service (USFWS), the Bureau of Land Management (BLM), and various species experts. This protocol supersedes previous versions of DFG survey protocols for the blunt-nosed leopard lizard. The range-wide decline of population numbers in the past decade has provided the impetus for development of a more rigorous methodology to detect species presence. Additionally, since DFG is not able to issue an incidental take permit for the blunt-nosed leopard lizard due to its status as a fully-protected reptile under the California Fish and Game Code **§5050**, detection of species presence on a project site is crucial.

This standard methodology has been developed to provide consultants, local, state and federal agencies with minimum acceptable standards for surveys conducted to determine the status of this state and federally endangered species. The survey methods described within this protocol were designed to optimize the likelihood of detecting the presence of blunt-nosed leopard lizards should they occur on a project site.

When the presence of blunt-nosed leopard lizards is detected, we request that you notify DFG's local Permitting and Project Review staff for further instructions of what additional information will be needed to assess the project's potential impact on the species. This will assist in expediting the review of the project and help control the project sponsor's biological survey costs. Additionally, the USFWS should be contacted for further advice since this is also a federally-listed species. Use of this protocol and notification of DFG does not exempt you from consultation with the USFWS.

DFG is willing to cooperate with surveyors who have circumstances or needs not addressed by this protocol and who may wish to propose alternative methods to comply with State law prohibiting take of blunt-nosed leopard lizards. If you have any questions or comments regarding this methodology or if you want to propose the use of a different methodology, please contact the Central Region's Habitat Conservation Planning staff at (559) 243-4014 (Fresno, Merced, Madera, Kings, Tulare, and Kern Counties) or (805) 528-8670 (San Benito and San Luis Obispo Counties).

CALIFORNIA DEPARTMENT OF FISH AND GAME

APPROVED SURVEY METHODOLOGY FOR THE BLUNT-NOSED LEOPARD LIZARD JULY 2008

Blunt-nosed leopard lizard, *Gambelia sila* = (*Gambelia silus*)

STATUS: SE, FE, DFG fully protected

This protocol has been developed to provide a minimum level of protection for blunt-nosed leopard lizards (BNLL) when projects or maintenance activities are scheduled to occur within potential BNLL habitat. Disturbing activities should not proceed until appropriate surveys are conducted to determine if the species is present on the site. Surveys conducted according to the following protocol by qualified researchers provide a reasonable, although not conclusive, indication of BNLL presence at a particular site and yield critical information needed to prevent mortality and minimize impacts to the species. Researchers conducting the surveys are expected to understand the basic biological requirements of the species and have the ability to recognize potential BNLL habitat. This protocol satisfies the Department of Fish and Game requirements when it is determined that formal BNLL surveys are needed. [Note: This protocol is appropriate for pre-project BNLL surveys, however, population monitoring over time on a site is best conducted using a permanent survey grid, such as described in Tollestrup (1976).]

METHODS:

A minimum of two researchers, walking in parallel on adjacent transects, should conduct a BNLL survey. Optimum BNLL activity periods occur when air temperature is between 25C-35C (77F-95F) (Tollestrup 1976; USFWS 1985, 1998). Surveys must be conducted when the air temperature falls within the optimal range. Surveys may begin after sunrise as soon as the minimum air temperature criterion is met, and must end by 1400 hours or when the maximum temperature is reached, whichever occurs first (Tollestrup 1976). Time of day and air temperature should be recorded at the start and end of each survey. Air temperature should be periodically checked to ensure that the maximum has not been exceeded. Air temperature should be measured at 1-2 cm above the ground over a surface most representative of the area being surveyed. The researcher must shade the thermometer from direct sunlight while taking the reading. Other factors that affect BNLL activity such as soil temperature (measured at 1cm below soil surface with a shaded thermometer) and weather conditions must be recorded at the start and end of each survey. Surveys should not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph (force > 3 on Beaufort wind scale) (Montanucci 1965; Tollestrup 1976; J. Vance, pers. comm.).

Surveys must be conducted on foot, and researchers must survey all areas with potential BNLL habitat. BNLL are often difficult to detect, particularly in areas where shrubs are fairly numerous (>30% cover) and/or the herbaceous vegetation is tall (>30 cm). In such conditions, 10 meter wide transects should be walked at a slow pace. In areas with few shrubs and shorter herbaceous vegetation (<15 cm), transects as wide as 30 meters are acceptable. When feasible, transects should be walked in a north-south orientation to minimize glare from the sun. The surveyor should stop periodically and scan the transect for BNLL using close-focusing binoculars (minimum 7X35 magnification). In addition to recording the location of all BNLL observed (must provide UTM coordinates), the presence of habitat features important for BNLL (washes, playas, relative abundance of small mammal burrows) should also be recorded for each transect. Streambeds, washes, roads, etc., should be walked in addition to transect lines since BNLL are often seen in these areas.

TIMING AND LENGTH OF SURVEY:

Survey intensity should be commensurate with the anticipated level of disturbance to the BNLL habitat. The primary concern for BNLL when disturbance occurs during maintenance activities is direct mortality from equipment or personnel. Removal of intact BNLL habitat has a much greater potential for "take" due to direct impact on animals aboveground as well as any hibernating animals or eggs underground. A longer survey effort including both spring adult surveys and fall hatchling surveys is therefore required for activities that cause impacts to undisturbed BNLL habitat. The more intensive survey effort increases the chances of observing the species, even if the population is small. Once a BNLL has been observed, surveys may cease and consultation with the Department must begin regarding avoidance measures. If BNLL are observed incidentally while conducting surveys for other species, specific surveys for BNLL are not required. Surveys will be accepted for one year from the date of completion.

Disturbances for Maintenance Activities

Examples of maintenance activities include grading existing roads, grass mowing on roadsides, and maintaining existing structures. BNLL are active and above ground from April through September, but optimum activity periods for adults occur between April 15 and July 15 (Montanucci 1965; Tollestrup 1979; USFWS 1985, 1998). BNLL surveys should be conducted for a total of 8 days over the course of the 90-day time span. A minimum of 3 survey days should be conducted consecutively, with a maximum of 6 days completed within any 30-day time period. Fall hatchling surveys are not required for activities in this category.

Disturbances Leading to Habitat Removal

Examples of disturbances that impact intact habitat include establishment of new roads or structures, housing subdivisions, and changes in historic land use. BNLL surveys should be conducted for 12 days over the course of the 90-day adult optimal survey period (April 15 to July 15), with a maximum of 4 survey

days per week and 8 days within any 30-day time period. At least one survey session should be conducted for 4 consecutive days, weather permitting. BNLL hatchlings and subadults are most commonly observed from August 1 to September 15, along with a few adults that are still active above ground (Montanucci 1965; Tollestrup 1979; USFWS 1985, 1998). In addition to the 12 days of adult BNLL surveys required for activities in this category, 5 more survey days are required during the hatchling optimal survey period for a total of 17 survey days overall.

QUALIFICATIONS OF RESEARCHERS:

An acceptable BNLL survey crew should consist of no more than 3 Level I researchers for every Level II researcher. This restriction should reduce the number of incorrect/missed identifications. The names and affiliations of all researchers must be recorded for each survey day.

Level I: Researcher has demonstrated the ability to distinguish BNLL from other common lizard species that may inhabit the area;

Level II: Researcher has demonstrated the ability to distinguish BNLL from other common lizard species that may inhabit the area and has participated in at least 50 survey days for BNLL (or 25 survey days and a BNLL identification course recognized by/acceptable to the Department of Fish and Game). Researcher has made at least one confirmed* field sighting of a BNLL.

REPORTING

All BNLL observations should be reported to the California Natural Diversity Database within 30 days. A sample form is attached. Additional forms can be obtained at <http://www.dfg.ca.gov/whdab/html/animals.html>.

SPECIAL REQUIREMENT FOR SURVEYS IN San Luis Obispo County

Lands with potential BNLL habitat in San Luis Obispo County have different conditions compared to other counties within the range of BNLL. The sites with habitat in San Luis Obispo County tend to be at higher elevations, where nighttime temperatures can remain low even though daytime temperatures meet minimum survey criteria. In such conditions, BNLL activity is likely to be low and surveys conducted at this time could result in non-detection of the species even though they are present. As such, an additional requirement of a visit to a known voucher site to check for BNLL activity applies to surveys conducted in this County. Once the species has been observed at the voucher site, formal surveys can begin. The Elkhorn Plain ER has been selected as the voucher site for San Luis Obispo County.

LITERATURE CITED

- Montanucci, R.R., 1965. Observations of the San Joaquin leopard lizard, *Crotaphytus wislizenii silus* Stejneger. *Herpetologica* 21(4): 270-283.
- Tollestrup, K. 1976. A standardized method of obtaining an index of densities of blunt-nosed leopard lizards, *Crotaphytus silus*. Unpub. Rpt. U. S. Fish and Wildlife Service, Sacramento, CA. 11pp + Appendices.
- Tollestrup, K. 1979. The ecology, social structure, and foraging behavior of two closely-related leopard lizards, *Gambelia silus* and *Gambelia wislizenii*. PhD Dissertation, University of California Berkeley.
- United States Fish and Wildlife Service. 1985. Revised blunt-nosed leopard lizard recovery plan. United States Fish and Wildlife Service. Region 1, Portland, OR. 85 pp.
- United States Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. United States Fish and Wildlife Service. Region 1, Portland, OR. 319 pp.

PERSONAL COMMUNICATIONS

Julie Vance, California Department of Water Resources, San Joaquin District, 3374 E. Shields Ave, Fresno, California, 93726.

*A minimum of one confirmed field sighting must be documented for each Level II researcher and be available to the Department upon request. As with all BNLL sightings, it should also be submitted to the California Natural Diversity Database. Information to be included in documentation of BNLL sighting: Name of researcher, date of survey, location of survey, names of accompanying researchers who can confirm the sighting, and details of sighting (distance, BNLL activity, etc).

CONTACT INFORMATION

California Department of Fish and Game
Central Region
Habitat Conservation Planning
1234 Shaw Ave
Fresno, CA 93710
559/243-4005

The Department is willing to cooperate with researchers who have circumstances or needs not addressed by this protocol and who may wish to propose alternative methods to comply with State law prohibiting take of BNLL.

Attachment 2

CALIFORNIA DEPARTMENT OF FISH AND GAME MITIGATION MONITORING AND REPORTING PROGRAM (MMRP) CALIFORNIA ENDANGERED SPECIES ACT

INCIDENTAL TAKE PERMIT NO. 2081-2007-020-04

Permittee: California Department of Transportation (Caltrans)

Project: Route 46 Corridor Improvement Project

PURPOSE OF THE MMRP

The purpose of the MMRP is to ensure that the minimization and mitigation measures required by the California Department of Fish and Game (DFG) for the above-referenced Project are properly implemented and thereby to ensure compliance with Section 2081(b) of the Fish and Game Code and Section 21081.6 of the Public Resources Code. A table summarizing the mitigation measures required by DFG is attached. This table is a tool for use in monitoring and reporting on implementation of mitigation measures, but the descriptions in the table do not supersede the mitigation measures set forth in the California Incidental Take Permit (ITP) and in omission of a permit requirement from the attached table does not relieve the Permittee of the obligation to ensure that the requirement is performed.

OBLIGATIONS OF THE PERMITTEE

Mitigation measures must be implemented within the time periods indicated in the table that appears below. The Permittee has the primary responsibility for monitoring compliance with all mitigation measures and for reporting to DFG on the progress in implementing those measures. These monitoring and reporting requirements are set forth in the ITP itself and are summarized at the front of the attached table.

The ITP requires that the Permittee identify and fund at least one full-time biologist to oversee and implement the mitigation activities that are required conditions of approval. The Permittee, through the "Designated Biologist", the "Designated Representative", or some other specific Permittee's designee shall insure the implementation of all Avoidance and Mitigation Measures listed in the ITP and shall monitor the effectiveness of these measures.

VERIFICATION OF COMPLIANCE, EFFECTIVENESS

DFG may, at its own discretion, verify compliance with any mitigation measure or independently assess the effectiveness of any mitigation measure.

TABLE OF MITIGATION MEASURES

The following items are identified for each mitigation measure: Mitigation Measure, Source, Implementation Schedule, Responsible Party, and Status/Date/Initials. The Mitigation Measure column summarizes the mitigation requirements of the ITP. The Source column identifies the ITP document that sets forth the mitigation measure. The Implementation Schedule column shows the date or phase when each mitigation measure shall be implemented. The Responsible Party column identifies the agency that is primarily responsible for implementing the mitigation measure. The Status/Date/Initials column shall be completed by the Permittee during preparation of each Status Report and the Final Mitigation Report, and must identify the implementation status of each mitigation measure, the date that status was determined, and the initials of the person determining the status.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
PRE-CONSTRUCTION					
1	Before initiating ground- or vegetation-disturbing activities, Permittee shall designate a representative (Designated Representative) responsible for communications with DFG and for overseeing compliance with the ITP. The Permittee shall notify DFG in writing prior to commencement of ground- or vegetation-disturbing activities of the Designated Representative's name, business address and contact information, and shall notify DFG in writing if a substitute Designated Representative is selected or identified at any time during the term of the ITP.	ITP Condition #4.1	Before commencing ground or vegetation disturbing activities Entire Project	Permittee	
2	At least 30 days before initiating ground- or vegetation-disturbing activities, Permittee shall submit to DFG in writing the name, qualifications, business address, and contact information for a biological monitor (Designated Biologist). The Designated Biologist shall be knowledgeable and experienced in the biology and natural history of the Covered Species. The Designated Biologist will be responsible for monitoring construction and/or ground- or vegetation-disturbing activities in areas of Covered Species' habitat to help minimize or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species' habitat. Permittee shall obtain DFG approval of the Designated Biologist prior to the commencement of Project-related activities that may result in the incidental take of the Covered Species.	ITP Condition #4.2	Before commencing ground or vegetation disturbing activities Entire Project	Permittee	
3	The Designated Biologist shall have authority to immediately stop any activity that is not in compliance with this ITP and/or to order any reasonable measure to avoid the take of an individual of the Covered Species or any fully protected species. Neither the Authorized Biologist(s) nor DFG shall be liable for any costs incurred in complying with the management measures, including cease-work orders.	ITP Condition #4.3	Before commencing ground or vegetation disturbing activities Entire Project	Permittee	
4	Permittee shall conduct an education program for all persons employed or otherwise working on the Project site prior to performing any work on-site. Instruction shall consist of a presentation by the Designated Biologist that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status under CESA including legal protection, recovery efforts, penalties for violations, and Project-specific protective management measures provided in the ITP. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site Project activity. Copies of the ITP shall be maintained at the worksite. Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program and understand all protection measures. These forms shall be filed at the worksite offices and be available to DFG upon request.	ITP Condition #4.4	Before commencing ground or vegetation disturbing activities Entire Project	Permittee	
5	Permittee shall initiate a trash abatement program during pre-construction phases of the Project and continue the program throughout the duration of the Project. Trash and food items shall be contained in closed (raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.	ITP Condition #4.5	Before commencing ground or vegetation disturbing activities Entire Project	Permittee	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
<p>6</p> <p>Permittee shall provide DFG with written detailed construction plans, including engineering drawings, a minimum of 30 days prior to ground- or vegetation-disturbing activities authorized by this ITP. These plans as provided to DFG by the Permittee shall include the protection and restoration features and techniques made part of the Permittee's construction contract for the Project, including the features and techniques and any other modifications to the Project made since the Permittee submitted its application to DFG for this ITP.</p>	<p>ITP Condition #5.1</p>	<p>Before commencing ground or vegetation disturbing activities of each phase</p>	<p>Permittee</p>	
<p>7</p> <p>Permittee shall notify DFG 14 calendar days before initiating ground- or vegetation-disturbing activities for each phase of the Project and document compliance with all pre-Project Conditions of Approval before initiating ground- or vegetation-disturbing activities.</p>	<p>ITP Condition #5.2</p>	<p>Before commencing ground or vegetation disturbing activities of each phase</p>	<p>Permittee</p>	
<p>8</p> <p>If a Covered Species is injured as a result of Project-related activities, it shall be immediately taken to a DFG-approved wildlife rehabilitation or veterinary facility. The Permittee shall identify any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify the USFWS and DFG immediately unless the incident occurs outside of normal business hours. In that event the USFWS and DFG shall be notified no later than noon on the next business day. Notification to DFG shall be via telephone or e-mail, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.</p>	<p>ITP Condition #6.2</p>	<p>Before commencing ground or vegetation disturbing activities Entire Project</p>	<p>Permittee</p>	
<p>9</p> <p>The Designated Biologist shall perform a pre-construction survey for Covered Species no more than 30 days prior to ground- or vegetation-disturbing activities for each Phase of the Project. Surveys shall cover the proposed construction right-of-way (ROW) with a 200-foot buffer for all areas along the Project length with habitat to support Covered Species. A report documenting the results of the pre-construction surveys shall be submitted to DFG within 30 days after performing any such survey.</p>	<p>ITP Condition #6.3</p>	<p>Before commencing ground or vegetation disturbing activities of each phase</p>	<p>Permittee</p>	
<p>10</p> <p>If a potential Covered Species den (one that shows evidence of current use or was used in the past) is discovered or a Covered Species is found in an "atypical" den (e.g., a pipe or culvert), a 50-foot buffer shall be established using flagging. If a known Covered Species den is discovered, a buffer of at least 100 feet shall be established using fencing. If a natal den (den in which Covered Species young are reared) is discovered, a buffer of at least 200 feet shall be established using fencing. Buffer zones shall have restricted entry. Permittee shall notify the USFWS and DFG's Regional Representative immediately via telephone or email if any Covered Species dens, natal dens or atypical dens are discovered.</p>	<p>ITP Condition #6.4</p>	<p>Before commencing ground or vegetation disturbing activities Entire Project</p>	<p>Permittee</p>	
<p>11</p> <p>For dens found within the portion of the Project area to be disturbed, natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and DFG. If, after 4 consecutive days of monitoring with tracking medium or infrared camera the Designated Biologist has determined that a Covered Species is not currently present, known dens may be destroyed. Potential dens (any hole 3 inches or larger) may be excavated without monitoring if a take permit has been obtained from the USFWS, but if the process reveals evidence of use inside then destruction shall cease and the USFWS and DFG shall be notified immediately.</p>	<p>ITP Condition #6.5</p>	<p>Before commencing ground or vegetation disturbing activities of each phase</p>	<p>Permittee</p>	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
12	Destruction of Covered Species dens shall be accomplished by careful excavation until it is certain no Covered Species are inside. The den should be fully excavated, filled with dirt and compacted to ensure that Covered Species cannot reenter or use the den during the construction period. If at any point during excavation a Covered Species is discovered inside the den, excavation shall cease immediately and monitoring of the den as described above shall be resumed. Destruction of the den shall only be completed when, in the judgment of the Designated Biologist, the animal has escaped from or otherwise vacated the partially destroyed den.	ITP Condition #6.6	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
13	Any Covered Species' den that must be destroyed shall be replaced with an artificial den. This will compensate for the loss of important shelter used by Covered Species for protection, reproduction, and escape from predators. Den design and placement should be determined on a site-specific basis in consultation with the USFWS and DFG.	ITP condition #6.7	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
14	Permittee shall acquire and permanently preserve 1,337.02 acres as total compensation for the loss of Covered Species' habitat for the entire Project. The required acreage is based on factors including an assessment of the quality of the habitat at the Project site and DFG's estimate of the acreage required to provide for adequate biological carrying capacity at a replacement location. Permittee has identified five Phases of the Project. (See Table 1.) Permittee shall complete all compensatory mitigation requirements separately and in their entirety for each Phase of the Project in sequential order prior to commencing ground- or vegetation-disturbing activities for the next Project Phase. As described in Table 2 of this ITP, the required compensation for each Phase of the Project is as follows: Phase 1 is 154.99 acres, Phase 2 is 213.61 acres, Phase 3 is 401.91 acres, Phase 4 is 286.04 acres, and Phase 5 is 280.47 acres; for a total of 1,337.02 acres.	ITP Conditions #7.1, 7.2	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
15	For Project Phases 1 through 3, Permittee intends to mitigate at the Palo Prieto Conservation Bank, which approved DFG on February 26, 2008, as authorized to sell habitat mitigation credits for the Covered Species. Permittee is not authorized to commence ground- or vegetation-disturbing activities associated with the Project until this ITP is effective and the Permittee has complied with ITP Condition of Approval 5.2, including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.	ITP Condition #7.3	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
16	For Project Phases 4 and 5, the Permittee shall purchase credits at the Palo Prieto Conservation Bank or another conservation bank approved by DFG in San Luis Obispo County that is authorized to sell habitat mitigation credits for the Covered Species. Permittee shall not commence ground- or vegetation-disturbing activities associated with Project Phases 4 and 5 until the Permittee has complied with ITP Condition of Approval 5.2, including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.	ITP Condition #7.4	Before commencing ground or vegetation disturbing activities of each phase	Permittee	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
DURING CONSTRUCTION				
17	Permittee shall implement dust control measures during Project activities to facilitate visibility for monitoring of the Covered Species by the Designated Biologist.	ITP Condition #4.6	Entire Project	Permittee
18	Workers shall inspect for Covered Species under vehicles and equipment before vehicles and equipment are moved. If a Covered Species is present, the worker shall wait for the Covered Species to move on its own to a safe location.	ITP Condition #6.1	Entire Project	Permittee
19	Permittee shall prohibit firearms and domestic dogs from the Project site and site access routes during construction and development of the Project, except those in the possession of authorized security personnel or local, State, or Federal law enforcement officials.	ITP Condition #4.7	Entire Project	Permittee
20	Permittee shall clearly delineate property boundaries of the Project site with fencing, stakes, or flags and shall similarly delineate the limits of construction areas.	ITP Condition #4.8	Entire Project	Permittee
21	Permittee shall clearly delineate habitat of the Covered Species on the Project site with posted signs, posting stakes, flags, and/or rope or cord, and place Environmentally Sensitive Area (ESA) fencing as necessary to minimize disturbance of Covered Species' habitat.	ITP Condition #4.9	Entire Project	Permittee
22	Project-related personnel shall access the Project site during construction and development activities using existing routes and shall not cross Covered Species' habitat outside of and in route to the Project site. Project-related vehicle traffic shall be restricted to established roads, staging and parking areas. Vehicle speeds shall not exceed 20 miles per hour, except when traveling on existing highway, in order to avoid Covered Species on or traversing the roads. If the Permittee determines construction of off-site routes for travel are necessary, Permittee shall contact DFG prior to carrying out any such activity. DFG may require an amendment to this ITP if additional take of Covered Species may result from Project modification.	ITP Condition #4.10	Entire Project	Permittee
23	Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project site using, to the extent possible, previously disturbed areas. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project boundaries unless specifically provided for in this ITP.	ITP Condition #4.11	Entire Project	Permittee
24	Permittee shall immediately stop/repair any fuel or hazardous waste leaks or spills on the Project site during construction and development activities and immediately clean up such spills at the time of occurrence. Permittee shall exclude the storage and handling of hazardous materials from the construction zone and shall properly contain and dispose of any unused or leftover hazardous products off-site.	ITP Condition #4.12	Entire Project	Permittee
25	Permittee shall immediately notify DFG in writing if it determines that it is not in compliance with any Conditions of Approval of this ITP, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods indicated in this ITP and MMRP. Permittee shall report any non-compliance with the ITP during the construction phase of the Project to DFG within 24 hours.	ITP Condition #5.3	Entire Project	Permittee

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
26	<p>Monthly Report: The Designated Biologist shall be on-site daily while construction and/or surface-disturbing activities are taking place to minimize take of the Covered Species; to ensure compliance with all mitigation and avoidance measures; to check all exclusion zones; and to ensure that signs, stakes, and fencing are intact, and that human activities are restricted to outside of these protective zones. Weekly compliance inspections shall be conducted after clearing, grubbing, and grading are completed. These inspections shall be compiled into Monthly Compliance Reports along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure. Monthly Compliance Reports shall be submitted to DFG's Regional Office at the address listed in the Notices section of this ITP or via e-mail to DFG's Regional Representative. At the time of this ITP's approval, the DFG Regional Representative is Laura Peterson-Diaz (e-mail address lpdiaz@dfg.ca.gov). DFG may at any time increase the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections (see Condition 5.5).</p>	ITP Condition #5.4	Entire Project	Permittee	
27	<p>All observations of Covered Species and their sign, oversight activities, verifications, compliance inspections, surveys, monitoring, and records required by this ITP shall be reported in writing to DFG by the Designated Representative or Designated Biologist. Permittee shall submit reports of these activities to DFG in the next Monthly Compliance Report.</p>	ITP Conditions #5.5	Entire Project	Permittee	
28	<p>All Covered Species sightings confirmed by the Designated Biologist shall include the following documented information: the date, time, and location of each occurrence using GPS technology, the name of the party that actually identified the animal, circumstances of the incident, the general condition and health of each individual, any diagnostic markings, sex, age (juvenile or adult), and actions undertaken and habitat description. The Permittee shall submit this information to the California Natural Diversity Database (CNDDDB).</p>	ITP Conditions #5.6	Entire Project	Permittee	
29	<p>Annual Report: Permittee shall provide DFG with an Annual Status Report (ASR) no later than January 31 of every year beginning with the issuance of the ITP and continuing until DFG accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum: 1) a general description of the status of the Project site and construction activities, including actual or projected completion dates, if known; 2) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; 3) a copy of the Monthly Compliance Reports from the previous year; and 4) a description of any site-specific avoidance and minimization measures that were employed and an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for Project impacts.</p>	ITP Condition #5.7	Entire Project	Permittee	
30	<p>Restoration of Project lands where temporary impacts occur shall be monitored and the status of the restoration included in the Annual Reports beginning after completion of Phase 1 of the Project. Restoration of all areas subject to temporary ground- or vegetation disturbance shall be recontoured, as necessary, covered with stockpiled top-soil, and seeded with native species. Monitoring for 2 years post-construction of each Phase shall insure that noxious weeds do not become dominant in the restored area and that native species found in the vicinity are successfully reintroduced. If the temporary impact lands have not returned to pre-Project conditions two years after completion of each Phase, additional mitigation and an amendment to this ITP might be required.</p>	ITP Condition #5.8	After completion of phase 1 until 2 years post-construction of phase 5	Permittee	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
31	<p>If a Covered Species is killed by a Project-related activity during construction of the Project or if a Covered Species is otherwise found dead, the Designated Biologist shall be immediately notified and initial notification shall be made to the Sacramento Office of the USFWS at (916) 414-6620, and DFG by calling the DFG Regional Office at (559) 243-4017. The initial notification to the USFWS and DFG shall include information regarding the location, species, number of animals injured or killed, and the DFG ITP Number. Following initial notification, Permittee shall send DFG a written report within 2 calendar days. The report shall include the date and time of the finding or incident, location of the carcass, and if possible provide a photograph, explanation as to cause of death, and any other pertinent information. The Designated Biologist shall collect the carcass, place it in plastic, and keep it on ice or in a freezer until a DFG representative can either collect the specimen or issue alternative instructions.</p>	ITP Condition #5.10	Entire Project	Permittee	
32	<p>If a Covered Species is injured as a result of Project-related activities, it shall be immediately taken to a DFG-approved wildlife rehabilitation or veterinary facility. The Permittee shall identify the facility prior to the start of ground- or vegetation-disturbing activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify the USFWS and DFG immediately unless the incident occurs outside of normal business hours. In that event the USFWS and DFG shall be notified no later than noon on the next business day. Notification to DFG shall be via telephone or e-mail, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.</p>	ITP Condition #6.2	Entire Project	Permittee	
33	<p>All open holes and trenches within the Project construction boundary shall be inspected at the beginning of the day, middle of the day, and end of the day for trapped animals. To prevent inadvertent entrapment of Covered Species or any other animals during the construction phase of the Project, all excavated, steep-walled holes or trenches more than 2 feet deep 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 shall be thoroughly inspected for trapped animals. If at any time a trapped or injured Covered Species is discovered, the USFWS and DFG will be notified within one (1) working day of the incident.</p>	ITP Condition #6.8	Entire Project	Permittee	
34	<p>All construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (3 inches) or greater that are stored at the construction site for one or more overnight periods will be thoroughly inspected for Covered Species before the pipe is subsequently moved, buried, or capped. If a Covered Species is discovered inside a pipe during inspection, that section of pipe shall not be moved until the animal has escaped on its own.</p>	ITP Condition #6.9	Entire Project	Permittee	
35	<p>DFG may issue Permittee a written stop-work order to suspend any activity covered by this ITP for an initial period of up to 25 days to prevent or remedy a violation of ITP conditions (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. Permittee shall comply with the stop-work order immediately upon receipt thereof. DFG may extend a stop-work order under this provision for a period not to exceed 25 additional days, upon written notice to the Permittee. DFG shall commence the formal suspension process, pursuant to California Code of Regulations, Title 14, section 783.7, within five working days of issuing a stop-work order.</p>	ITP	Entire Project	DFG	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
POST-CONSTRUCTION				
36 Upon completion of Project construction, Permittee shall remove from the Project site and properly dispose of all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.	ITP Condition #4.14	Post-construction	Permittee	
37 Final Mitigation Report: No later than 60 days after completion of the Project, including completion of all mitigation measures, Permittee shall provide DFG with a Final Mitigation Report. The Final Mitigation Report shall be prepared by the Designated Biologist and shall include, at a minimum: 1) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; 2) all available information about Project-related incidental take of the Covered Species; 3) information about other Project impacts on the Covered Species; 4) construction dates; 5) an assessment of the effectiveness of the ITP's Conditions of Approval in minimizing and compensating for Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the Covered Species; and 7) any other pertinent information, including the level of take of the Covered Species associated with the Project.	ITP Condition #5.9	Post-construction	Permittee	
38 DFG accepts the Final Mitigation Report as complete.	ITP Condition #4.15	Post-construction	DFG	

PERMITS

2. US Army Corps of Engineers 404 Provisional Permit Modification



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

Regulatory Division

OCT 01 2015

SUBJECT: Permit No. 1999-245730S

PROVISIONAL PERMIT MODIFICATION

Mr. Larry Bonner
California Department of Transportation (Caltrans), District 5
Central Coast Environmental Management Branch
50 Higuera Street
San Luis Obispo, California 93401-5415

Dear Mr. Bonner:

This letter is in response to your request dated March 11, 2015, for a modification of permit No. 1999-245730S. The Highway 46 Corridor Improvement Project was authorized pursuant to Section 404 of the Clean Water Act, 33 U.S.C. Section 1344, on May 4, 2007. To implement the project Caltrans is authorized to place fill into 6.9 acres of waters of the U.S. located in San Luis Obispo County on Highway 46, beginning at Airport Road just east of Paso Robles, to the eastern most junction of State Routes 46 and 41. This permit was modified on June 29, 2012 to address the Shandon Section, Construction phase 1 (Whitley 2A segment). This modification addresses the Whitley 2B (phase 4) segment located within the Shandon section of the project reach which occurs just east of McMillan Canyon Creek (PM 46.0) and extends to just beyond the Cholame Creek Bridge (PM 50.2).

The following provisional permit modification is NOT VALID and does not authorize you to do your work. The provisional permit describes the work that will be authorized, and the General and Special Conditions, which will be placed on your final Department of the Army (DA) permit, if the California State Water Resources Control Board Section 401 Water Quality Certification requirements are satisfied as described below. No work is to be performed in wetlands or other waters of the U.S., until you have received a validated copy of the DA permit.

By Federal law no DA permit can be issued until a State Section 401 Water Quality Certification has been issued or has been waived. As of this date the California State Water Resources Control Board has not issued a Section 401 Water Quality Certification for your proposed work.

Conditions of the State Section 401 Water Quality Certification will become conditions to the final DA permit. Should the State's action on the required certification preclude validation of the provisional permit in its current form, a modification to the provisional permit will be

evaluated and you will be notified as appropriate. Substantial changes may require a new permit evaluation process, including issuing a new public notice.

If the State denies the required Section 401 Water Quality Certification, then the DA permit is denied without prejudice. If you should subsequently obtain a Section 401 Water Quality Certification, you should contact the office to determine how to proceed with your permit application. If you have any questions concerning your State Section 401 Water Quality Certification, please contact the California State Water Resources Control Board at 916-341-5483.

The Highway 46 Corridor Improvement Project is hereby modified under the provisions of 33 C.F.R. Section 325.7(b) to incorporate the following conditions. Except for the above modification, all terms and conditions of the original permit authorization remain in effect.

1. Under project description the following paragraph is added: Within the Whitley 2B (phase 4) segment, the roadway crosses two drainages: Hopper Canyon Creek and Cholame Creek. Work within Corps' jurisdiction will include: 1) Replacing the current 105-ft 42' concrete culvert with a new 215-ft, 6'x4' reinforced concrete box with wing walls; and 2) Replacing the existing bridge at Chalome Creek with two new bridges approximately 185 feet in length. The eastbound bridge will be constructed within the location of the existing bridge and the westbound bridge will be constructed to the north of the existing bridge. The existing culvert and bridge will be removed and some areas will require installation of rock slope protection. The project will result in the discharge of fill material into 0.358 acre of other waters of the U.S. Temporary impacts will occur to 0.866 acre of jurisdictional other waters of the U.S. All work shall be completed in accordance with the plans and drawings titled "*USACE File #1999-24573S, Phase 4, Shandon, Whitley 2B, September 17, 2015, Figures 1 to 21*" provided as enclosure 1.
2. Under Special Conditions the following conditions is added: Within 1-year of initiation of temporary impact to a jurisdictional feature, you shall re-contour the temporarily impacted area and replant with appropriate soil-stabilizing native species.
3. Under Special Conditions the following conditions are added: Off-site mitigation will be achieved as detailed in the "Mitigation and Monitoring Plan, Route 46 Corridor Improvement Project, Construction Phase 4 (Whitley 2B), From east of McMillan Canyon Creek, extending east along Hwy 46 to PM 50.2, San Luis Obispo County, page 13, dated September 2015. The Mitigation and Monitoring Plan for Whitley 2B also provides mitigation for the previously approved Whitley 2A Phase. Therefore, this mitigation and monitoring plan is inclusive of and supersedes the mitigation requirements previously approved in the Mitigation and Monitoring Plan, Route 46 Corridor Improvement Project, Construction Phase 3 (Whitley 2A)" (refer to Whitley 2B, MMP Pages 5 and 6). The

mitigation and monitoring plan calls for monitoring for only five years. However, you shall extend the monitoring for an additional five years to ensure long term viability the mitigation. Additional monitoring reports shall be submitted at years 7 and year 10 documenting attainment of the same success criteria detailed for year 5 (Table 7 of MMP).

4. Your responsibility to complete the required compensatory mitigation as set forth in Special Condition 3 will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.
5. A post construction report shall be submitted 45 days after the conclusion of construction activities. The report shall document construction activities and contain as-built drawings (if different from drawings submitted with application) and include before and after photos.
6. Prior to October 22, 2016, you shall submit a final Long-term Management Plan for Corps approval. Written approval of a final Long-term Management Plan shall take place prior to October 22, 2016.
7. You shall have a legally sufficient conservation easement prepared using the latest approved agency template to ensure to the Corps' satisfaction for the areas referenced in the "Draft Mitigation and Monitoring Plan, Route 46 Corridor Improvement Project, Construction Phase 4 (Whitley 2B), From east of McMillan Canyon Creek, extending east along Hwy 46 to PM 50.2, San Luis Obispo County, page 13, dated September, 2015" that will remain in their natural state in perpetuity. The conservation easement shall comply with 33 C.F.R Section 332.7(a) and be held by a resource agency, non-profit conservation organization or Corps approved private land managers. These mitigation areas will not be disturbed by any dredging, filling, land clearing, agricultural activities, planting, or other construction work whatsoever except as required or authorized by this permit. The Permittee agrees that the only future utilization of the preserved areas in question will be as a purely natural area. To show compliance with this condition the Permittee shall complete the following:
 - a. Prior to October 22, 2017, you shall submit to the Corps the final conservation easement document with a legal description, survey, and scale drawings, of the area in question. The Corps shall have all rights of the Grantee in the conservation easement. The following paragraph shall be incorporated in the conservation easement document:

Rights of U.S. Army Corps of Engineers (Corps). The Corps, as a third-party beneficiary, shall have the right to enforce the terms and conditions of this conservation easement, including:

The right to take action to preserve and protect the environmental value of the Property;

- (1) The right to prevent any activity on or use of the Property that is inconsistent with the purpose of this conservation easement, and to require the restoration of areas or features of the Property that may be damaged by any inconsistent activity or use;
- (2) The right to enter upon and inspect the Property in a reasonable manner and at reasonable times to determine if Grantor or its successors and assigns are complying with the covenants and prohibitions contained in this conservation easement;
- (3) The right to enforce this conservation easement by injunction or proceed at law or in equity to enforce the provisions of this conservation easement and the covenants set forth herein, to prevent the occurrence of any of the prohibited activities set forth herein, and the right to require Grantor, or its successors or assigns, to restore such areas or features of the Property that may be damaged by any inconsistent activity or use or unauthorized activities; and

The Grantor, including their successors or assigns, shall provide the Corps at least 60 days advance notice in writing before any action is taken to amend, alter, release, or revoke this conservation easement. The Grantee shall provide reasonable notice and an opportunity to comment or object to the release or amendment to the Corps. The Grantee shall consider any comments or objections from the U.S. Army Corps of Engineers when making the final decision to release or amend this conservation easement.

b. Prior to October 22, 2017 you shall submit to the Corps a title insurance commitment with the final conservation easement document, IN FAVOR OF THE GRANTEE, for the property which is being offered for preservation to show that the Permittee has clear title to the real property and can legally place it under a conservation easement. Any existing liens or encumbrances on the property shall be subordinated to the conservation easement. At the time of recordation of the conservation easement, a title insurance policy shall be provided to the Corps in an amount equal to the current market value of the property.

c. Within 30 days of Corps' approval of the final Conservation Easement, the

Permittee will record the easement in the public records of San Luis Obispo County, California. A certified copy of the recorded document, plat, and verification of acceptance from the grantee shall be forwarded to the Corps within 60 days of Corps' approval of the conservation easement.

d. In the event this permit is transferred, proof of delivery of a copy of the recorded conservation easement to the subsequent Permittee or Permittees shall be submitted to the Corps together with the notification of permit transfer.

The Grantee shall not assign its rights or obligations under this conservation easement except to another organization qualified to hold such interests under the applicable state and federal laws, and committed to holding this conservation easement exclusively for conservation purposes. The Corps shall be notified in writing of any intention to reassign the conservation easement to a new grantee and shall approve the selection of the grantee. The new grantee shall accept the assignment in writing and a copy of this acceptance delivered to the Corps. The conservation easement shall then be re-recorded and indexed in the same manner as any other instrument affecting title to real property and a copy of the recorded conservation easement furnished to the Corps.

8. To ensure long-term viability of the on-site restored and enhanced mitigation areas, the Permittee shall establish a Corps approved Financial Assurance mechanism to provide for implementation, maintenance and monitoring of the off-site enhance areas.
 - a. Mitigation Implementation Financial Assurances:
 - (1) Prior to October 22, 2016, a copy of the draft financial assurance instrument shall be provided to the Corps for review and approval.
 - (2) A copy of the final executed financial assurance instrument shall be provided to the Corps within 30 days of execution.
 - (3) Release of Implementation Financial Assurances: Implementation Financial Assurances shall be released upon the successful completion and verification of the Final Mitigation and Monitoring Plan, Route 46 Corridor Improvement Project, Construction Phase 4 (Whitley 2B), From east of McMillan Canyon Creek, extending east along Hwy 46 to PM 50.2, San Luis Obispo County, California.
 - b. Long Term Financial Assurance:

- 1) The Permittee shall establish a fully-funded endowment to provide for maintenance and monitoring of the Vogel Conservation Easement area. A draft of the property analysis record (PAR) and estimate of the endowment shall be provided to our office by October 22, 2016. A final endowment shall be approved by the Corps in writing and funded within 30 days of execution.
9. Portions of the proposed Vogel Mitigation site were not within the area reviewed by the Corps for the original jurisdictional determination for the Highway 46 Corridor Improvement Project. A preliminary jurisdictional determination dated September 23, 2015, has been prepared by the Corps for the remainder of the proposed Vogel Conservation Easement. Any revision to the Draft Mitigation and Monitoring Plan that includes creation or expansion of jurisdictional features as a mechanism to obtain credits will require a site visit by the Corps.

You may refer any questions on this matter to Keith Hess of my Regulatory staff by telephone at 415-503-6765 or by e-mail at keith.d.hess@usace.army.mil. All correspondence should be addressed to the Regulatory Division, South Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: <http://www.spn.usace.army.mil/regulatory/>.

Sincerely,


Tori White
Acting Chief, Regulatory Division

Enclosures

Enclosures

Copies Furnished (w/encl 1 only):

US EPA, San Francisco, CA

US FWS, Ventura, CA

CA RWQCB, San Luis Obispo, CA

AGREEMENTS

3. California Department of Fish and Wildlife Streambed Alteration Agreement No. 1600-2015-0045-R4



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4593
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



September 25, 2015

Larry Bonner
California Department of Transportation
50 Higuera Street
San Luis Obispo, California 93401

Subject: Final Lake or Streambed Alteration Agreement
Notification No. 1600-2015-0045-R4
Estrella River, Hopper Canyon Creek and Cholame Creek
San Luis Obispo County

Dear Mr. Bonner:

Enclosed is the Final Streambed Alteration Agreement (Agreement) for the SLO-46 Corridor Improvement – Whitley 2B (Project). Before the California Department of Fish and Wildlife (Department) may issue an Agreement, it must comply with the California Environmental Quality Act (CEQA). In this case, the Department, acting as a responsible agency, filed a notice of determination (NOD) within five working days of signing the Agreement. The NOD was based on information contained in the Environmental Impact Report that the lead agency prepared for the Project.

Pursuant to CEQA Guidelines sections 15075(g) and 15094(g), filing of a NOD starts a 30-day statute of limitations during which a party may challenge the filing agency's approval of the Project. You may begin your project before the 30-day period expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this matter, please contact Laura Peterson-Diaz, Environmental Scientist, at (559) 243-4014 extension 225 or laura.peterson-diaz@wildlife.ca.gov.

Sincerely,

Julie Vance
Acting Regional Manager

Enclosure

Notice of Determination

To:
Office of Planning and Research
For U.S. Mail:

P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth Street
Sacramento, CA 95814

From:
Department of Fish and Wildlife
Central Region
1234 East Shaw Avenue
Fresno, California 93710
Contact: Laura Peterson-Diaz
Phone: (559) 243-4014, ext. 225

Lead Agency:
California Department of Transportation
50 Higuera Street, San Luis Obispo, CA 93401
Contact: Jennifer Moonjian
Phone: (805) 542-4763

SUBJECT: Filing of Notice of Determination pursuant to Public Resources Code section 21108

State Clearinghouse Number: 2000011033

Project Title: SLO-46 – Corridor Improvement Project – Whitley 2B EA 05-33078 (Lake or Streambed Alteration Agreement No. 1600-2015-0045-R4)

Project Location (include county): The Project will occur at three locations along US 101 in San Luis Obispo County, State of California: # 1 - Estrella River – Post Mile (PM) 46.5/46.7, Latitude 35.662621, Longitude -120.36443; # 2 - Hooper Canyon Creek – PM 47.7, Latitude 35.662621, Longitude -120.36443, and # 3 - Cholame Creek – PM 50.8, Latitude 35.688373, Longitude -120.336471.

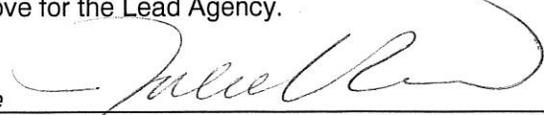
Project Description: The California Department of Fish and Wildlife (CDFW) has executed Streambed Alteration Agreement number 1600-2015-0045-R4, pursuant to section 1602 of the Fish and Game Code to the project Applicant, California Department of Transportation.

The applicant proposes to reinforce the river bank at Location 1, replace the pipe culvert with an extended box culvert at Location 2, and replace the bridge at Location 3 with two new bridges to accommodate the conversion of SR 46 from a conventional two-lane highway to a four-lane divided expressway from PM 46.0 to 50.2, for the segment of the Corridor Improvement Project known as Whitley 2B.

This is to advise that CDFW, acting as a Responsible Agency, approved the above described project on 9/25/15 and has made the following determinations regarding the project pursuant to California Code of Regulations section 15096, subdivision (i):

1. The project will not have a significant effect on the environment. This determination is limited to effects within CDFW's permitting jurisdiction as a Responsible Agency.
2. CDFW considered the environmental impact report prepared by the Lead Agency for this project pursuant to California Code of Regulations section 15096, subdivision (f).
3. Mitigation measures were made a condition of CDFW's approval of the project.
4. A mitigation reporting or monitoring plan was adopted by CDFW for this project.
5. A statement of overriding considerations was not adopted by CDFW for this project.
6. Findings were made by CDFW pursuant to California Code of Regulations section 15091.

The final environmental impact report prepared for the project is available to the general public at the office location listed above for the Lead Agency.

Signature 
Julie Vance, Acting Regional Manager, Central Region

Date: 9/25/15

Date Received for filing at OPR: _____

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
REGION 4 - CENTRAL REGION
1234 EAST SHAW AVENUE
FRESNO, CALIFORNIA 93710



STREAMBED ALTERATION AGREEMENT
NOTIFICATION No. 1600-2015-0045-R4
ESTRELLA RIVER, HOPPER CANYON CREEK, AND CHOLAME CREEK
SAN LUIS OBISPO COUNTY

CALIFORNIA DEPARTMENT OF TRANSPORTATION
CALTRANS DISTRICT 6
LARRY BONNER
50 HIGUERA STREET
SAN LUIS OBISPO, CALIFORNIA 93401

SLO-46 CORRIDOR IMPROVEMENT - WHITLEY 2B (PROJECT)

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and the California Department of Transportation (referred to as Permittee), represented by Larry Bonner.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on March 13, 2015, that Permittee intends to complete the Project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the Project could substantially adversely affect existing fish or wildlife resources and has included Protective Measures in this Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed this Agreement and accepts its terms and conditions, including the Protective Measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the Project in accordance with this Agreement.

PROJECT LOCATION

The Project is generally located along State Route (SR) 46 just north of the town of Shandon in San Luis Obispo County, California. Project construction will occur at three locations between Post Mile (PM) 46.0 and PM 50.2, which are located within Township 26 South, Range 15 East, Sections 16, 17, and 18 United States Geologic Survey (USGS) of the Mt. Diablo Meridian. (Figure 1). Specific details for each location follow.

Location 1 – Estrella River at Post Mile (PM) 46.5/46.7, Township 26 South, Range 15 East, Section 18, United States Geological Survey (USGS) map Shandon, MDB&M; Latitude 35.662621, Longitude -120.36443.

Location 2 – Hopper Canyon Creek at PM 47.7, Township 26 South, Range 15 East, Section 16, United States Geological Survey (USGS) map Shandon, MDB&M; Latitude 35.662621, Longitude -120.36443.

Location 3 - Cholame Creek just north of Bridge No. 49.0029 at PM 50.8, Township 26 South, Range 15 East, Section 2, USGS map Cholame, MDB&M; Latitude 35.688373, Longitude -120.336471.

PROJECT DESCRIPTION

The Project includes activities related to reinforcing the river bank at Location 1, replacing the pipe culvert with an extended box culvert at Location 2, and replacing the bridge at Location 3 with two new bridges to accommodate the conversion of SR 46 from a conventional two-lane highway to a four-lane divided expressway from PM 46.0 to 50.2, for the segment of the Corridor Improvement Project known as Whitley 2B.

For the purpose of this Agreement the following terms and definitions will be used to describe the installation rock slope protection (RSP).

- “No. 1” RSP will consist of rocks 0 to 5 percent larger than 200 pounds, 50 to 100 percent larger than 75 pounds, and 90 to 100 percent larger than 25 pounds, with a median rock diameter of 0.83 feet.
- “Light” RSP will consist of rocks 0 to 5 percent larger than ¼ ton, 50 to 100 percent larger than 200 pounds, and 95 to 100 percent larger than 25 pounds, with a median rock diameter of 1.32 feet.
- “¼ Ton” RSP will consist of rocks 0 to 5 percent larger than ½ ton, 50 to 100 percent larger than ¼ ton, and 95 to 100 percent larger than 75 pounds, with median rock diameter of 2.2 feet.
- “1 Ton” RSP will consist of rocks 0 to 5 percent larger than 2 ton, 50 to 100 percent larger than 1 ton, and 95 to 100 percent larger than ½ ton, with a median rock diameter of 2.85 feet.
- Method B installation of RSP is a process that consists of excavation and backfilling the footing trench, laying down geotextile fabric, placement of smaller-sized rocks onto the geotextile fabric, and placement of larger rocks over the smaller rock. The thickness of each rock layer will be at least 1.5 times the diameter of the median-sized rock.

Project activity authorized by this Agreement is limited to the following:

Location 1 – Estrella River

A section of the northern bank of the river approximately 1,300 feet in length with the width varying between 50 feet and 100 feet will be stabilized. The installation will require the excavation of 14,464 cubic yards of soil using a scraper and/or a dozer. Then 7,030 square yards of RSP fabric will be placed by hand and it will be secured in place with stakes. Approximately 11,700 cubic yards of 1 Ton RSP and 1,670 cubic yards of Light RSP will be placed over 7,030 square yards of RSP fabric following Method B installation. Once the RSP has been placed, the excavated area will then be backfilled with 11,000 cubic yards of native soil all the way to the finished grade.

Location 2 – Hopper Canyon Creek

To accommodate the highway widening, the existing 105-foot long double 42-inch reinforced concrete pipe and both 5-foot by 19-foot headwalls will be removed using either an excavator or backhoe and replaced with a 215-foot long, 6-foot by 4-foot reinforced concrete box (RCB) with wing walls. The new RCB will be cast-in-place and will require 113 cubic yards of concrete to construct. The wing walls will also be cast-in-place with reinforced concrete. Two wing walls at the inlet side of RCB will be 8.5 feet high and 11 feet long and each will require 7.5 cubic yards of concrete to construct. Two wing walls at the outlet side of RCB will be 8.5 feet high and 12 feet long and each will require 8.2 cubic yards of concrete to construct. Approximately 36 cubic yards of Light RSP will be placed at inlet over 12-foot by 32.5-foot RSP fabric. At outlet approximately 105 cubic yards of Light RSP will be placed over 33-foot by 34-foot RSP fabric.

Location 3 – Cholame Creek

The existing bridge across Cholame Creek will be replaced by two new bridges. Removal of the existing bridge will require the excavation of 1,933 cubic yards of material and the back fill of 1,730 cubic yards of soil. RSP currently on site will be removed with an excavator and/or loader. The total volume of RSP to be removed is 6,088 cubic yards that will be removed from the following areas:

Scattered RSP (South of the existing Bridge)	2,590 cubic yards
RSP at existing Pier No. 3	162 cubic yards
RSP at Gabion Location	267 cubic yards
RSP south of the existing sheetpile	470 cubic yards
Sacked Concrete (West Slope)	281 cubic yards
RSP (East & West Slopes)	2,318 cubic yards

The new eastbound (EB) bridge, located where the existing bridge is currently, will be 191 feet long and 43 feet wide to accommodate two 12-foot lanes, a 5-foot inner shoulder, a 10-foot outer shoulder, and 2-foot bridge rails on either side. The EB bridge abutments will be 43 feet long, 3.5 feet wide, and approximately 28 feet high with a variance of +/- 1.5 feet. The footings of the EB bridge abutments will be 45 feet long, 13 feet wide, 2.5 feet deep and will have 84 steel piles.

The westbound (WB) bridge, located to the north of the existing bridge, will be 183 feet long and 55 feet wide to accommodate three 12-foot lanes, a 5-foot inner shoulder, a 10-foot outer shoulder, and 2-foot bridge rails on either side. The WB bridge abutments will be 55 feet long, 3.5 feet wide and approximately 27 feet high with a variance of +/- 1.5 feet. The WB bridge abutment footings will be 57 feet long, 13 feet wide, 2.5 feet deep and will have 94 steel piles.

The new bridges will be constructed of cast-in-place prestressed concrete box girders that will span Cholame Creek without requiring any piers, bents, or columns in the creek channel. The bridges will require 2,158 cubic yards of structural concrete, the abutments will require 773 cubic yards of reinforced concrete, and the abutment footings will require 245 cubic yards of concrete to construct. Steel piles will provide stability for the abutment footings. At Abutment 1 on the west side of the creek, 25-foot long piles will be driven to the approximate tip elevation of 1008 feet. At Abutment 2 on the east side of the creek, 35-foot piles will be driven at the approximate elevation of 994 feet.

New RSP will be placed to stabilize the bridge and embankment. The RSP along the streambed will be covered with backfilled streambed sediment and the banks will be recontoured to accommodate installed RSP. RSP will be installed with a loader bucket for smaller sized rock and an excavator with a thumb attachment for larger sized rock. The quantities of RSP to be installed are summarized as follows:

River Bed Area = 23,108 square feet of fabric

RSP (2 Ton)	3,234 cubic yards
RSP (¼ Ton)	1,977 cubic yards
RSP (Backing No.1)	1,078 cubic yards

Bank Slope Area = 24,912 square feet of fabric

RSP (2 Ton)	4,983 cubic yards
RSP (¼ Ton)	3,045 cubic yards
RSP (Backing No.1)	1,660 cubic yards

- Work will be done in absence of surface flow during naturally dry conditions and will not require water diversions or dewatering activities. All Project activity will be performed during daylight hours, with the exception of traffic movement and road striping, which will continue as needed at night.
- A total of 16 cottonwoods and 7 willows greater than 4 inches in diameter at breast height (DBH) will be removed as a result of Project implementation.
- Equipment to be used will include an asphalt paver/roller, backhoe, Bidwell and roller screeds, bobcat, bulldozer/loader, chainsaw, compressor, concrete pump, concrete truck mixers, crane, dump truck, excavator, flatbed truck, fork lift, front-end loader, Genie man lift, grader, haul truck, motor grader, paint/stripping truck, pavement roller, pile driver/drill rig, pump truck, Redi-mix truck, roller/compactor, saw cutting/stripping equipment, scraper, shoulder paver, truck with seed sprayer, and water truck.

PROJECT IMPACTS

At the Estrella River approximately 0.235 acres of temporary impacts will result from excavation to install RSP and backfill associated with the shaping/recontouring of the bank above the installed RSP. Approximately 0.137 acres of permanent impacts will result from the installation of RSP along the northern bank for bank stabilization. No trees or riparian vegetation will be impacted at this location.

At Hopper Canyon Creek approximately 0.006 acres of temporary impact will result from the shaping and recontouring the section of bank above the RSP installed at the culvert outlet. Approximately 0.050 acres of permanent impacts will result from the addition of earthen fill to allow for the extension of the culvert and the new Hwy 46 lanes and the installation of RSP at the culvert inlet and outlet. No trees or riparian vegetation will be impacted at this location.

At Cholame Creek approximately 1.312 acres of temporary impacts will result from heavy equipment access into the channel required to construct the RSP and bridge work. Approximately 0.969 acres of permanent impacts will result from installation of RSP along the streambed and banks to allow for the construction of the new bridge and the new Hwy 46 lanes over the creek.

The Project will temporarily impact a total of 1.553 acres and permanently impact 1.156 acres that includes habitats dominated by nonnative grasses. A total of approximately 1,660 linear feet of stream will be temporarily impacted and approximately 1,323 linear feet of stream will be permanently impacted. Approximately 0.306 acres of riparian vegetation will be impacted. A total of 20,678.1 cubic yards of material will be excavated and all locations will require a total of 31,045 cubic yards of fill. Other potential impacts related to disturbance during Project implementation include but are not limited to those resulting from noise, vibration, trampling/crushing, excavation, erosion, and surface water contact with construction-related materials.

This Agreement is intended to avoid, minimize, and mitigate adverse impacts to the fish and wildlife resources that occupy the Project area and the adjacent habitat. Absent implementation of the Protective Measures required by this Agreement the Federal endangered and State threatened San Joaquin kit fox (*Vulpes macrotis mutica*), the State threatened Swainson's hawk (*Buteo swainsoni*), and the State species of special concern prairie falcon (*Falco mexicanus*), burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), and western pond turtle (*Actinemys marmorata*), and Coast horned lizard (*Phrynosoma blainvillii*), as well as other birds, mammals (in particular bat species), fish, reptiles, amphibians, invertebrates, and plants that compose the local ecosystem could potentially be impacted.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative Protective Measure described below.

- 1.1 Documentation at Project Site. Permittee shall make this Agreement, any extensions and amendments to this Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the Project site at all times and shall be presented to CDFW personnel or personnel from another State, Federal, or local agency upon request.
- 1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of this Agreement and any extensions and amendments to this Agreement to all persons who will be working on the Project at the Project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.
- 1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a Protective Measure in this Agreement might conflict with a provision imposed on the Project by another local, State, or Federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.
- 1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the Project site at any time to verify compliance with this Agreement.
- 1.5 Legal Obligations. This Agreement does not exempt Permittee from complying with all other applicable local, State, and Federal law, or other legal obligations.
- 1.6 Unauthorized Take. This Agreement does not authorize the "take" (defined in Fish and Game Code Section 86 as to hunt, pursue, catch, capture, or kill; or attempt to hunt, pursue, catch, capture, or kill) of State- or Federally-listed threatened or endangered species. Any such take shall require separate permitting as may be required.
- 1.7 Property Not Owned by Permittee. To the extent that the Protective Measures of this Agreement provide for activities that require Permittee to enter on another owner's property, they are agreed to with the understanding that Permittee possesses the legal right to so enter.
- 1.8 Work Schedule. Permittee shall submit a work schedule to CDFW prior to beginning any activities covered by this Agreement. Permittee shall also notify CDFW upon the completion of the activities covered by this Agreement.
- 1.9 Training. Prior to starting Project activity, all employees and contractors who will be present during Project activities shall receive training from a qualified individual on the contents of this Agreement, the resources at stake, and the legal

consequences of non-compliance. A training sign-in sheet for the employees and contractors, including the date of the training and who gave the training shall be submitted to CDFW within one (1) week of completing training.

2 Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each Protective Measure listed below.

- 2.1 Construction/Work Hours. All work activities with the exception of traffic movement and striping shall be confined to daylight hours. For purposes of this Agreement, "daylight hours" are defined as that daytime period between sunrise and sunset.
- 2.2 Flagging/Fencing. Prior to any activity within the CDFW jurisdictional area, Permittee shall identify the limits of the required access routes and encroachment. These "work area" limits shall be identified with brightly-colored flagging/fencing. Work completed under this Agreement shall be limited to this defined area only. Flagging/fencing shall be maintained in good repair for the duration of the Project. All CDFW jurisdictional areas beyond the identified work area limits shall be considered Environmentally Sensitive Areas (ESA) and shall not be disturbed.
- 2.3 Listed Species.
 - (a) This Agreement does not allow for the take of any State- or Federally-listed threatened or endangered species. Liability for any take of such listed species remains the separate responsibility of Permittee for the duration of the Project.
 - (b) Permittee affirms that no take of listed species shall occur as a result of this Project, with the exception of take of San Joaquin kit fox as authorized by State Incidental Permit No. 2081-2007-020-04, and will take prudent measures to ensure that all unauthorized take is avoided. If any other State- or Federally-listed threatened or endangered species occur within the proposed work area or could be impacted by the work proposed, and thus taken as a result of Project activities, Permittee is responsible for obtaining and complying with required State and Federally threatened and endangered species permits or other written authorization before proceeding with this Project.
 - (c) Permittee shall immediately notify CDFW of the discovery of any such threatened or endangered species prior to and/or during Project implementation.
 - (d) Pre-activity surveys for sensitive status species shall be conducted by a qualified biologist within 30 days prior to commencement of the Project. Surveys shall be conducted on the Project site and all access routes to avoid and minimize incidental take, confirm previous observations, identify any areas potentially occupied by listed or sensitive species, and clearly mark all

resources to be avoided by Project activities. If any State- or Federally-listed threatened or endangered animal species are found or could be impacted by the work proposed the Permittee shall notify CDFW of the discovery prior to commencement of any activity. An amended 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. All fully protected species shall be completely avoided.

- (e) San Joaquin Kit Fox: An Incidental Take Permit (No. 2081-2007-020-04) has been issued by CDFW, authorizing take of San Joaquin kit fox during Project implementation. Permittee shall comply with the terms and conditions of the Incidental Take Permit; unauthorized take of San Joaquin kit fox would result in violation of and potential nullification of this Agreement.
- (f) Swainson's Hawk: No Project-related activities shall be completed from March 1 through August 31 unless a qualified biologist conducts Swainson's hawk nesting surveys following the survey methodology developed by the Swainson's Hawk Technical Advisory Committee (http://www.dfg.ca.gov/wildlife/nongame/docs/swain_proto.pdf) prior to commencing Project-related activities. Additional pre-Project surveys for active nests within a ½-mile radius of the Project site shall be conducted by a qualified biologist no more than 10 days prior to the start of Project activities and during the appropriate time of day to maximize detectability. A minimum no disturbance buffer of ½ mile shall be delineated around active nests until the breeding season has ended or until a qualified biologist has determined and CDFW has confirmed in writing that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Alternately, Permittee may apply for and acquire an Incidental Take Permit for Swainson's hawk prior to initiating Project activities, in which case an Agreement amendment may be warranted.
- (g) Burrowing Owl: A qualified wildlife biologist shall survey for burrowing owl within a 500-foot radius of the Project site, within 30 days prior to Project commencement. Surveys shall be conducted at appropriate times to maximize detection. If any active burrowing owl burrows are observed, these burrows shall be designated an ESA, protected, and monitored by a qualified biologist during Project-related activities. A minimum 500-foot avoidance buffer shall be established and maintained around each owl burrow during the nesting season (February 1 through August 31). If active burrowing owl burrows are observed outside of the nesting season, a minimum 150-foot no disturbance buffer shall be established around each burrow. If avoidance is not feasible and Permittee proposes to evict burrowing owls from burrows, Permittee shall submit to CDFW for written approval a Burrowing Owl Eviction Plan (Eviction Plan) at least 30 days prior to any activity requiring eviction of owls. The Eviction Plan shall include details regarding the eviction via one-way doors, including but not limited to the materials used and at least twice daily monitoring of subject burrows to ensure that owls are not trapped; timing of eviction only outside the nesting season; and details about any

proposed use of artificial burrows, including but not limited to design, installation, and maintenance.

- (h) Western Pond Turtle: Any western pond turtles discovered at the site immediately prior to or during Project activities shall be allowed to move out of the area on their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat immediately upstream or downstream from the Project site.
- (i) American Badger: Any American badger detected within the Project area during Project-related activities shall be allowed to move out of the work area of its own volition. If American badger is detected denning on or immediately adjacent to the Project site, Permittee shall consult with CDFW to determine whether the animal(s) may be evicted from the den. Eviction of badgers will not be approved by CDFW unless it is confirmed that no dependent young are present.
- (j) Coast Horned Lizard. The Project work area shall be searched for these lizards by a qualified biologist immediately prior to Project activities. Any loose substrate in which lizards could bury themselves shall be gently raked with a hand tool (e.g., a garden rake) to a depth of 2 inches to locate any lizards that could be under the surface immediately prior to Project activities. Lizards present in the work area shall be allowed to leave the work area on their own volition or shall be moved out of harm's way by a qualified biologist with handling experience.
- (k) Bat Species: Bats shall not be disturbed without specific notice to and consultation with CDFW. Pre-construction surveys shall be conducted by a qualified biologist to determine if bat species are roosting on-site or near Project work areas. If surveys confirm that bats are present, Permittee shall submit a Bat Exclusion Plan to CDFW for review and approval prior to its implementation. The Plan shall be submitted for CDFW written approval a minimum of 30 days in advance of its proposed implementation. If initial surveys had a negative result, Permittee shall conduct a follow-up bat preconstruction survey within seven (7) days prior to the construction start date, to determine whether bats have moved into or adjacent to the Project area. If bats are detected, the process defined above shall be followed, to develop a Bat Exclusion Plan.

2.4 Fish and Wildlife.

- (a) If any fish or wildlife is encountered during the course of Project activities, said fish or wildlife shall be allowed to leave the Project area unharmed.
- (b) Pursuant to FGC Sections 3503 and 3503.5, it is unlawful to take, possess, or destroy the nest or eggs of any bird or bird-of-prey. To protect nesting birds, no Project activity shall be completed from February 15 through August 31

unless the following Avian Nesting Surveys are completed by a qualified biologist within 30 days prior to commencing Project activities.

Separate avian survey and avoidance requirements are listed above for Swainson's hawk and burrowing owl, due to their special status listings and different nesting ecology (see Avoidance and Minimization Measures 2.3(f) and (g)).

Raptors: Survey for nesting activity of raptors within a 500-foot radius of the site. Surveys shall be conducted at appropriate nesting times and concentrate on trees with the potential to support raptor nests. If any active nests are observed, these nests and nest trees shall be designated an ESA and protected with a minimum 500-foot buffer until young have fledged and are no longer reliant on the nest site or parental care.

Other Avian Species: Survey for nesting activity within a 250-foot radius of the defined work area. If any nesting activity is found, these nests shall be designated an ESA and protected with a minimum 250-foot buffer until young have fledged and are no longer reliant on the nest site or parental care.

Swallows: If work cannot avoid the avian nesting season when it would disturb nesting swallows, then Permittee shall develop a Swallow Exclusion Plan for approval by CDFW prior to implementation. The plan shall include methods to prevent swallows from initiating nesting on the existing bridge prior to starting Project activity, and shall include maintenance of any screen or netting used to prevent swallows from accessing bridge structures suitable for nesting. If swallows are already nesting at the time surveys are done, nest sites shall be protected per Other Avian Species, above.

CDFW may consider variances from these buffers when there is a compelling biological or ecological reason to do so, such as when the Project area would be concealed from a nest site by topography.

2.5 Vegetation.

- (a) Removal and trimming of vegetation shall be limited to the minimal amount necessary to complete the Project.
- (b) Permittee shall document the number and species of all woody-stemmed plants in excess of four (4) inches DBH that are cut, trimmed, or otherwise removed or damaged during Project activities. Trees and shrubs with a DBH of four (4) inches or greater that are damaged or removed shall be replaced by replanting appropriate native species at a 3:1 ratio (replaced to lost), except that heritage trees 24-inches or greater shall require replanting of like

species at a 10:1 ratio in or immediately adjacent to the Project site, according to Compensatory Measure 3.1(a) Revegetation/Restoration.

- (c) Prior to tree removal, Permittee shall clearly mark each tree that will be removed, to prevent unintentional tree removal.
- (d) Vegetation or material removed from the Project site shall be disposed of at an appropriate and legal off-site location where the material cannot enter the stream channel. No such material shall be stockpiled in the streambed, banks, or channel, except that native vegetation removed from the channel may be chipped and the chips used as mulch for disturbed soil sites in or near the Project area.
- (e) All disturbed invasive, exotic plant species shall be bagged, removed from the site, and appropriately disposed of in a landfill. Invasive species shall not be used in mulching, composting, or otherwise placed in or around the Project site.
- (f) Heavy equipment and other machinery shall be inspected for the presence of undesirable species and cleaned prior to on-site use to reduce the risk of introducing exotic plant species into the Project site.

2.6 Vehicles and Equipment.

- (a) Vehicles and heavy equipment shall only be operated within naturally dry portions of the stream.
- (b) Any equipment or vehicles driven and/or operated in or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic and terrestrial life.
- (c) Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream, shall be positioned over drip-pans. Vehicles shall be moved away from the stream prior to refueling and lubrication.

2.7 Fill/Spoil.

- (a) Spoil storage sites shall not be located within the stream, or where spoil will be washed into the stream. Rock, gravel, and/or other materials shall not be imported into or moved within the bed or banks of the stream, except as otherwise addressed in this Agreement.
- (b) Fill shall be limited to the minimal amount necessary to accomplish the agreed activities. Excess fill material shall be moved off-site at Project completion.

- (c) Rip rap and rock slope protection materials shall be composed of clean rock and shall not include asphalt, broken concrete, or any other material that is deleterious to fish or wildlife.

2.8 Erosion.

- (a) No work within jurisdictional areas shall occur during or within 24 hours following significant rainfall events, defined as $\frac{1}{4}$ inch or more of rain in a 24-hour period.
- (b) All disturbed soils within the Project site shall be stabilized to reduce erosion potential, both during and following Project implementation. Temporary erosion control devices, such as straw bales, silt fencing, and sand bags, may be used, as appropriate, to prevent siltation of the stream. To minimize the risk of ensnaring and strangling wildlife, coir rolls, erosion control mats or blankets, straw or fiber wattles, or similar erosion control products shall be composed entirely of natural-fiber, biodegradable materials. Permittee shall not use "photodegradable" or other plastic erosion control materials.

2.9 Pollution.

- (a) Permittee and all contractors shall be subject to the water pollution regulations found in Fish and Game Code sections 5650 and 12015.
- (b) Permittee shall install the necessary containment structures to control the placement of wet concrete and to prevent it from entering into the channel outside of those structures. No concrete shall be poured below the top of bank if the 5-day weather forecast indicates any chance of rain. At all times when the Permittee is pouring or working with wet concrete there shall be a designated monitor to inspect the containment structures and ensure that no concrete or other debris enters into the channel outside of those structures. Poured concrete shall be isolated from surface waters and allowed to dry/cure for a minimum of 30 days or until the pH as tested with tap water does not exceed 9.5. Any rain water that comes into contact with the concrete structures shall be contained and isolated from stream flows; the water pH shall be tested, and water shall be removed from the site and disposed of lawfully if the pH exceeds 9.5. Permittee shall submit to CDFW the methods and results of all pH testing, including measurements that demonstrate a pH at or below 9.5 as tested prior to removing the containment structures.
- (c) Raw cement, concrete or washings thereof, asphalt, drilling fluids or lubricants, paint or other coating material, oil or other petroleum products, or any other substances that 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 "Waters of the State".
- (d) An Emergency Response Plan shall be prepared and submitted to CDFW for approval prior to the start of Project activities, and kept on-site during all

phases of the Project. The Plan shall identify the actions that shall be taken in the event of a spill of petroleum products, concrete, contaminated soil, or other material harmful to fish, plants, or aquatic life. Emergency response materials shall be kept at the site and readily available to allow rapid containment and cleanup of any spilled material. In the event that a spill occurs, all Project activities shall immediately cease until cleanup of the spilled materials is completed. CDFW shall be notified immediately by Permittee of any spills and shall be consulted regarding cleanup procedures.

- (e) All Project-generated debris, building materials, and rubbish shall be removed from the stream and from areas where such materials could be washed into the stream.

2.10 Structures. Permittee shall confirm that all structures and installed features are designed (i.e., size and alignment), constructed, and maintained such that they will not fail, will accommodate high flows, and will not cause long-term changes in water flows that adversely modify the existing upstream or downstream channel bed/bank contours, increase sediment deposition, or cause significant new erosion.

3 Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement each Protective Measure listed below.

3.1 Revegetation and Restoration

- (a) If any trees or woody shrubs four (4) inches in DBH or greater are removed during Project implementation, Permittee shall develop a Revegetation Plan for the site and submit it to CDFW for written approval at least 30 days prior to Project commencement. The Revegetation Plan shall specifically address plantings of native trees, shrubs, herbs, and grasses removed, as indicated in Avoidance and Minimization Measure 2.5(b) above, to result in a minimum of 70 percent survival for tree and shrub plantings after five (5) years, including up to three years with supplemental irrigation and at least two (2) years without such assistance. The Plan shall also include final and interim success performance criteria, and define remedial actions to take if those criteria are not met. The Plan shall describe an initial planting date (Year 0) that is within one year of Project completion; describe the location(s) and species of plantings; and include a reporting format to be used for annual reporting to CDFW. CDFW shall review reports and beginning with Year 5 post-planting shall determine whether performance criteria have been met; if performance criteria have been met, CDFW shall provide written documentation.

- (b) Any exposed slopes or exposed areas created by Project activities shall be seeded (with weed-free straw or mulch) with a blend of a minimum of three (3) locally native grass species. One (1) or two (2) sterile non-native perennial grass species may be added to the seed mix provided that amount does not exceed 25 percent of the total seed mix by count. Locally native wildflower and/or shrub seeds may also be included in the seed mix. The seeding shall be completed as soon as possible, but no later than November 15 of the year construction ends or as otherwise approved in writing by CDFW. A seed mixture shall be submitted to CDFW for approval prior to application.
- (c) Where suitable vegetation cannot be reasonably expected to become established, non-erodible materials shall be used for such stabilization. Any installation of non-erodible materials not described in the original Project description shall be coordinated with CDFW. Coordination may include the negotiation of additional Protective Measures for this activity.

4 Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Obligations of Permittee.

- (a) Permittee shall have primary responsibility for monitoring compliance with all Protective Measures in this Agreement. Protective Measures shall be implemented within the time periods indicated in this Agreement and the reporting described below.
- (b) Permittee (or Permittee's designee) shall ensure the implementation of the Protective Measures of this Agreement, and shall monitor the effectiveness of the Protective Measures.

4.2 Reports. Permittee shall submit the following Reports to CDFW:

- Construction/work schedule, submitted to CDFW prior to Project commencement (Administrative Measure 1.8).
- A Training Sign-in Sheet, submitted to CDFW within one (1) week of completing training (Administrative Measure 1.9).
- Pre-activity survey results, submitted to CDFW at least one (1) week prior to the start of Project activities (Avoidance and Minimization Measure 2.3(d)).
- Results of nesting Swainson's hawk surveys, if Project activity is scheduled during their nesting season, submitted to CDFW at least one (1) week prior to the start of Project activities (Avoidance and Minimization Measure 2.3(f)).
- Results of burrowing owl surveys, submitted to CDFW at least one (1) week

- prior to the start of Project activities, and a Burrowing Owl Eviction Plan, if eviction of owls from burrows is proposed, at least 30 days prior to any proposed eviction activity (Avoidance and Minimization Measure 2.3(g)).
- Results of bat surveys submitted to CDFW at least 30 days prior to commencement of Project activities. If bats are present, a Bat Exclusion Plan submitted to CDFW for review and approval a minimum of 30 days in advance of proposed exclusion activities. If the initial survey results were negative, the follow-up survey report submitted to CDFW within one week of survey completion (Avoidance and Minimization Measure 2.3(k)).
 - Results of surveys for nesting birds, if any work is scheduled during the avian nesting season, submitted to CDFW at least one (1) week prior to the start of Project activities (Avoidance and Minimization Measure 2.4(b)).
 - Swallow Exclusion Plan, if any work is scheduled during the swallow nesting period, submitted to CDFW at least one (1) week prior to implementation (Avoidance and Minimization Measure 2.4(b)).
 - Methods and results of pH testing, if not waiting 30 days for concrete to cure, submitted to CDFW within one (1) week of testing (Avoidance and Minimization Measure 2.9(b)).
 - An Emergency Response Plan, submitted to CDFW at least two (2) weeks prior to the start of Project activities (Avoidance and Minimization Measure 2.9(d)).
 - A Revegetation Plan submitted to CDFW for approval at least 30 days prior to the start of Project activities (Compensatory Measure 3.1(a)).
 - A seed mixture to be used to control erosion, submitted to CDFW for approval prior to application (Compensatory Measure 3.1(b)).
 - A Final Project Report to be submitted within 30 days after the Project is completed. The final report shall summarize the Project and address the implementation of each Protective Measure included in this Agreement. Before, during, and after photo documentation of the Project site shall be included in the report.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or CDFW specifies by written notice to the other. Permittee shall submit all schedules, survey results, reports, and/or plans required by this Agreement in hard copy to the address below; Permittee may also submit those materials electronically by email to the CDFW contact identified below (or subsequent contact) **and** to R4LSA@wildlife.ca.gov.

To Permittee:

California Department of Transportation (Caltrans)
Jennifer Moonjian
50 Higuera Street
San Luis Obispo, California 93401
Phone: (805) 549-3019
Fax: (805) 542-4763
jennifer.moonjian@dot.ca.gov

To CDFW:

California Department of Fish and Wildlife
Region 4 - Central Region
1234 East Shaw Avenue
Fresno, California 93710
Attn: Lake and Streambed Alteration Program – Laura Peterson-Diaz
Notification No. 1600-2015-0045-R4
Phone: (559) 243-4017 extension 225
Fax: (559) 243-4020
laura.peterson-diaz@wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of this Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the Project or any activity related to it that this Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the Project. The decision to proceed with the Project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety this Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with this Agreement.

Before CDFW suspends or revokes this Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes this Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in this Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking this Agreement.

Nothing in this Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other Federal, State, or local laws or regulations before beginning the Project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq.* (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in this Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend this Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend this Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's fee schedule at the time of the request (see Cal. Code Regs., Title 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of this Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of this Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's fee schedule at the time of the request (see Cal. Code Regs., Title 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request one (1) extension of this Agreement, provided the request is made prior to the expiration of this Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's fee schedule at the time of the request (see Cal. Code Regs., Title 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend this Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the Project this Agreement covers (FGC, § 1605, subd. (f)).

EFFECTIVE DATE

This Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall remain in effect for five (5) years beginning on the date signed by CDFW, unless it is terminated or extended before then. All provisions in this Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after this Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) COMPLIANCE

In approving this Agreement, CDFW is independently required to assess the applicability of CEQA. The features of this Agreement shall be considered as part of the overall Project description.

Permittee's concurrence signature on this Agreement serves as confirmation to CDFW that the activities conducted under the terms of this Agreement are consistent with the Project as described in the CEQA Environmental Impact Report prepared by the California Department of Transportation as the Lead Agency for the Route 46 Corridor Improvement Project, (State Clearinghouse No. 2000011033), certified on

May 31, 2006. A copy of the Environmental Impact Report was provided to CDFW by Permittee.

CDFW, as a CEQA Responsible Agency, shall submit a Notice of Determination to the State Clearinghouse and prepare findings upon signing this Agreement.

EXHIBITS

The document listed below is included as an exhibit to this Agreement and is incorporated herein by reference.

Figure 1. Project Location USGS Quad Map.

AUTHORITY

If the person signing this Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the Project described herein. If Permittee begins or completes a Project different from the Project this Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all the provisions of this Agreement.

**FOR CALIFORNIA DEPARTMENT OF
TRANSPORTATION**



Larry Bonner

Senior Environmental Planner - Caltrans District 5

9-24-15

Date

**FOR CALIFORNIA DEPARTMENT OF FISH AND
WILDLIFE**



Julie Vance

Acting Regional Manager - Central Region

9/25/15

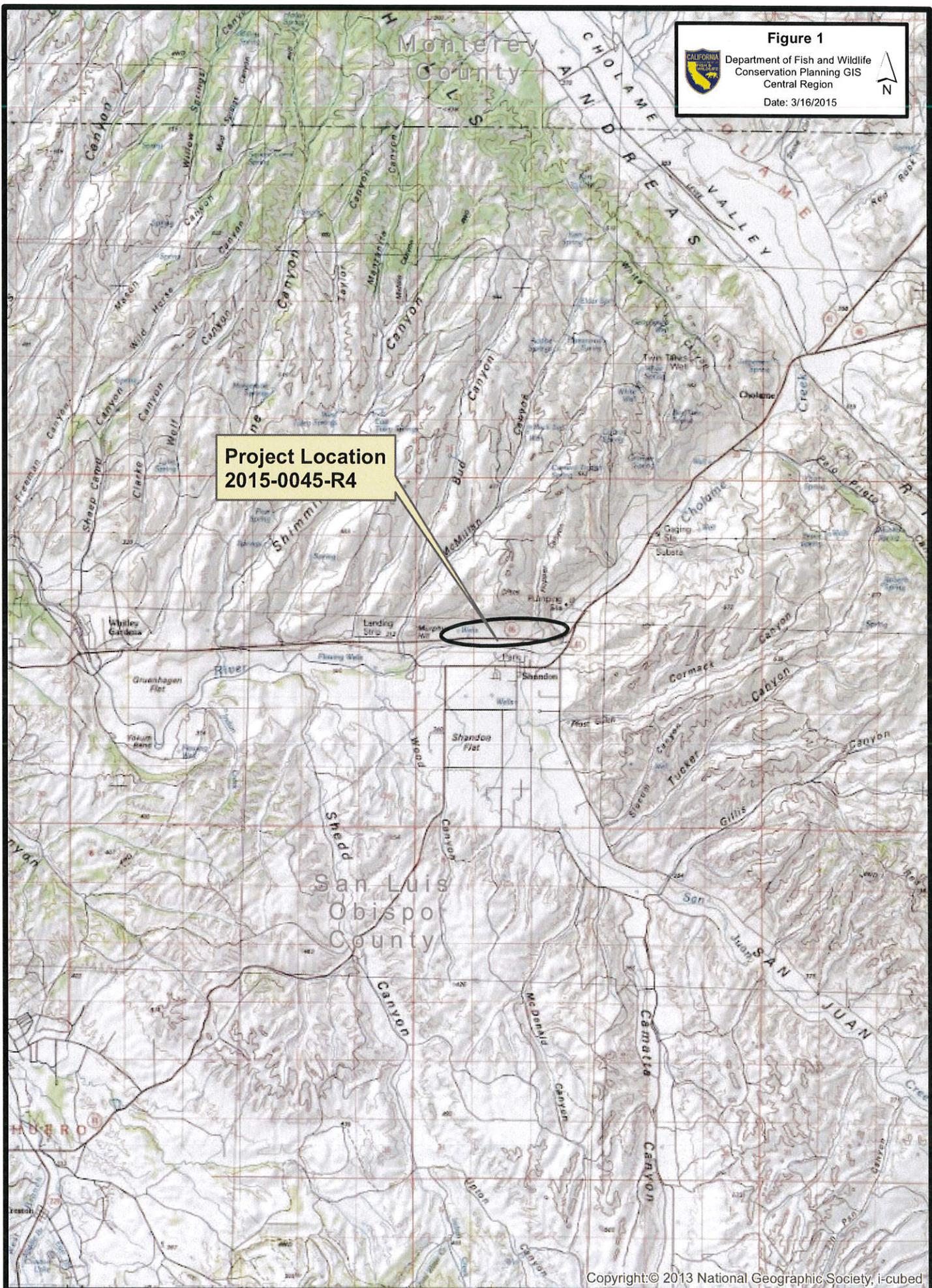
Date

Prepared by: Laura Peterson-Diaz
Environmental Scientist

Figure 1

Exhibit A

Figure 1
Department of Fish and Wildlife
Conservation Planning GIS
Central Region
Date: 3/16/2015



**Project Location
2015-0045-R4**

AGREEMENTS

4. US Department of the Interior Fish and Wildlife Service (Biological Opinion Document #P43727 for SR 46 (1-8-03-F-59))



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
PAS 681.731.927

December 12, 2005

Gene K. Fong, Division Administrator
Federal Highway Administration, California Division
650 Capitol Mall, Suite 4-100
Sacramento, California 95814

Subject: Biological Opinion for the State Route 46 Corridor Improvement Project, Post Mile 32.2 – 56.3, San Luis Obispo County, California (Document # P43727) (1-8-03-F-59)

Dear Mr. Fong:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological and conference opinion on the effects of the California Department of Transportation's (Caltrans) proposed State Route (SR) 46 Improvement Project on the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*), and the federally threatened California tiger salamander (*Ambystoma californiense*), and California red legged frog (*Rana aurora draytonii*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U. S. C. 1531 *et seq.*).

The subject project would be funded by the Federal Highways Administration (FHWA) and would widen SR 46 from a two-lane conventional highway to a four-lane expressway. Your June 25, 2003, request for formal consultation was received on June 27, 2003.

CONSULTATION HISTORY

Your request for consultation included a determination that the proposed project would not affect on the California red-legged frog. You also determined the proposed project may affect the California tiger salamander and requested technical assistance regarding this species. Following discussions between biologists from Caltrans and our Office, we received your October 24, 2005, letter requesting formal consultation on the California red-legged frog and California tiger salamander.

On August 23, 2005, we designated critical habitat for the California tiger salamander, Central population, in four regions: Central Valley, Southern San Joaquin Valley, East Bay, and Central Coast (70 Federal Register [FR] 49380). However, the action described in this biological opinion is outside the boundary of critical habitat. Consequently, the proposed action would have no effect on critical habitat for this species.

The federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) also occurs in the vicinity of the proposed project. Critical habitat was designated on August 3, 2003 (68 FR 46684). FHWA has determined there would be no effect to vernal pool fairy shrimp because Caltrans has designed the new alignment of the highway to avoid both direct and indirect effects to this species and its critical habitat (Caltrans 2003a). Therefore, this biological opinion does not address the vernal pool fairy shrimp or its critical habitat.

This biological opinion is based on information that accompanied the request for consultation, subsequent discussions between our staffs, the scientific literature, a site visit on May 17, 2005, and information in our files. A complete administrative record of this consultation is on file at the Ventura Fish and Wildlife Office.

In addition to the action proposed in this biological opinion, Caltrans and FHWA plan to widen SR 46 to the east of the proposed project site. On March 10, 2005, we issued a biological opinion for the Highway 46 Improvement Project, Post Mile (PM) 55.1 to 60.9 (Service 2005), in which we concluded that project is not likely to jeopardize the continued existence of the San Joaquin kit fox or the California red-legged frog. On September 22, 2003, the Service's Sacramento Fish and Wildlife Office issued a biological opinion concluding the section of the SR 46 Improvement Project from PM 0.0 to PM 33.5, east of Interstate 5, is not likely to jeopardize the continued existence of the San Joaquin kit fox (Service 2003).

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

State Route 46, also known as the "Paso Robles Highway," is predominantly an east-west highway that spans from State Route 1 near Cambria in San Luis Obispo County eastward to State Route 99 near Famoso in Kern County. Truck traffic currently comprises nearly 20 percent of the average daily traffic volume between Highway 101 and Interstate 5. State Route 46 is heavily used on weekends as a corridor for vehicles traveling between the San Joaquin Valley and communities on the California central coast.

Caltrans proposes to convert a 24 mile section of SR 46, from two to four lanes, between Paso Robles and the interchange of SR 41 and SR 46 near Cholame. The interchange is known locally as the "Y". The eastern end of the proposed project would adjoin SR 46 at the Antelope Grade, which was included in our previous biological opinion (Service 2005).

The width of the median separating east and westbound traffic would vary between 61 feet and 46.3 feet. All public road intersections would be improved with left turn channels (lanes). The existing roadbed would be improved to meet current design standards for a four-lane expressway. Horizontal and vertical curves would be upgraded to meet the design speed of 80 miles per hour with the exception one 65 mile per hour horizontal curve just west of the Cholame Creek Bridge, in the Shandon section.

Caltrans and FHWA analyzed the proposed project in four sections and selected the least environmentally damaging practicable alternative (LEDPA), for each section, as their proposed action. In each section, the existing highway would be widened from two to four lanes. The following four sections make up the proposed action:

1. Estrella – Alternative 8N;
2. Shandon – Alternative 1;
3. Cholame – Alternative 1; and
4. Y – Alternative 8b (overflow variation).

The following is a summary of the proposed action. A complete description of the alternatives, including the LEDPA, can be found in Caltrans 2003b.

Estrella – Alternative 8N (PM 32.2 to 41.2)

The Estrella section would start at the western end of the SR 46 where it intersects with Airport Road. Caltrans would construct two new eastbound lanes south of the existing highway. The existing highway would be converted into two westbound lanes. This section of the project would include a 46.3-foot wide, vegetated median between PM 32.2 and 34.4. The vegetated median would minimize impacts to blue oak (*Quercus douglasii*) woodlands. A 1,148-foot segment of the existing roadbed, west of Estrella Road, would be restored with native vegetation. A new 778-foot bridge would be constructed across the Estrella River. The new bridge would be 62.3 feet higher and 516 feet longer than the existing bridge. Estrella Road would be re-routed under the new bridge. The new bridge would span the entire Estrella River Valley, including an extensive Fremont cottonwood (*Populus fremontii*) woodland, which occurs along the Estrella River.

Shandon – Alternative 1 (PM 41.2 to 50.2)

Two new lanes would be built in the Shandon section to improve the flow of traffic. The location of the new lanes, relative to the existing highway, would vary between the north and south sides of the existing highway. Between PM 46.0 and 46.8, the highway alignment would be shifted to the north to reduce impacts to Cholame creek. This section would include a 61.0-foot wide median along its entire 9 mile length.

Minor modifications to the access and circulation at the Shandon Safety Roadside Rest would be implemented. Additions to the rest area would include new right-turn and left-turn lanes and a paved median crossover. Several utilities including electric, gas, telephone, jet fuel, and oil would be relocated outside of the Caltrans right-of-way.

Cholame – Alternative 1 (PM 50.2 to 54.8)

This section would include the largest highway realignment of the proposed project, from PM 50.2 to 52.2. In this area Caltrans would construct four new traffic lanes and re-route SR 46 to the North, around the existing Tosco Oil pumping plant. The new alignment would rejoin the existing route at PM 52.2. Between this point and the end of the Cholame section, two new lanes would be constructed to make SR 46 a four lane expressway. From PM 52.2, the location of the two new lanes, relative to the existing highway, would vary between the north and south sides of the existing highway. Two new bridges would be built across Cholame Creek approximately 0.16 mile north of the existing Cholame Creek Bridge. The existing bridge would be removed. Several utilities including electrical, gas, jet fuel, and oil would be relocated outside of the Caltrans right-of-way.

Y – Alternative 8b (overflow variation - PM 54.8 to 56.3)

This section is located in the Cholame Valley, at the east end of the project, and includes the interchange of SR 46 and SR 41. The new design would realign the interchange to the north and west of its existing location. The new highway would then veer back to the south, across the Cholame Creek floodplain to meet up with the existing State Route 46 alignment near PM 56.3.

SR 41 would be relocated south of its alignment near PM 45.4, to connect with State Route 46 near PM 55.6. The existing State Route 41 roadway, between PM 43.9 and 44, would be removed and the land restored with native vegetation. The new eastbound and westbound lanes would be separated with a 61-foot median.

The existing Cholame Creek Bridge would be removed and replaced. The new Cholame Creek Bridge would be 394 feet long and between 13 and 20 feet above the floodplain at their lowest point and highest points, respectively. It would have two support piers approximately 120 feet apart.

A second bridge, the Cholame Creek Overflow/secondary wildlife crossing, would be built beginning at PM 55.6. The Cholame Creek Overflow/secondary wildlife crossing would be a single-span bridge, 131 feet long, nearly 15 feet above the ground, and would partially span the wetland complex on the Cholame Valley floor. These new bridges would be elevated above the Cholame Valley floor, and are designed to provide San Joaquin kit fox with a clear line of sight under the highway.

Construction of the SR 46 Improvement Project is scheduled to begin in 2007, with the Estrella section at the west end of the highway. The remaining sections would be completed from west to east and are scheduled for completion by 2013. Working hours for the proposed project have not been established. Caltrans anticipates typical road-building equipment would be used for this project including, but not limited to: bulldozers, pile drivers, steam rollers, concrete trucks, concrete pumps, hand compactors, gas compressors, pavers, pavement

rollers, rippers, backhoes, chainsaws, and graders. Caltrans would put the project out for bid to the private sector for construction.

Minimization Measures

Caltrans has proposed the following measures to minimize adverse effects to the Joaquin kit fox:

1. The Service's recommendations for protection of San Joaquin kit fox prior to or during ground disturbance (Service 1997) have been incorporated into the project description.
2. A full time, qualified biologist will implement the Service's recommendations and other project related biological monitoring requirements.
3. Dry culverts, a minimum of 36" high, will cross all four lanes of traffic and will be located along the entire length of the proposed project every 0.3 mile based on recommendations in the literature (Cypher 2000). Culverts will not be placed at 0.3 mile intervals where drainage culverts or bridges greater than 36" high are already proposed.
4. Wire mesh drift fencing (<2 inch squares) will be used to funnel San Joaquin kit fox toward culvert openings. Drift fencing will extend out approximately 150 feet on either side of culvert openings.
5. Box culverts, 12 feet tall and 12 feet across, will be placed on both SR 46 and SR 41 east of the Y interchange to facilitate cattle drives. Additional 12-foot box culverts will be installed at known deer crossing points (PM 32.9, PM 34.1 (Dry Creek) and PM 37.7). San Joaquin kit fox may also use these additional undercrossings.

Caltrans proposes to purchase conservation easements to compensate for permanent impacts to San Joaquin kit fox habitat using the following ratios based on the CDFG San Joaquin kit fox habitat assessment form: 4:1 between PM 37.6 through the Cholame Valley; 3:1 between Airport Road and Jardine Road; and 2:1 between Jardine Road and PM 37.6. Up to 352 acres would be permanently impacted. Caltrans proposes to compensate for temporary impacts at a 1/3:1 ratio. Up to 283 acres of San Joaquin kit fox habitat would be temporarily impacted. Caltrans would purchase a total of approximately 1200 acres of off-site San Joaquin kit fox habitat at a CDFG-approved conservation bank within the corridor connecting the southern Salinas Valley to the Carrizo Plain. Two conservation banks are currently being developed by CDFG. Caltrans will evaluate both banks and will purchase credits at the bank which best suits the proposed project (D, Hacker pers. comm. 2005).

Caltrans will remove several acres of abandoned roadbed in each of the four sections, and restore these areas with native California grassland species, suitable for San Joaquin kit fox.

For every acre restored, Caltrans proposes to reduce the amount of their off-site compensation by one acre.

Caltrans will also construct artificial dens in the off-site conservation area or other areas approved by the Service and CDFG. The number of artificial dens will be based on the existing number of dens and the condition of the conservation site.

Caltrans has provided the following specific measures to minimize adverse effects to the California red-legged frog:

1. All earthwork within 270 feet of California red-legged frog aquatic habitat will be completed between May 1 and October 31.
2. A qualified biologist will conduct pre-construction surveys for California red-legged frogs within the project area within two days of initiation of project construction.
3. Any California red-legged frogs encountered will be reported to the Service immediately or as soon as practicable (i.e. the following business day if encountered at night). California red-legged frogs found in harm's way will be captured and relocated to appropriate habitat as determined after discussions with Service staff.
4. All new sightings of California red-legged frogs within project areas will be reported to the Service and the CNDDDB.
5. Pre-construction meetings with the construction contractor and crew will be conducted to brief them on the potential presence of California red-legged frogs in the project area, and educate onsite workers in the identification and habitat requirements of California red-legged frogs, as well as the ramifications of take of listed species. The minimization measures outlined will also be discussed.
6. To the maximum extent practicable, contractors will avoid all project-related activities including road construction within 300 feet of all wetlands/water courses that provide suitable breeding and foraging habitat for the California red-legged frog.
7. Pesticide application will be avoided within 500 feet of all wetlands/water courses.
8. Bank slope protection placed on creek channel banks will be designed for erosion control by means of riparian function enhancement. Designs using native topsoil and native riparian local stock are preferred (biotechnology, logs, willow wattles, potted willows, "soft-tech" or low-tech dirt terracing, etc.).
9. Prior to the commencement of construction activities, Caltrans will coordinate with the CDFG to prepare a riparian vegetation replacement program for the project. Riparian vegetation removed as a result of the project will be replaced at a 3:1 ratio.

10. California native species (local stock preferred) will be utilized in re-vegetation and habitat enhancement efforts associated with the project.
11. Erosion control devices will be installed adjacent to work areas to control sedimentation and turbidity. Measures will be taken to control post-construction runoff and pollutant discharge.
12. Within 300 feet of potential California red-legged frog breeding habitat, only water will be used for dust abatement.

Caltrans has proposed the following measures to minimize adverse effects to the California tiger salamander:

1. All areas greater than 15 feet beyond the proposed cut/fill limits would be off limits to construction equipment.
2. Equipment and materials storage would be within the proposed median to the maximum extent practicable. If a median location is unavailable, then equipment and material storage areas would be selected in areas with no small mammal burrows or areas greater than 2200 feet from potential breeding pools.

STATUS OF THE SPECIES

San Joaquin Kit Fox

The San Joaquin kit fox was federally listed as endangered on March 11, 1967 (32 FR 4001), and state listed as threatened on June 27, 1971. Critical habitat has not been designated for this species. A recovery plan was published in 1983 (Service 1983). The San Joaquin kit fox recovery strategy was subsequently incorporated into an ecosystem-wide recovery plan for upland species of the San Joaquin valley (Service 1998).

Historically, San Joaquin kit foxes may have existed in a metapopulation structure of core and satellite populations, some of which may have periodically experienced local extinctions and recolonization (Service 1998). In the San Joaquin Valley before 1930, the San Joaquin kit fox was distributed within an 8,700-square mile range in central California from the vicinity of Tracy in the upper San Joaquin Valley south to the general vicinity of Bakersfield. Although the current range of San Joaquin kit fox now appears to be reduced by half of its historical range, the species still extends from Contra Costa County to the southern end of the Cuyama River watershed in Ventura, Santa Barbara, and southeastern San Luis Obispo counties, and east to the surrounding foothills of the Sierra Nevada.

Historically, the San Joaquin kit fox was associated with shrub, grassland, alkalai, and vernal pool plant communities native to the San Joaquin Valley (Service 1998). San Joaquin kit foxes also exhibit a capacity to utilize some habitats that have been altered by man, such as oil

fields, grazed pasture land, and wind farms (Cypher 2000), the margins and fallow lands near irrigated row crops, orchards, and vineyards, and may forage occasionally in these agricultural areas (Service 1998). The San Joaquin kit fox seems to prefer more gentle terrain and decreases in abundance as terrain ruggedness increases (Grinnell et al. 1937; Morrell 1972).

Throughout their range, San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor habitats, and other similar habitats located along bordering foothills and adjacent valleys and plains. The largest extant populations of San Joaquin kit foxes are in the Elk Hills and the Buena Vista Naval Petroleum Reserve in Kern County, and the Carrizo Plain Natural Area in San Luis Obispo County (Service 1998).

No current population estimate exists for San Joaquin kit foxes. Prior to 1930, range-wide estimates between 8,667 and 12,134 were suggested (Service 1983). In 1975, 6,961 San Joaquin kit foxes were estimated from 14 counties (Service 1983). However, these estimates are unreliable as they were not based on direct counts of individuals, but instead were based on den counts or assumed San Joaquin kit fox densities combined with estimates of available habitat. Also, because natural population fluctuations are observed among San Joaquin kit foxes, point estimates of population size may not be good indications of the overall status of the population. Subsequently, these estimates likely over estimated true abundance of San Joaquin kit fox (Cypher 2000).

The San Joaquin kit fox is a small canid, with an average body length of 20 inches and weighing about 5 pounds. They are lightly built, with long legs and large ears. Diet of San Joaquin kit foxes varies geographically, seasonally, and annually, based on variation in abundance of prey. San Joaquin kit foxes feed primarily on kangaroo rats (*Dipodomys*), California ground squirrels (*Spermophilus beechyi*), desert cottontails (*Sylvilagus audubonii*), black-tailed jackrabbits (*Lepus californicus*), and various rodents, insects, birds, and vegetation.

Kit foxes can breed at one year old, but may not breed their first year of adulthood (Morrell 1972). During September and October, adult females begin to clean and enlarge natal or pupping dens (Morrell 1972). Mating and conception take place between late December and March (Egoscue 1956, Morrell 1972, Zoellick et al. 1987a). Litters of from two to six pups are born sometime between February and late March (Egoscue 1962, Morrell 1972, Zoellick et al. 1987a).

Reproductive success of kit foxes is correlated with abundance of their prey (Egoscue 1975). Periods of prey scarcity, owing to drought or excessive precipitation, could contribute to episodes of low reproduction and population crashes. Conversely, when densities of prey increase in response to favorable precipitation levels, foxes may reproduce at their biotic potential and contribute to population explosions (White and Garrott 1999).

Female San Joaquin kit foxes are rarely seen hunting during the time they are lactating. During this period males provide most of the food for females and pups. The pups emerge

above ground at slightly more than 1 month of age. After 4 to 5 months, usually in August or September, the young begin dispersing.

San Joaquin kit foxes maintain core home range areas that are exclusive to mated pairs and their offspring (White and Ralls 1993, Spiegel 1996). Home ranges of approximately 1 to 12 square miles have been reported (Morrell 1972, Knapp 1978, Zoellick et al. 1987b, Spiegel and Bradbury 1992, White and Ralls 1993). Individuals often move independently within their home range, traveling an average of 5.8 to 9.1 miles per night (Cypher 2000).

The territorial spacing behavior exhibited by San Joaquin kit fox eventually limits the number of individuals that can inhabit an area owing to shortages of available space and/or per capita prey (White and Garrott 1999). Hence, as habitat is fragmented or destroyed, the carrying capacity of a particular area is reduced and a larger proportion of the juvenile population is likely forced to disperse. Increased dispersal can lead to lower juvenile survival rates and possibly decreased abundance.

Approximately 65 percent of dispersing juvenile San Joaquin kit foxes on the Naval Petroleum Reserves, California, died within 10 days of leaving their natal range (Koopman et al. 2000). Juvenile San Joaquin kit foxes would likely be less familiar with the location of escape dens and, as a result, may be more susceptible to predation by coyotes. At higher San Joaquin kit fox densities, the number of juveniles that encounter coyotes probably increases. Also, a larger proportion of juveniles probably disperse as San Joaquin kit fox density increases because there is a shortage of available territories. Dispersing juveniles may be highly susceptible to predation by coyotes because they have little or no knowledge of the location of potential escape dens when traversing unfamiliar areas (White and Garrott 1999). Dispersal likely occurs most often at night.

An annual mortality rate of approximately 50 percent has been reported for adult San Joaquin kit foxes (Morrell 1972, Egoscue 1975, Berry et al. 1987a, Ralls and White 1995, Standley et al. 1992). The annual mortality rate for juvenile San Joaquin kit foxes may be closer to 70 percent (Berry et al. 1987a). Predation by larger carnivores, such as coyotes, accounts for the majority of San Joaquin kit fox mortality. The effects of disease, parasites and accidental death are largely unknown, but were thought to account for only a small portion of mortality (Berry et al. 1987a).

San Joaquin kit foxes use dens for temperature regulation, shelter from adverse environmental conditions, reproduction, and escape from predators. San Joaquin kit foxes may build their own dens or modify and use dens constructed by other animals, such as ground squirrels, badgers (*Taxidea taxus*), and coyotes (Jensen 1972, Morrell 1972, Hall 1983, Berry et al. 1987b), and human-made structures such as culverts, abandoned pipelines, and banks in sumps or roadbeds. However, there is no evidence to suggest San Joaquin kit foxes give birth in human structures (Spiegel et al. 1996). San Joaquin kit foxes often change dens and numerous dens may be used throughout the year. San Joaquin kit foxes change dens four or

five times during the summer months, and change natal dens one or two times per month (Morrell 1972).

San Joaquin Kit foxes prefer loose-textured soils (Grinnell et al. 1937, Hall 1946, Egoscue 1962, Morrell 1972), but are found on virtually every soil type. Throughout their range, San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor, and other similar habitats located along bordering foothills and adjacent valleys and plains.

Dens appear to be scarce in areas with shallow soils because of the proximity to bedrock (OFarrell and Gilbertson 1979, OFarrell et al. 1980), high water tables (McCue et al. 1981), or impenetrable hardpan layers (Morrell 1972). In general, plant communities such as Northern Hardpan Vernal Pool, Northern Claypan Vernal Pool, Alkali Meadow, and Alkali Playa do not provide good denning habitat for San Joaquin kit foxes because all have moist or waterlogged clay or clay-like soils.

Although there are many causes of San Joaquin kit fox mortality (Service 1998) the principal factors that have contributed to the population decline are loss, degradation, and fragmentation of habitat associated with agricultural, industrial, and urban developments in the San Joaquin Valley (Laughrin 1970, Jensen 1972, Morrell 1975, Knapp 1978). By 1979, only about 6.7 percent of the San Joaquin Valley floor's original wildlands south of Stanislaus County remained untilled and undeveloped. Loss and degradation of habitat by agricultural and industrial developments and urbanization continue, decreasing carrying capacity of remaining habitat and threatening San Joaquin kit foxes through displacement, increased predation, direct mortalities such as vehicle strikes, and reduction of prey populations. Livestock grazing is not thought to be detrimental to San Joaquin kit foxes (Morrell 1975, Orloff et al. 1986), but may alter the numbers of different prey species, depending on the intensity of the grazing. Other developments within the range of the San Joaquin kit fox include cities and towns, aqueducts, irrigation canals, surface mining, road networks, non-petroleum industrial projects, power lines, and wind farms. Although these types of developments may negatively impact its habitat and indirectly lead to injury or mortality of individuals, the San Joaquin kit fox may survive within or adjacent to them given adequate prey base and den sites.

The coyote and the introduced red fox (*Vulpes vulpes*) compete for food resources with the smaller San Joaquin kit fox and are known to prey upon San Joaquin kit foxes as well. Predation, competition, poisoning, illegal shooting and trapping, prey reduction from rodent control programs, and vehicle strikes contribute substantially to the vulnerability of this species (Service 1998).

A primary strategy in the recovery plan is to establish and maintain a viable complex of San Joaquin kit fox populations (*i.e.*, a viable metapopulation) on private and public lands throughout its geographic range. The recovery plan (Service 1998) recommends protecting the Carrizo Plain Natural Area, western Kern County, and the Ciervo-Panoche Natural Area

as core populations, maintaining multiple satellite populations, and enhancing natural connections between populations to help reduce the harmful effects of habitat loss and fragmentation. Recent observations suggest that the size of the Ciervo-Panoche Natural Area population may be more modest than previously thought, and this site may not support a core population of San Joaquin kit fox (B. Cypher, pers. comm 2005a).

In the northern most part of the range, west of the town of Tracy, the topography and structures (interstates, canals, aqueducts, etc.) form a triangle on maps. This area has been dubbed the "Tracy Triangle". The northern extent of this area includes the protected lands around Bethany Reservoir and the southern boundary is the county line shared by Stanislaus and San Joaquin Counties. The existing structures and natural topography in the area create a pinch point in the linkage area around the San Joaquin Valley edge (Service 1998). This area is under pressure by increasing development. Communities within Alameda, Contra Costa, and San Joaquin counties have expanded, in part, to low housing prices and to the growth in the Silicon Valley (Kit Fox Planning and Conservation Team 2001). In February 2001, the Service, San Joaquin County, and several cities signed the San Joaquin County Multi-species Habitat Conservation and Open Space Plan. A draft HCP/Natural Communities Conservation Plan (NCCP) for East Contra Costa County has been prepared and a notice of availability was published in the federal register on September 2, 2005 (70 FR 52434). This HCP/NCCP proposes to mitigate the effects of proposed urban development activities, rural infrastructure projects, and preserve management activities on San Joaquin kit foxes and other species, using a system of new preserves linked to existing protected areas.

The Santa Nella area, in Western Merced County, California, is another crucial area to the San Joaquin kit fox. In the past, this area has provided a narrow corridor connecting the northern and southern populations. This area is also considered a pinch point as surrounding development limits movement of San Joaquin kit fox and increases fragmentation of habitat. Further development may eliminate usable habitat in the Santa Nella area and further isolate the northern kit fox populations. Recently a notice of availability was published in the Federal Register regarding a HCP for the Santa Nella area (70 FR 6452). Habitat preservation associated with the HCP is intended to achieve the goal of protecting and maintaining habitat to facilitate population interchange between the core population to the south and northern kit fox populations.

Information regarding movement patterns in northeast San Luis Obispo County and southeast Monterey County is limited. Three occurrences of San Joaquin kit fox movement have been documented between Salinas-Pajaro Region and the Carrizo Plain Natural Area and the area east of Paso Robles. In 1989, a San Joaquin kit fox tagged at Camp Roberts military installation, along the Monterey/San Luis Obispo County line, was captured in the town of California Valley at the northern end of the Carrizo Plain (Standley 1989). In 2000, two San Joaquin kit foxes moved from Camp Roberts to areas south of SR 46, in the San Juan Valley, San Luis Obispo County (R. Root pers. comm. 2005a).

In June 2001, a San Joaquin kit fox was observed on the west side of Cholame Road, approximately 3 miles north of SR 46 (R. Stafford 2001). Recently, a 10 month old female San Joaquin kit fox was found dead on highway 58 near San Juan Creek, several miles northwest of the Carrizo Plain (B. Cypher pers. comm. 2005b).

Larger than average numbers of San Joaquin kit fox observed on the Carrizo Plain in 2005 (R. Stafford, pers. comm. 2005) may result in increased competition for food and space, leading to increased dispersal to places like the San Juan Creek drainage and areas south of Shandon and Cholame (where two kit foxes that dispersed from Camp Roberts were trapped and collared in 2000), as well as along the Estrella River corridor north to San Miguel, Camp Roberts, King City, and the rest of the Salinas Valley. The role that natural connections between the Salinas Valley and the Carrizo Plain Natural Area may play in maintaining the vigor and ensuring the survival of the metapopulation is complex and yet to be characterized.

Although the extent of movement of San Joaquin kit foxes between the Salinas Valley and the Carrizo Plain Natural Area is unknown, land development along the natural movement corridors between these areas may have contributed to reduced immigration of San Joaquin kit foxes into the Salinas Valley. The number of San Joaquin kit foxes captured at Camp Roberts during annual live-trapping decreased from 103 to 20 from 1988 to 1991. This trend continued through 1997 when only 3 San Joaquin kit foxes were captured. Scent station visits and observations of San Joaquin kit foxes during spotlighting sessions also decreased. Low numbers of previously unmarked young-of-the-year or immigrant San Joaquin kit foxes suggests that recruitment into the Camp Roberts population was low (White et al. 2000).

The cause of the population decline at Camp Roberts has been attributed to a combination of factors including predation by coyotes; displacement by red foxes, rabies and low recruitment (White et. al 2000). Prey abundance did not appear to be a primary factor in the decreased population. Mammalian prey species never appeared to be sufficiently scarce to drastically reduce reproductive or neonatal survival rates (White and Garrott 1997). There is also little evidence that military activities contributed substantially to the decrease in abundance of San Joaquin kit foxes (White et al. 2000). Currently, few San Joaquin kit fox are believed to occur at Camp Roberts. In the northern Salinas Valley, CDFG is working through their Resource Assessment Program to begin evaluating the status of San Joaquin kit fox in San Benito and Monterey Counties (R. Root, pers.comm. 2005b).

In contrast to the Camp Roberts population, the San Joaquin kit fox population at the Carrizo Plain Natural Area reached a record high by the mid-1990s. Even though numbers decreased slightly again in 1997 and 1998, the population is within normal bounds and is considered to be stable. The abundance of San Joaquin kit foxes at the Carrizo Plain Natural Area appears tied closely to the abundance of their prey species, kangaroo rats and lagomorphs (R. Stafford, pers. comm. 2005). During the summer of 2005, a new record number of San Joaquin kit foxes were sighted on the Carrizo Plain. CDFG observed 119 foxes on two combined spotlighting routes, surpassing the previous high of 85 in 1996. CDFB estimated the typical

number of San Joaquin kit foxes observed at the Carrizo Plain during the summer is around 60 (R. Stafford, pers. comm. 2005).

A recent survey effort conducted during the spring of 2005 revealed 29 sightings of San Joaquin kit fox in western Kern County and eastern San Luis Obispo County near the Palo Prieto area. Two individuals were also seen along South Bitterwater Valley Road (J. Moonjian, pers. comm).

Population trends in each of the core areas are not clear. Based on CDFG surveys and recent observations in the Lokern area (western Kern County), San Joaquin kit fox numbers appear relatively high. Numbers on the Carrizo and in western Kern County fluctuate with environmental conditions, but these two populations tend to remain fairly robust. In large part, this is attributable to the fact that habitat quality for San Joaquin kit foxes in these two areas is the highest of anywhere in the range (B. Cypher, pers. comm. 2005b).

California Red-legged Frog

On May 23, 1996, the Service published a final rule to list the California red-legged frog as threatened (61 FR 25813). The Service has published a recovery plan for the species (Service 2002). Critical habitat for the California red-legged frog was designated on March 13, 2001 (66 FR 14625). On November 6, 2002, the United States District Court for the District of Columbia set aside the designation and ordered the Service to publish a new final rule with respect to the designation of critical habitat for the California red-legged frog (*Home Builders Association of Northern California et al. versus Gale A Norton, Secretary of the Department of Interior et al.* Civil Action No. 01-1291 (RJL) U.S. District Court, District of Columbia.). We proposed a revised critical habitat designation April 13, 2004 (69 FR 19620). On November 3, 2005, we re-proposed critical habitat based on more refined mapping (70 FR 66906). Detailed information on the biology of California red-legged frogs can be found in Storer (1925), Stebbins (1985), and Jennings et al. (1992).

The California red-legged frog is one of two subspecies of the red-legged frog (*Rana aurora*) found on the Pacific coast. The historical range of the California red-legged frog extended from the vicinity of Point Reyes National Seashore, Marin County, California, coastally and from the vicinity of Redding, Shasta County, California, inland southward to northwestern Baja California, Mexico.

The California red-legged frog has been extirpated or nearly extirpated from 70 percent of its former range. At present, California red-legged frogs are known to occur in approximately 243 streams or drainages from 22 counties, primarily in central coastal California. Habitat loss and alteration, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid 1900s. Ongoing threats include fragmentation, degradation, loss of habitat and establishment of non-native vegetation and predators as a result of urbanization and agricultural activities.

The California red-legged frog occupies habitat that combines both specific aquatic and riparian components. The adults are typically found in dense, shrubby or emergent riparian vegetation closely associated with deep (more than two feet in depth) still or slowly moving water. They breed and migrate from November through March and into spring depending on rainfall, although earlier breeding has been recorded in the southern part of their range. Female California red-legged frogs deposit egg masses on emergent vegetation, floating on the surface of the water. Egg masses contain about 2,000 to 5,000 moderate-sized (0.08 to 0.11 inch in diameter), dark reddish-brown eggs. Eggs hatch in 6 to 14 days. Tadpoles undergo metamorphosis 3.5 to 7 months after hatching. California red-legged frogs normally reach sexual maturity at 3 to 4 years of age. Individuals may live 8 to 10 years.

Juvenile and adult California red-legged frogs have been observed in areas of riparian vegetation where they may use small mammal burrows, moist litter, and debris such as old boards for cover. Radio telemetry studies showed that individual California red-legged frogs move within the riparian zone from vegetated areas to pools. During wet periods (particularly winter and spring), California red-legged frogs may move long distances between aquatic habitats, often traveling through habitats considered to be unsuitable. California red-legged frogs have been found more than one mile from breeding habitat and may reach isolated aquatic habitats up to a mile away from the nearest known California red-legged frog populations.

The diet of California red-legged frogs is highly variable. Tadpoles probably eat algae. Invertebrates are the most common food item for adults. Vertebrates, such as Pacific chorus frogs (*Pseudacris regilla*) and California mice (*Peromyscus californicus*), represented over half of the prey mass eaten by larger individuals. Juveniles are active diurnally and nocturnally, whereas adults are largely nocturnal. Feeding activity probably occurs along the shoreline and on the surface of the water.

Habitat loss and alteration, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid-1900s. Habitat loss and degradation continue to threaten California red-legged frogs where agriculture and urbanization are found within their range. Road maintenance projects, off-road vehicle use, and livestock grazing contribute to erosion of stream banks and siltation of streams where California red-legged frog eggs can be smothered. Siltation that occurs during the breeding season can lead to asphyxiation of eggs resulting in small California red-legged frog larvae. Exotic predators like the bullfrog (*Rana catesbeiana*), catfish (*Ictalurus* spp.), bass (*Micropterus* spp.), mosquito fish (*Gambusia affinis*), red swamp crayfish (*Procambarus clarkii*), and signal crayfish (*Pacifastacus leniusculus*) were introduced in the 1800s to 1900s, and prey on at least one life stage of the California red-legged frog. Raccoons (*Procyon lotor*) are known to depress California red-legged frog populations and are often associated with rural developments. The most important mortality factor in the pre-hatching stage is water salinity. On the central California coast, drought may also play a role in decreased reproduction where California red-legged frogs occur in coastal lagoons. High salinity in lagoons can be attributed to drought in many instances.

California Tiger Salamander

On August 4, 2004, we listed the California tiger salamander, Central population, as threatened (69 FR 47212). The California tiger salamander is recognized as a species of special concern by the CDFG. The species persists in disjunct remnant vernal pool and isolated ponds scattered mainly along narrow strips of rangeland on each side of the Central Valley from southern Colusa County south to northern Kern County, and in sag ponds and human-maintained stock ponds in the coast ranges from Suisun Bay south to the Temblor Range. Populations of California tiger salamanders located in Sonoma and Santa Barbara counties are federally listed as endangered.

The California tiger salamander has been eliminated from an estimated 55 to 58 percent of its historic breeding sites and has lost an estimated 75 percent of its upland and dispersal habitat. Although there are approximately 150 known local populations of California tiger salamanders, only the populations at Jepson Prairie Natural Preserve and Hickson Preserve occur in a permanently protected conservation area.

The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 8.2 inches, with males generally averaging about 8 inches and females averaging 6.8 inches. For both sexes, the average snout-vent length is approximately 3.6 inches. The small eyes have black irises and protrude from the head. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides and a yellow belly. Males can be distinguished from females, especially during the breeding season, by their swollen cloacae (a common chamber into which the intestinal, urinary, and reproductive canals discharge), more developed tail fins, and larger overall size (Stebbins 1962; Loredó and Van Vuren 1996).

The California tiger salamander inhabits low elevation vernal pools and seasonal ponds and associated grassland, oak savannah, and coastal scrub plant communities. Although California tiger salamanders are adapted to natural vernal pools and ponds, they now frequently use manmade or modified ephemeral and permanent ponds, including stock ponds. California tiger salamanders prefer open grassland to areas of continuous woody vegetation.

California tiger salamanders spend the majority of their lives in upland habitats. The upland component typically consists of grassland savannah, but also can consist of grasslands with scattered oak trees, and scrub and chaparral habitats. Juvenile and adult California tiger salamanders spend the dry summer and fall months in the burrows of California ground squirrels and Botta's pocket gopher (*Thomomys bottae*). California tiger salamanders cannot dig their own burrows, and as a result their presence is associated with active burrows of small mammals such as ground squirrels and pocket gophers.

The California tiger salamander was first described as a distinct species, *Ambystoma californiense*, by Gray in 1853 from specimens collected in Monterey (Grinnell and Camp 1917). Storer (1925) and Bishop (1943) likewise considered the California tiger salamander

to be a distinct species. However, Gehlbach (1967) and Frost (1985) classified the California tiger salamander as a subspecies (*Ambystoma tigrinum californiense*) within the *A. tigrinum* complex. Based on recent morphological and genetic work, evidence of geographic isolation, and ecological differences among the members of the *A. tigrinum* complex, the California tiger salamander is currently considered to be a distinct species (Shaffer and Stanley 1991; Jones 1993; Shaffer and McKnight 1996; Irschick and Shaffer 1997) and was recognized as such in an Annual Notice of Review published by the Service on November 21, 1991 (56 FR 58804).

The most comprehensive analysis of the California tiger salamander's taxonomic status currently available is based on an examination of mitochondrial DNA (mtDNA) sampled from the entire tiger salamander complex, including all 14 currently recognized species and five additional subspecies from across the U.S. and Mexico (Shaffer and McKnight 1996). This study recognized the California tiger salamander as a distinct species and found that it was the sister-species to the remaining 13 species in the tiger salamander complex. Other published and ongoing studies of allozymes (Shaffer et al. 1993), nuclear gene sequences (Shaffer et al. 2004) and morphology (Krauss 1988) concur that *A. californiense* is a well-differentiated taxon that is most appropriately recognized as a full species. The recent literature has uniformly accepted this position (Petranka 1998).

Although California tiger salamanders spend most of their lives in upland habitats, their reproduction is tied to aquatic habitats. Historically, they bred primarily in natural vernal pools, but they have been able to breed successfully in human-made stock ponds created for ranching and agricultural purposes. Migrations to and from breeding ponds occur during the rainy season (November to May), with the greatest activity from December to February (Storer 1925; Loredo and Van Vuren 1996; Trenham et al. 2000). Breeding migrations are strongly associated with rainfall events (Loredo and Van Vuren 1996; Trenham et al. 2000). Breeding may occur in one major bout or during a prolonged period of several months, depending on the rainfall pattern (Loredo and Van Vuren 1996; Trenham et al. 2000).

Female California tiger salamanders mate and lay their eggs singly or in small groups (Twitty 1941; Shaffer et al. 1993). The number of eggs laid by a single female ranges from approximately 400 to 1,300 per breeding season (Trenham et al. 2000). The eggs are typically attached to vegetation near the edge of the breeding pond (Storer 1925; Twitty 1941), but in ponds with limited or no vegetation, they may be attached to objects (rocks, boards, etc.) on the bottom of the pond (Jennings and Hayes 1994). After breeding, adults leave the pond and return to small mammal burrows (Loredo et al. 1996; Trenham 2001), although they may continue to come out nightly for approximately the next two weeks to feed (Shaffer et al. 1993).

Lifetime reproductive success for other tiger salamanders is typically low, with fewer than 30 metamorphic juveniles per breeding female. Trenham et al. (2000) found even lower numbers for California tiger salamanders, with roughly 12 lifetime metamorphic offspring per breeding female. In part, this low reproductive success is due to the extended time it takes for

California tiger salamanders to reach sexual maturity: most do not breed until 4 or 5 years of age. While individuals may survive for more than 10 years, fewer than 50 percent breed more than once (Trenham et al. 2000). Combined with low survivorship of metamorphosed individuals (in some populations, less than 5 percent of marked juveniles survive to become breeding adults (Trenham et al. 2000), reproductive output in most years is not sufficient to maintain populations. This trend suggests that the species requires occasional “boom” breeding events to prevent extirpation (temporary or permanent loss of the species from a particular habitat) or extinction (Trenham et al. 2000). With such low recruitment, isolated subpopulations can decline greatly as a result of unusual, randomly occurring natural events and human-caused factors that reduce breeding success and individual survival.

Movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) interpond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years (on average, 4 years). Upon reaching sexual maturity, most individuals return to their natal/birth pond to breed, while 20 percent disperse to other ponds (Trenham et al. 2001). Following breeding, adult California tiger salamanders return to upland habitats, where they may live for one or more years before breeding again (Trenham et al. 2000).

California tiger salamanders are known to travel large distances from breeding ponds into upland habitats. Maximum distances moved are generally difficult to establish for any species, but California tiger salamanders have been recorded to disperse 1.3 mile from breeding ponds (S. Sweet in litt. 1998). California tiger salamanders are known to travel between breeding ponds; one study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at ponds approximately 1,900 and 2,200 feet away (Trenham et al. 2001).

Although the observations above show that California tiger salamanders can travel far, typically they stay closer to breeding ponds. Evidence suggests that juvenile California tiger salamanders disperse further into upland habitats than adults. A trapping study conducted in Solano County during winter 2002–03 found that juveniles used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More juvenile salamanders were captured at distances of 328, 656, and 1,312 feet from a breeding pond than at 164 feet. Large numbers (approximately 20 percent of total captures) were found 1,312 feet from a breeding pond.

Results from a 2003–04 trapping efforts detected juvenile California tiger salamanders at even further distances, with a large proportion of the total salamanders caught at 2,297 feet from the breeding pond. Surprisingly, most juveniles captured, even those at 2,297 feet were still moving away from ponds (B. Fitzpatrick pers. comm. 2004). These data show that many California tiger salamanders travel far while still in the juvenile stage. Post-breeding movements away from breeding ponds by adults appear to be much smaller. During post-

breeding emigration, radio-equipped adult California tiger salamanders were tracked to burrows between 62 and 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders having depleted physical reserves post breeding, or also due to the drier weather conditions that can occur during the period when adults leave the ponds.

The spatial distribution of California tiger salamanders in the uplands surrounding breeding ponds is a key issue for conservation planning. Although it might be supposed that California tiger salamanders will move only short distances if abundant burrows are found near their ponds, this is not the case. In the aforementioned study in Solano County, while abundant burrows are available near the pond, a nearly equal number of California tiger salamanders were captured at 328, 656, and 1,312 feet from the breeding pond (Trenham and Shaffer 2005). Similarly, Trenham (2001) tracked salamanders to burrows up to 813 feet from a breeding pond, although burrows were abundant at distances nearer to the pond. In addition, rather than staying in a single burrow, most individuals used several successive burrows at increasing distances from the pond.

Generally, the rate of natural California tiger salamander movement both within a subpopulation (i.e., between breeding and upland sites) and among subpopulations (i.e., between individual pools or pool complexes) depends on the distance between these habitats and the conditions within intervening areas (e.g., topography, vegetation, distribution of small mammal burrows, etc.). Dispersal distance is also closely tied to precipitation, as California tiger salamanders are known to travel farther in years with more rainfall.

The primary cause of the decline of the California tiger salamanders is the loss, degradation, and fragmentation of habitat from human activities. Several other factors, including competition from introduced species and predation, may have negative effects on California tiger salamanders and their aquatic and upland habitats. Non-native or introduced predators of California tiger salamanders include bullfrogs (*Rana catesbeiana*), mosquitofish (*Gambusia affinis*), Louisiana red swamp crayfish (*Procambarus clarki*), catfish (*Ictalurus* sp.), bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), fathead minnow (*Pimephales promelas*) and other introduced fish (Shaffer et al. 1993, Graf 1993; Gamradt and Kats 1996, Anderson 1968, Morey and Guinn 1992).

Various nonnative subspecies of the tiger salamander within the *Ambystoma tigrinum* complex have been imported into California for use as fish bait. The introduced salamanders may out-compete the California tiger salamanders. A deformity-causing infection, possibly caused by a parasite in the presence of other factors, has affected pond-breeding amphibians at known California tiger salamander breeding sites. This same infection has become widespread among amphibian populations in Minnesota and poses the threat of becoming widespread in California.

Reduction of ground squirrel populations to low levels through widespread rodent control programs may reduce availability of burrows and adversely affect the California tiger

salamander. Poison typically used on ground squirrels is likely to have a disproportionately adverse effect on California tiger salamanders, which are smaller than the target species and have permeable skins. Use of pesticides, such as methoprene, in mosquito abatement may have an indirect adverse effect on the California tiger salamander by reducing the availability of prey. Automobiles and off-road vehicles can kill a significant number of migrating California tiger salamanders, and contaminated runoff from roads, highways and agriculture may adversely affect them.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) of the Act define the “action area” as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 *Code of Federal Regulations* 402.02). For the purposes of this biological opinion, we consider the action area to be the 24 mile length of the widening project and extending outward perpendicular to the road to varying widths. The extent of the boundary of the affected area varies based on topography, wind and water movement, habitat suitability, and the biology of the species evaluated (Forman 2003). We are not able to determine the precise area that would be affected, based on the information Caltrans has provided us for this project. For example, in the absence of site-specific surveys for San Joaquin kit fox it is impossible to know what project-related effects would affect San Joaquin kit fox at specific locations and how far reaching those effects would occur. After review of the scientific literature (Trombulak and Frissell 2000, Forman and Alexander 1998, Forman 2003, Bulger et al. 2003, Sweet in litt. 1998) and the information provided by FHWA and Caltrans, we assume that an area extending out 1.5 mile on each side of the proposed project likely encompasses the direct and indirect effects of the action on the San Joaquin kit fox, California red-legged frog and California tiger salamander. The discussion in the Effects of the Action section of this biological opinion will explain how these effects radiate out from the project area.

San Joaquin Kit Fox

The San Joaquin kit fox is known to have historically occupied grassland and blue oak woodlands along the entire length SR 46 (Caltrans 2003a). San Joaquin kit foxes have been documented within the action area, although not in high numbers. In 1999, one adult was recorded in the action area, near the east end of the proposed project, about 0.2 mile southeast of the SR 41/46 interchange (Smallwood 1999). Near the west end of the proposed project, one San Joaquin kit fox was documented in the vicinity of Barney Schwartz Park in Paso Robles in 1991 (Caltrans 2003a.). A lack of focused surveys for San Joaquin kit fox may explain why there are few documented occurrences within the action area.

Within the last decade much of the suitable habitat between Paso Robles and Shandon (about two-thirds of the entire project length) has been converted to vineyards or other development. However, San Joaquin kit fox can still move through the action area, dispersing from nearby populations. The proposed project is located within two important movement corridors.

Lands along SR 46, between Blackwell's Corner and Paso Robles, provide connectivity between the Salinas River Valley and Antelope Plain-Blackwell's Corner satellite populations. Lands in the San Juan Creek Valley, between the northern Carrizo Plain and Shandon, provide connectivity between the Carrizo Plain population and the Salinas River Valley and Antelope Plain-Blackwell's Corner satellite populations (Cypher 2000). A recent effort to model potential movement corridors using land use, parcel size, known San Joaquin kit fox occurrences, habitat suitability, and development pressure, consistently assumed a likely movement corridor that broadly intersects SR 46 between Shandon and the Cholame Valley (McElwee 2005). Most of the Cholame Valley is non-tilled rangeland that includes the best and most un-fragmented habitat in the action area. This area contains extensive undeveloped grasslands containing a variety of badger dens and other dens that could be used by San Joaquin kit fox, as well as a variety of prey species for San Joaquin kit fox (Caltrans 2003).

Although movement of San Joaquin kit foxes across SR 46 has been documented (Standley 1989, R. Root, pers. comm. 2005a) it has not been examined extensively. Only limited studies of marked individuals have been conducted on the populations to the north and south of SR 46 (i.e. Camp Roberts and Carrizo Plain). Consequently, the significance of this area to the structure and success of the metapopulation remains unknown.

California Red-legged Frog

A creek that crosses SR 41 at PM 45.5, within the Y section, is intermittent, but contains six permanent pools along a 1,476-foot stream reach. Surveys were not conducted because the property is on private land. These pools are suitable breeding habitat for California red-legged frogs and are approximately 1 mile downstream of a permanent water source where Caltrans found one California red-legged frog during surveys for the Antelope Grade section of SR 46 (Caltrans 2003c). Two additional permanent ponds also considered in our previous biological opinion (Service 2005) are located several hundred feet south of the SR 46 and approximately 1.2 miles east of the proposed interchange of SR 41 and SR 46. Caltrans biologists documented approximately 100 hundred adult and 100 juvenile frogs in these ponds and identified the ponds as breeding sites (Caltrans 2003c). These ponds have the potential to produce thousands of metamorph and juvenile California red-legged frogs.

Two other annual streams cross under SR 46 at PM 56.3 and 57.4. These streams flow from the south side of SR 46 northward under SR 46 via a box culvert where they eventually empty into a flood basin at the SR 41/46 interchange. No California red-legged frogs were found in these streams during the course of surveys.

California tiger salamander

Although surveys for California tiger salamanders have not been conducted in the action area, Caltrans and the Service believe it is reasonable to assume California tiger salamanders are present due to the presence of suitable upland and breeding habitat. Five ponds (Cholame

Ponds) occur at varying distances, between 0.5 mile and 1.7 miles, from the proposed project site (Caltrans 2003a). The nearest known California tiger salamander breeding ponds are Kerr Lake, 3.45 miles north of the project site, and O' Brien Lake, 3.3 miles south of the project site. Additional un-surveyed ponds occur between the known breeding sites and the Cholame Ponds nearest the project site (Caltrans 2003a).

Although the distances between the known and un-surveyed ponds are beyond the maximum known dispersal distance of 1.3 miles, there are apparently no barriers that would preclude dispersal between the known breeding sites, the un-surveyed ponds, and the Cholame Ponds. California tiger salamanders occur in sag ponds and vernal pools created by the San Andreas fault, from the temblor range in San Luis Obispo County, north to Santa Cruz County (Caltrans 2003). We surmise that additional ponds or wetland complexes may have occurred within the San Andreas rift zone at some point in the past, possibly contributing to California tiger salamander dispersal.

Because the Cholame Ponds appear to be suitable breeding habitat (Caltrans 2003), occupied ponds and additional un-surveyed ponds occur to the north and south of the Cholame Ponds, and there are no known dispersal barriers, Caltrans and the Service assume California tiger salamanders are present in the action area.

EFFECTS OF THE ACTION

San Joaquin Kit Fox

The proposed project would result in the permanent loss of approximately 352 acres, and temporary impacts to 283 acres of San Joaquin kit fox habitat, along the 24 mile length of the project site. Caltrans determined all undeveloped land in the study area of the proposed project is potential foraging and or denning habitat for the San Joaquin kit fox (Caltrans 2003). San Joaquin kit fox foraging or denning within the construction footprint of the proposed project will be permanently displaced during and following construction.

Resident San Joaquin kit foxes or individuals moving through the action area may use existing dens and project components (i.e. pipes) for shelter. San Joaquin kit foxes that are dispersing through the action area are likely to be moving through at night and would likely be sheltering in dens during the day (Koopman et al. 2000). San Joaquin kit foxes that are present in the action area during the proposed project may be injured or killed by construction activities. Injury or mortality of San Joaquin kit foxes may occur if they are trapped or crushed in dens by heavy equipment, or inadvertently trapped in open trenches, uncapped pipes, or culverts.

Caltrans has included measures in their project description in order to minimize the potential for San Joaquin kit foxes to be trapped or crushed during construction. These minimization measures include but are not limited to:

- a. Covering trenches at the close of each working day;

- b. Providing escape ramps in trenches and excavations;
- c. Placing caps on pipes with diameters of 4 inches or greater;
- d. Conducting pre-construction surveys and construction monitoring, using Service-approved biologists, to reduce the chance that an occupied San Joaquin kit fox den would be subject to excavation, grading, or construction activity;
- e. All construction pipe, culverts, or similar structures with a diameter of three inches or greater that are stored at a construction site for one or more nights will be thoroughly inspected for San Joaquin kit foxes before the pipe is subsequently moved, buried, or capped. If during inspection a San Joaquin kit fox is found inside a pipe, Caltrans will not move that section of pipe until the animal escapes or they will move the section of pipe once, out of the immediate construction area.

Construction related traffic could result in vehicles striking San Joaquin kit foxes. Because San Joaquin kit foxes are likely to be active at night, and may be moving around or through the action area, there is a greater chance they could be struck by construction traffic if construction also occurs at night. Death of adult San Joaquin kit foxes during the breeding season (November-January) could result in reduced reproductive success, and death of females during gestation or prior to pup weaning could result in loss of an entire litter of young, and therefore, reduced recruitment into the population (Cypher 2000). Caltrans proposes to provide project employees with training and written guidance governing vehicle use when traveling within the project area, and to strongly encourage a speed limit of 20 miles per hour on unpaved roads within San Joaquin kit fox habitat.

Protective actions may disrupt normal movement patterns and displace San Joaquin kit fox making them more susceptible to predation. For instance, Caltrans proposes to excavate and destroy potential and known dens if they can not be avoided during construction. A San Joaquin kit fox may be more susceptible to predation or subject to temperature extremes, after being removed from an excavated den.

San Joaquin kit foxes may be injured or killed if exposed to hazardous materials, such as spilled or leaking fuels, antifreeze, and herbicides and rodenticides used for the control of weeds and rodents. Caltrans has proposed to restrict the use of rodenticides and herbicides to Service and CDFG approved plans, we anticipate a low potential for injury or mortality associated with the hazardous materials described in this biological opinion.

Project-related garbage may attract San Joaquin kit foxes and predators such as coyotes, red fox, and pet or feral dogs and cats to the project area. To minimize the potential for San Joaquin kit foxes and predators to be attracted to the project site, Caltrans proposes to keep all food-related trash items in closed containers and to remove food-related trash at least once per

week. Caltrans will also ban pets from the construction area, and provide a worker awareness training program.

Because the proposed project would be completed in four sections, over approximately 10 years, construction would not occur along the entire length of the project at the same time. Consequently, San Joaquin kit fox would not be exposed to direct adverse effects, such as construction vehicle strikes, entombment, crushing, etc., along the entire 24-mile length of the project at the same time, but would be subject to these stressors during each separate phase of the project. Two sections (Estrella, Shandon) are each approximately 10 miles long while the other two sections (Cholame, Y) are each approximately two miles long.

The proposed widening of SR 46 from two to four lanes, as well as an increase in the speed limit from 55 to 70 miles per hour, may result in increased injury or mortality of San Joaquin kit fox due to the potential for more frequent vehicle strikes. The number of strikes likely increases with road size, traffic volume, and average speed (Clevenger and Waltho 1999).

The proposed project will likely contribute to a reduction in landscape connectivity and increased habitat fragmentation. Landscape connectivity may be important for animals foraging within their home range, for dispersal to establish a new home range, and for migration between locations. When landscape connectivity is high, animals are able to repopulate areas that have suffered local population declines and extirpations, and minimize the effects of inbreeding (Forman 2003, Cypher 2000). Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition during years when San Joaquin kit fox abundance is high. Roads may reduce the suitability of habitat for San Joaquin kit foxes by fragmenting it into areas too small for effective use. As habitat areas decrease in size the number of San Joaquin kit foxes the area can support also decrease (Cypher 2000).

The likelihood of a road acting as barrier increases with a larger road size, higher traffic volume, and the presence of fences or median barriers. Knapp (1978) monitored movements of radio-collared San Joaquin kit foxes in the vicinity of Interstate 5 in Kern County. Many of the San Joaquin kit foxes used areas within 3 kilometers of the highway, and most exhibited movement and home range patterns that parallel the highway, but did not cross it. Only on 2 occasions were animals located on the opposite side of the highway from their primary area of use. Interstate 5 has altered kit fox space use patterns, and effectively restricted movements by San Joaquin kit foxes (Cypher 2000).

The fragmentation of habitat associated with the proposed SR 46 widening could also eventually lead to reduced genetic variation in populations of San Joaquin kit foxes. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects (Cypher 2000). An increase in inbreeding and the loss of genetic variation could increase the extinction risk for small, isolated populations of kit foxes by interacting with demography to reduce fecundity, juvenile survival, and lifespan (Lande 1988, Frankham and Ralls 1998, Saccheri et al. 1998).

The effects from roads may extend some distance beyond the footprint of the road. Foreman and Deblinger (1998) described this affected area as the "road-effect" zone, where a variety of statistically significant adverse effects (e.g. mortality, habitat degradation, fragmentation, disturbance, environmental contaminants, etc.) can occur. The lateral extent of the road-effect zone is asymmetrical and is determined by variables such as topography, vegetation, traffic volume, animal locomotion, wind, or groundwater movement. Effects that extend farther from the road surface normally define the margin of the road-effect zone (e.g. human-access disturbances, spread of exotic species, blocking of wildlife movement routes). Road-effects typically transmit farther into grassland ecosystems than forests (Foreman 2003). The presence of a road-effect zone in the action area is already likely adversely affecting San Joaquin kit fox as a result of the existing highway. As the footprint of the highway is increased, the road-effect zone, and associated adverse effects, would also increase.

Determining exactly how, and when, a road will affect a wildlife population is difficult to determine. Variables such as loss of habitat, decreased landscape connectivity, disease, predation, and vehicle strikes may all contribute to variations in wildlife populations over time. For example, the effect of a road as a barrier to dispersal would likely take several generations to be observed and would also depend on the time interval between local extinctions in a species' regional population (Forman 2003). Consequently, at this time we are unable to determine the extent to which the proposed project may affect San Joaquin kit fox dispersal. However, we assume that an increase in traffic volume and average vehicle speed associated with a four lane expressway would make it increasingly more difficult for San Joaquin kit fox to disperse across SR 46.

Additionally, potential increased residential and commercial, and industrial development that is likely to occur along the highway over time would likely exacerbate the barrier effect of the road corridor. A reduction in dispersal is likely to negatively affect San Joaquin kit fox population in a variety of ways as described above. Development associated with road construction is particularly common where roads intersect, such as the intersection of Interstate 5 and Highway 99 (Cypher 2000). Habitat loss, fragmentation, and the reduction or elimination of movement corridors are likely the most severe effects to San Joaquin kit foxes (Cypher 2000). If San Joaquin kit fox populations in the Southern Salinas Valley, or other areas near the action area increase, or more information regarding the structure of the metapopulation becomes available, effects of the project may be greater than as analyzed in this biological opinion.

Caltrans and FHWA have included multiple measures intended to minimize the adverse effects of the proposed project on San Joaquin kit fox, and to facilitate movement of San Joaquin kit fox across the highway. Caltrans has proposed to construct large (61-foot wide) medians, to eliminate the need for solid median barriers as a traffic safety feature. Wide grassy medians between north and southbound traffic lanes may provide a safe opportunity for animals to rest while trying to cross traffic lanes. The elimination of solid median barriers should also increase the potential for San Joaquin kit fox to successfully cross SR 46 within

the action area as these structures can be formidable obstacles to movement for most wildlife (Foreman 2003).

Caltrans has also incorporated the installation of dry culverts into their project description, for the specific purpose of facilitating movement of San Joaquin kit fox across under the highway. Caltrans recruited expert advice (Cypher 2000) regarding the frequency and size of culverts that would likely maximize use by San Joaquin kit fox.

Caltrans also funded a field study, initiated in 2005, to evaluate the use of existing highway crossing structures by San Joaquin kit foxes and desert kit foxes on 4 lane highways in natural land environments. Caltrans will incorporate the results of the study into the proposed project design.

In addition to wildlife culverts, Caltrans has also proposed to increase the size and number of bridges in the Y section, to facilitate movement of San Joaquin kit fox and other wildlife across the highway. These new bridges would be 394 feet long and 130 feet long, and elevated to a heights ranging from 13 and 19 feet above the valley floor, providing San Joaquin kit foxes with a clear line of sight under the highway and improving the crossing potential for San Joaquin kit foxes in this area.

Caltrans proposes to provide approximately 1200 acres of conservation lands off-site at a CDFG-approved conservation bank within the corridor connecting the southern Salinas Valley to the Carrizo Plain San Joaquin kit fox core population. With this minimization measure, Caltrans would attempt to enhance movement corridors, link natural lands, and protect habitat for San Joaquin kit foxes.

California Red-legged Frog

Construction would not affect any of the known California red-legged frog breeding sites in the action area. However, surface water quality of aquatic habitat, adjacent to the highway, may be temporarily degraded as a result of project construction. Aquatic habitat may also be adversely affected by highway runoff during winter rains. However, the new highway alignment would be buffered from perennial aquatic habitat by distances ranging from 131 to 164 feet, minimizing the potential for highway runoff to reach the aquatic habitat. Project-related releases of sediments from areas cleared of vegetation during construction or of contaminants, such as fuels and oils, from construction equipment into the riparian area or water may negatively affect the quality of habitat for California red-legged frogs by killing native plants used for resting or foraging and by decreasing availability of prey. Released contaminants may also adversely affect or kill California red-legged frogs. Such effects would be reduced or eliminated by the use of erosion control devices, and measures taken to control post-construction runoff and pollutant discharge.

If Caltrans limits construction to the dry season, it does not anticipate direct adverse effects to California red-legged frogs during construction because they do not expect individuals to move away from permanent water sources during the dry season (May 1 through October 31).

However, because Caltrans does not expect to complete the Y section for approximately 8-10 years, and they have not finalized the work schedule to limit the proposed construction to the dry season, construction may occur during winter rainy seasons when California red-legged frogs are likely to be migrating or dispersing through the action area.

Bulger et al. (2003) found that less than 25 percent of an adult California red-legged frog population in Santa Cruz County, California, migrated away from breeding sites during the winter. These authors also noted that migration is spread out over time and does not occur as a synchronous en masse event, and that the density of California red-legged frogs migrating through uplands is usually very low (Bulger et al. 2003).

The dispersal of metamorph and juvenile California red-legged frogs has not been well documented. However, California red-legged frogs are believed to disperse widely the first 6 to 8 months after metamorphosis and through the winter. Once they reach the juvenile stage (approximately 1 year old) they will remain in aquatic habitat (either breeding or summer) until breeding age (approximately 2 to 3 years old). If they did not disperse to suitable breeding habitat as metamorphs, California red-legged frogs will migrate to suitable breeding habitat when they reach breeding age. Some adults may return to summer habitat after breeding (N. Scott pers. comm. 2005).

Although there are large numbers of California red-legged frogs in the action area, the highest known densities are found in ponds approximately 1.2 mile southeast of the proposed SR 41/46 interchange. We anticipate few adult California red-legged frogs will migrate this far from permanent water sources in the arid climate of northeast San Luis Obispo County. Given the number of California red-legged frogs present in the action area, and the distances of the aquatic habitat from the construction area, we anticipate that fewer than 25 adults may migrate from the breeding ponds during the winter rainy months. However, hundreds of metamorphs may disperse through the action area. Migrating or dispersing California red-legged frogs may be struck and killed by vehicle traffic and construction traffic.

California red-legged frogs could be injured or killed if they are improperly handled or contained during capture and relocation efforts if they are found in construction areas. Caltrans would reduce the chances of incidental injury by using only Service-approved biologists to capture and move California red-legged frogs.

Chytrid fungus (*Batrachochytrium dendrobatidis*) could be spread if infected California red-legged frogs are relocated and introduced into areas with healthy California red-legged frogs or vice-versa. Chytrid fungus is a water-borne fungus that can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. The fungus only attacks the parts of a frog's skin that have keratin (thickened skin), such as the mouthparts of tadpoles and the tougher parts of adults' skin, such as the toes. The fungus can decimate amphibian populations, causing fungal dermatitis, which usually results in death in 1 to 2 weeks. Infected animals may spread the fungal spores to other ponds and streams before they die. Once a pond has become infected with chytrid fungus, the fungus

stays in the water for an undetermined amount of time. It is possible that during the relocation of California red-legged frogs proposed by the applicant that infected individuals or equipment could introduce Chytrid fungus into areas where it did not previously occur. If this occurs, many California red-legged frogs could be affected.

California red-legged frogs have strong homing tendencies (Rathbun and Schneider 2001). As a result, relocated individuals may be at risk of injury or death through predation or dehydration during an attempt to return to a work area from which they had been moved. This risk may increase with the distance of the relocation site from the work area. However, if individuals are moved far enough they are more likely to remain at the relocation site. (Rathbun and Schneider 2001).

California red-legged frogs may be killed or injured from inadvertent trampling by workers from foot traffic and operation of construction equipment during the construction of the highway improvement project. Such effects to California red-legged frogs would be reduced by Caltrans' proposed measures to hold pre-construction meetings with the contractor and crew to brief them on the potential presence of California red-legged frogs in the project area, educate onsite workers in the identification and habitat requirements of California red-legged frogs and ramifications of take of listed species, and discuss minimization measures.

Predation of California red-legged frogs may increase in the project vicinity with the attraction of predators, such as raccoons (*Procyon lotor*), pet and feral dogs (*Canis familiaris*) and cats (*Felis domesticus*), to the work area by food-related trash. Such effects would be reduced by Caltrans' protective measures to manage trash properly and ban pets from the construction area. Additionally, increased exposure to predation and desiccation could occur with the disruption of normal foraging and sheltering behavior by construction noise and activity. Such effects would be minimized by the following measures: pre-construction surveys using Service approved biologists within two days prior to initiation of project construction, properly containing and removing trash; conducting awareness training sessions for workers; and relocating California red-legged frogs, if any are found in harm's way, prior to the start of construction activities.

California tiger salamander

California tiger salamanders dispersing from ponds within the action area are subject to mortality or injury from vehicle strikes and construction activities associated with the proposed project, particularly if work is conducted during the wet season (November to May). Adult migrations to and from breeding ponds occur during the wet season, with the greatest activity from December to February. Because we lack any population data from the ponds within the action area, we are unable to quantify the amount of California tiger salamanders that may disperse into the construction area or attempt to cross the highway following construction. However, based on Trenham's (2001) method for calculating dispersal probabilities, Caltrans (2005) estimated that of the four ponds within the action area, 3.23 percent of one potential breeding population, and less than one percent of each three

additional potential breeding populations are likely to disperse far enough to be adversely affected by construction.

California tiger salamanders may also be crushed if they are present in small mammal burrows within the construction footprint of the proposed project. All small mammal burrows, in the construction footprint of the new traffic lanes, would be destroyed during grading and ground compaction that is part of the road building process. California tiger salamanders may also become trapped in construction trenches where they are subject to predation and desiccation.

The new bridges proposed by Caltrans would be built directly between the two nearest known breeding populations as well as between the two nearest potential breeding pools. The bridges would span a 394-foot wide corridor in the area that is most likely to be used by California tiger salamanders. An additional 131-foot long bridge may also facilitate movement of California tiger salamanders under the highway. The creation of these large under-crossings would enhance a likely movement corridor and may facilitate movement of California tiger salamanders under the highway, and result in fewer vehicle strikes.

California tiger salamanders could be injured or killed if they are improperly handled or contained during capture and relocation efforts if they are found in construction areas. Caltrans would reduce the chances of incidental injury by using only Service-approved biologists to capture and move California tiger salamanders. Handling California tiger salamanders or introducing equipment into their breeding ponds can also result in the spread of chytrid fungus, a pathogen linked to declines in amphibians. The first case of chytrid fungus in California tiger salamanders was reported in 2005 (Padgett-Flohr and Longcore 2005).

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 action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Caltrans has recognized the completion of the SR 46 Improvement Project may result in future increased road mortality of San Joaquin kit fox. Consequently, Caltrans has proposed to work cooperatively with the Service to attempt to remedy any increased future mortality of San Joaquin kit foxes on SR 46 following completion of the proposed project (Luchetta, pers. comm. 2005).

In April 2004, the San Luis Obispo County Board of Supervisors voted to update the Community Plan for Shandon (Community Plan). Shandon is a small, primarily agricultural community, located approximately 20 miles east of Paso Robles and adjacent to SR 46. It has a population of approximately 1000 residents within a 380-acre Urban Reserve line.

The Community Plan will include but not be limited to future population, housing development, land use, traffic, infrastructure, and economic development alternatives (County 2005). The study area will include the area within the Urban Reserve line and approximately 1620 additional acres surrounding the community. Expansion of Shandon beyond the existing Urban Reserve line will likely encroach into San Joaquin kit fox habitat, and may adversely affect the population through increased loss of habitat and a reduction or loss of movement corridors. The area between Shandon and the Cholame Valley has been identified as some of the best remaining San Joaquin kit fox habitat in the action area and a likely movement corridor (McElwee 2005). Open space areas, incorporated into the Community Plan Update, which provide connectivity to the north and south of SR 46, would likely benefit the San Joaquin kit fox.

CONCLUSION

After reviewing the current status of the San Joaquin kit fox, California red-legged frog, and California tiger salamander, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the State Route 46 Improvement Project for PM 32.2 to PM 56.3, is not likely to jeopardize the continued existence of these species for the following reasons:

San Joaquin kit fox

1. Caltrans and FHWA have proposed to install numerous wildlife under-crossings along the entire 24 mile length of the project, to facilitate movement of San Joaquin kit foxes across SR 46.
2. Within the Cholame Valley, Caltrans has proposed to use large bridges to facilitate connectivity and potentially improve crossing opportunities for San Joaquin kit foxes in an important movement corridor.
3. Caltrans has proposed to use the best and most updated science available, to design and implement wildlife under-crossings for San Joaquin kit fox.
4. Caltrans will conserve approximately 1200 acres of San Joaquin kit fox habitat determined by the Service, CDFG, and species experts to be important to dispersal.
5. Caltrans has proposed to work with the Service to attempt to remedy any increased future road mortality that occurs following completion of the proposed project.
6. Because the proposed project would be completed in four phases, and the final phase (the Y section) will not be completed until approximately 2013, we will have an opportunity to monitor the effectiveness of the proposed minimization measures, and to determine if additional protective measures are necessary.

7. In addition to wildlife under-crossings, FHWA and Caltrans will implement numerous other measures to minimize adverse effects to San Joaquin kit fox during construction.

California red-legged frog

8. Known breeding locations in the action area would not be affected by the proposed project.
9. Caltrans would minimize adverse effects to aquatic habitat for the California red-legged frog through implementation of erosion control methods and other best management practices.
10. Elevating the highway in the Y section will likely reduce any existing road mortality in this area, and may result in an improved crossing situation when compared to the existing two lane highway.

California tiger salamander

11. No California tiger salamander breeding habitat would be affected by the project.
12. Elevating the highway in the Y section will likely reduce any existing road mortality in this area and may increase the potential for dispersal north and south of SR 46.
13. Only a small amount of upland habitat would be adversely affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, 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 the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and FHWA must make them binding conditions of any grant or permit issued to Caltrans, as appropriate, for the exemption in

section 7(o)(2) to apply. FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If FHWA fails to require Caltrans to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, FHWA must report the progress of the action and its impact on the California red-legged frog, California tiger salamander, and the San Joaquin kit fox to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

The amount of incidental take of San Joaquin kit foxes that may occur during construction is difficult to quantify because there is a lack of information on occurrences of and movement patterns of San Joaquin kit foxes in the action area. Estimating the number of individuals that are subject to harassment is not possible, given the unknown number of San Joaquin kit foxes that may occur in the action area at any given time. However, based on the information in the Status of the Species and Environmental Baseline sections of this biological opinion, we expect few San Joaquin kit fox to be subject to harassment as a result of direct project related effects.

It will be difficult to find injured or dead California red-legged frogs and California tiger salamanders due to their small size and because the large earth moving equipment that would be used during the project would likely destroy any evidence of dead or injured individuals. For these reasons and because there are a large number of California red-legged frogs, in the action area, we are unable to determine the exact number of California red-legged frogs that will be incidentally taken in the form of injury or mortality. However, based upon the information described in this biological opinion, we anticipate that less than 25 percent of the adult California red-legged frogs in the action area would be subject to injury or mortality. An unknown number of metamorph and juvenile California red-legged frogs could be killed or injured by project activities. Although we cannot predict how many individuals may be in the construction footprint at a given time, we anticipate that all California red-legged frogs found in harm's way will be incidentally taken in the form of harassment during capture and relocation efforts.

We are also unable to determine the number of California tiger salamanders that may be incidentally taken because we have no occurrence data from the action area. Caltrans and the Service assume California tiger salamanders are present in the action area based on the presence of suitable breeding habitat and existing land use practices. However, based on Trenham's (2001) method for calculating dispersal probabilities, we estimate that 3.23 percent of one potential breeding population, and less than one percent of each three additional potential breeding populations, in the action area, are likely to disperse far enough to be adversely affected by project activities. Consequently, these calculations suggest that the number of California tiger salamanders that may be incidentally taken are extremely low.

This biological opinion does not exempt any activity from the prohibitions against take contained in section 9 of the Act that is not incidental to the action as described in this biological opinion. Take that occurs outside of demarcated work areas or from any activity

not described in this biological opinion is not exempted from the prohibitions against take described in section 9 of the Act.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of California red-legged frogs, California tiger salamanders and San Joaquin kit foxes:

1. Caltrans and FHWA must reduce the potential for injury or mortality of San Joaquin kit foxes, California red-legged frogs, and California tiger salamanders as a result of construction activities and vehicle traffic.
2. Only personnel authorized under this biological opinion may implement those avoidance and minimization measures, included in this biological opinion, which require biological expertise and experience with San Joaquin kit fox, California red-legged frogs, and California tiger salamanders.
3. Biologists who handle California red-legged frogs and California tiger salamanders must ensure that their activities do not transmit diseases

The Service's evaluation of the effects of the proposed action includes consideration of the minimization measures proposed by Caltrans and included in the description of the proposed action section of this biological opinion. Any subsequent changes to these measures may constitute a modification of the proposed action and may warrant re-initiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by Caltrans as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, FHWA must ensure that Caltrans complies with the following terms and conditions, which implement the reasonable and prudent measures described above and outlined in the reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:
 - a. If a San Joaquin kit fox is found injured or killed as a result of the activities described in this biological opinion, FHWA or Caltrans must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by Caltrans and the

terms and conditions of this biological opinion have been and continue to be implemented.

- b. Prior to the completion of the first phase of the project, Caltrans must provide our office with a draft plan to monitor the wildlife undercrossings associated with the proposed project. Following our review, a final monitoring plan must be completed within one year.
- c. Caltrans must implement the final monitoring plan during the project, to determine if their protective measures are effective in reducing San Joaquin kit fox mortality.
- d. If more than 10 adult California red-legged frogs or 25 metamorphs are found injured or killed due to project activities in any calendar year, Caltrans must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by FHWA and Caltrans and the terms and conditions of this biological opinion have been and continue to be implemented.
- e. FHWA or Caltrans must immediately report any sighting of live California tiger salamanders within the action area to the VFWO.
- f. Any live California tiger salamanders found within the construction footprint of the proposed project must be relocated out of harm's way.
- g. If a California tiger salamander is found injured or killed, Caltrans must contact our office immediately (or the following day if found at night) so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by FHWA and Caltrans and the terms and conditions of this biological opinion have been and continue to be implemented.
- h. Caltrans must enforce a maximum speed limit of 20 miles per hour on unpaved roads within the action area of this project.
- i. Caltrans must ensure that project related vehicles do not leak anti-freeze or other hazardous materials.
- j. Caltrans must not place fences that act as barriers to movement of California red-legged frogs, within or along the boundary of the project site.
- k. A qualified biologist, approved by the service, must be on-site: 1) when construction occurs on rainy nights; 2) when project activities would occur within

100 feet of aquatic California red-legged frog habitat; and 3) for 72 hours following the sighting of a San Joaquin kit fox in the action area. The biologist must be given the authority to stop any work that may result in the take of San Joaquin kit foxes, California red-legged frogs, or California tiger salamanders. If the biologist(s) exercises this authority, the Service must be notified by telephone and electronic mail within one (1) working day.

2. The following terms and conditions implement reasonable and prudent measure 2:
 - a. At least 30 days prior to the onset of project activities, the project proponent must submit the name(s) and credentials of the biologist(s) who would conduct activities for the San Joaquin kit fox, California red-legged frog, and California tiger salamander, as specified in this biological opinion. Project activities must not begin until Caltrans has received our written approval of the biologist(s) they intend to use.
 - b. Before initiating project activities, the Service-approved biologist must identify appropriate areas to relocate California red-legged frogs and California tiger salamanders found in the construction area. These areas must be near the potential capture site or another site approved by the Service, must support suitable vegetation (as appropriate for the species) and be free of exotic predatory species (e.g., bullfrogs).
 - c. If captured, California red-legged frogs and California tiger salamanders must be placed in moist cloth bags or plastic buckets and kept shaded and moist until they are released at the new site. The relocation process must be implemented as quickly as possible.

3. The following term and condition implements reasonable and prudent measure 3:

To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of California red-legged frogs and California tiger salamanders, the Service-approved biologist shall follow the Declining Amphibian Population Task Force's Code of Practice. A copy of this Code of Practice is enclosed. A bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) may be substituted for the ethanol solution. Care must be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

REPORTING REQUIREMENTS

FHWA or Caltrans must provide an annual written report to the Service by January 31, each year of the project. The report must discuss activities for the previous calendar year and include a table summarizing California red-legged frog, California tiger salamander, and San Joaquin kit fox sightings and any take that occurs. The report must document the number of

California red-legged frogs and California tiger salamanders, if any, relocated from the project area, the date and time of capture, specific location of capture, approximate size and age of individuals, and a description of relocation sites. The report must also include the number of California red-legged frogs and California tiger salamanders killed or injured, if any, and the date(s) such incidental take occurred. The report must document any observations of San Joaquin kit fox in the action area, the number of any San Joaquin kit foxes harassed, injured or killed, and the date(s) such incidental take occurred. The report must contain a discussion of the activities conducted, results of the wildlife undercrossing monitoring, any problems encountered in implementing terms and conditions, and any recommendations for improving the protective measures. This document will assist the Service and FHWA in evaluating future measures for the conservation of the California red-legged frog, California tiger salamander, and the San Joaquin kit fox.

DISPOSITION OF INJURED OR DEAD SPECIMENS

Upon locating a dead or injured California red-legged frog, California tiger salamander, or San Joaquin kit fox, you must notify the Service's Division of Law Enforcement in writing (370 Amapola Avenue, Suite 114, Torrance California 90501) and the Ventura Fish and Wildlife Office by telephone (805/644-1766) and in writing (2493 Portola Road, Suite B, Ventura, California 93003). The report must include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured California red-legged frog, California tiger salamander, or San Joaquin kit fox survive, the Service must be contacted regarding their final disposition. The remains of California red-legged frogs and California tiger salamanders must be placed with the California Academy of Sciences Herpetology Department (contact: Jens Vindum, Collections Manager, California Academy of Sciences Herpetology Department, Golden Gate Park, San Francisco, California 94118, telephone 415/750-7037); or Santa Barbara Natural History Museum (contact: Paul Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93105, telephone 805/682-4711 ext. 321).

Any San Joaquin kit fox found dead shall be provided to CDFG unless agreements have been made with CDFG to the contrary. Notification must be made to Bob Stafford, wildlife biologist, at (805) 528-8670.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We recommend the following:

1. FHWA and Caltrans should fund and participate in a study of San Joaquin kit movements between the Salinas River Valley, Carrizo plain, and Antelope Plain-Blackwell's Corner.
2. The FHWA and Caltrans should involve the Service in long-range planning so its projects are designed and implemented in a manner that meets the conservation needs of the California red-legged frog, California tiger salamander, and San Joaquin kit fox.
3. The FHWA and Caltrans should ensure that material hauled to project sites for fill is free of weedy exotic species.
4. Caltrans should conduct surveys for California tiger salamanders in the action area of this biological opinion.

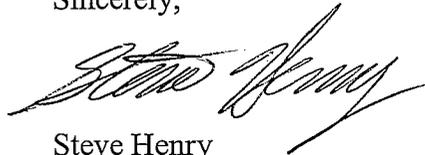
The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the proposed construction of the State Route 46 Improvement Project, PM 32.2 to 56.3. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (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 not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding this matter, please contact Steve Kirkland of my staff at (805) 644-1766, extension 267.

Sincerely,



Steve Henry
Assistant Field Supervisor
San Luis Obispo/Northern Santa Barbara

Enclosure

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Luchetta, J. 2005. State Route 46 project meeting at the Ventura Fish and Wildlife Office on July 27, 2005. Senior Environmental Planner, Caltrans District 5. San Luis Obispo, California.

Moonjian, J. 2005. Electronic mail. Results of 2005 San Joaquin kit fox surveys. April 26, 2005. Graduate Student, California Polytechnic State University, San Luis Obispo, California.

Scott, N.J. 2005. Electronic mail. California red-legged frog researcher. Information regarding the dispersal of California red-legged frogs.

Stafford, R. 2005. Electronic mail. Information regarding San Joaquin kit fox on the Carrizo Plain, San Luis Obispo County, California. Dated February 10, 2005. California Department of Fish and Game biologist. Los Osos, California.

Root, R. 2005a. Conversation with Steve Kirkland regarding documented movements of San Joaquin kit foxes between Camp Roberts, the San Juan Valley, and Carrizo Plain, California. August 2005. U.S. Fish and Wildlife Service biologist, Ventura, California.

_____. 2005b. Electronic mail. Status of the San Joaquin kit fox population in San Benito and Monterey Counties, California. Dated August 17, 2005. U.S. Fish and Wildlife Service biologist, Ventura, California.

The Declining Amphibian Populations Task Force Fieldwork Code of Practice

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each study site.
2. Scrub boots, nets, traps, and other types of equipment used in the aquatic environment with 70 percent ethanol solution or a bleach solution of one-half to one cup of bleach in one gallon of water and rinse clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond, wetland, or riparian area.
3. In remote locations, clean all equipment with 70 percent ethanol or a bleach solution, and rinse with sterile water upon return to the lab or a "base camp." Elsewhere, when laundry facilities are available, remove nets from poles and wash (in a protective mesh laundry bag) with bleach on a "delicate" cycle.
4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable gloves and change them between handling each animal. Dedicate separate sets of nets, boots, traps, and other equipment to each site being visited. Clean and store them separately at the end of each field day.
5. Safely dispose of used cleaning materials and fluids. Do not dispose of cleaning materials and fluids in or near ponds, wetland, and riparian areas; if necessary, return them to the lab for proper disposal. Safely dispose of used disposable gloves in sealed bags.
6. When amphibians are collected, ensure the separation of animals from different sites and take great care to avoid indirect contact (e.g., via handling or reuse of containers) between them or with other captive animals. Do not expose animals to unsterilized vegetation or soils which have been taken from other sites. Always use disinfected and disposable husbandry equipment.
7. If a dead amphibian is found, place it in a sealable plastic bag and refrigerate (do not freeze). If any captured live amphibians appear unhealthy, retain each animal in a separate plastic container that allows air circulation and provides a moist environment from a damp sponge or sphagnum moss. For each collection of live or dead animals, record the date and time collected, location of collection, name of collector, condition of animal upon collection, and any other relevant environmental conditions observed at the time of collection. Immediately contact the Ventura Fish and Wildlife Office at (805) 644-1766 for further instructions.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

For further information on this Code, or on the Declining Amphibian Populations Task Force, contact John Wilkinson, Biology Department, the Open University, Walton Hall, Milton Keynes, MK7 6AA, UK.
Email: DAPTF@open.ac.uk
Fax: +44 (0) 1908-654167

CERTIFICATIONS

5. Central Coast Regional Water Quality Control Board Water Quality Certification No. 34015WQ02



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Coast Regional Water Quality Control Board

October 1, 2015

Mr. Larry Bonner
Caltrans
50 Higuera Street
San Luis Obispo, CA 93401
Email: larry.bonner@dot.ca.gov

VIA ELECTRONIC MAIL

Dear Mr. Bonner:

WATER QUALITY CERTIFICATION NUMBER 34015WQ02 FOR THE ROUTE 46 CORRIDOR IMPROVEMENT- PHASE 4 WHITLEY 2B PROJECT, SAN LUIS OBISPO COUNTY

Thank you for the opportunity to review your March 13, 2015 application for water quality certification of the Route 46 Corridor Improvement-Phase 4 Whitley 2B Project (Project). The application was completed on March 13, 2015. A Notification of Denial Without Prejudice was issued on May 11, 2015. The project, if implemented as described in your application and with the additional mitigation and other conditions required by this Clean Water Action Section 401 Water Quality Certification (Certification), appears to be protective of beneficial uses of State waters. We are issuing the enclosed Certification. Should new information come to our attention that indicates a water quality problem, we may require additional monitoring and reporting, issue Waste Discharge Requirements, or take other action.

Your Certification application and submitted documents indicate that project activities have the potential to affect beneficial uses and water quality. The Central Coast Regional Water Quality Control Board (Central Coast Water Board) issues this Certification to protect water quality and associated beneficial uses from project activities. We need reports to determine compliance with this Certification. All technical and monitoring reports requested in this Certification, or any time after, are required per Section 13267 of the California Water Code.

Failure to submit reports required by this Certification, or failure to submit a report of technical quality acceptable to the Executive Officer, may subject you to enforcement action per Section 13268 of the California Water Code. The Central Coast Water Board will base enforcement actions on the date of certification. Any person affected by this Central Coast Water Board action may petition the State Water Resources Control Board (State Water Board) to review this action in accordance with California Water Code Section 13320; and Title 23, California Code of Regulations, Sections 2050 and 3867-3869. The State Water Board, Office of Chief Counsel, PO Box 100, Sacramento, CA 95812, must receive the petition within 30 days of the date of this Certification. We will provide upon request copies of the law and regulations applicable to filing petitions.

If you have questions please contact **Paula Richter** at (805) 549-3865 or via email at Paula.Richter@waterboards.ca.gov, or Phil Hammer at (805) 549-3882. Please mention the above certification number in all future correspondence pertaining to this project.

Sincerely,

for
Kenneth A. Harris, Jr.
Executive Officer

Enclosure: Action on Request for CWA Section 401 Water Quality Certification

cc: With enclosures

Jennifer Moonjian
Caltrans
Email: jennifer.moonjian@dot.ca.gov

Katerina Galacatos
U.S. Army Corps of Engineers
Email: Katerina.galacatos@usace.army.mil

Dr. Jeffrey Single
California Department of Fish and Wildlife
Email: Jeff.Single@wildlife.ca.gov

Linda Connolly
California Department of Fish and Wildlife
Email: Linda.Connolly@wildlife.ca.gov

Laura Peterson-Diaz
California Department of Fish and Wildlife
Caltrans Liaison
Email: Laura.Peterson-Diaz@wildlife.ca.gov

401 Program Manager
State Water Resources Control Board
Email: Stateboard401@waterboards.ca.gov

Jennifer Siu
U.S. Environmental Protection Agency
Region 9
Email: siu.jennifer@epa.gov

Shea Oades
Central Coast Water Board
Email: Shea.Oades@waterboards.ca.gov

Paula Richter
Central Coast Water Board
Email: Paula.Richter@waterboards.ca.gov

Action on Request for
Clean Water Act Section 401 Water Quality Certification
for Discharge of Dredged and/or Fill Materials

PROJECT: Route 46 Corridor Improvement-Phase 4 Whitley 2B

APPLICANT: Mr. Larry Bonner
Caltrans
50 Higuera Street
San Luis Obispo, CA 93401

ACTION:

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

STANDARD CONDITIONS:

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment per 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 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 per 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license was being sought.
3. The validity of any non-denial Certification action (Actions 1 and 2) is conditioned upon total payment of the fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

ADMINISTRATIVE CONDITIONS:

1. This Certification is subject to the acquisition of all local, regional, state, and federal permits and approvals as required by law. Failure to meet any conditions contained herein or any conditions contained in any other permit or approval issued by the State of California or any subdivision thereof may result in the revocation of this Certification and civil or criminal liability.
2. In the event of a violation or threatened violation of this Certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under state law. For purposes of Section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.

3. In response to a suspected violation of any condition of this Certification, the Central Coast Water Board may require the holder of any permit or license subject to this Certification to furnish, under penalty of perjury, any technical or monitoring reports the Central Coast Water Board deems appropriate, provided that the burden, including costs, of the reports shall have a reasonable relationship to the need for the reports and the benefits obtained from the reports.
4. In response to any violation of the conditions of this Certification, the Central Coast Water Board may add to or modify the conditions of this Certification as appropriate to ensure compliance.
5. The Central Coast Water Board reserves the right to suspend, cancel, or modify and reissue this Certification, after providing notice to the applicant, if the Central Coast Water Board determines that the Project fails to comply with any of the terms or conditions of this Certification.
6. A copy of this Certification, the application, and supporting documentation must be available at the Project site during construction for review by site personnel and agencies. A copy of this Certification must also be provided to the contractor and all subcontractors who will work at the Project site. All personnel performing work on the proposed Project shall be familiar with the content of this Certification and its posted location on the Project site.
7. The Applicant shall grant Central Coast Water Board staff, or an authorized representative, upon presentation of credentials and other documents as may be required by law, permission to enter the Project site at reasonable times, to ensure compliance with the terms and conditions of this Certification and/or to determine the impacts the Project may have on waters of the State.
8. The Applicant must, at all times, fully comply with the application, engineering plans, specifications, and technical reports submitted to support this Certification; all subsequent submittals required as part of this Certification; and the attached Project Information and Conditions. The conditions within this Certification and attachment(s) supersede conflicting provisions within applicant submittals.
9. The Applicant shall notify the Central Coast Water Board within 24 hours of any unauthorized discharge to waters of the U.S. and/or State; measures that were implemented to stop and contain the discharge; measures implemented to clean-up the discharge; the volume and type of materials discharged and recovered; and additional BMPs or other measures that will be implemented to prevent future discharges.
10. This Certification is not transferable to any person except after notice to the Executive Officer of the Central Coast Water Board. The Applicant shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new responsible party containing a specific date for the transfer of this Certification's responsibility and coverage between the current responsible party and the new responsible party. This agreement shall include an acknowledgement that the existing responsible party is liable for compliance and violations up to the transfer date and that the new responsible party is liable from the transfer date on.
11. This Certification expires if Project construction does not begin (a) prior to expiration of the associated U.S. Army Corps of Engineers (Corps) authorization or permit for the Project, or

(b) within five years from the date of this Certification. If a Corps authorization or permit was unnecessary for this Project due to coverage under a non-reporting Nationwide Permit (NWP), and Project construction has not begun, this Certification expires when the non-reporting NWP expires. If the Corps issues a one-year grace period for uncompleted projects that began under a NWP that has since expired, this Certification is valid during the grace period for such projects. If this Certification does not expire as described above, it remains in effect until the Applicant complies with all Certification requirements and conditions.

12. The total fee for this project is \$13,943. The remaining fee payable to the Central Coast Water Board is \$0.

CENTRAL COAST WATER BOARD CONTACT PERSON:

Paula Richter
(805) 549-3865
Paula.Richter@waterboards.ca.gov

Please refer to the above certification number when corresponding with the Central Coast Water Board concerning this project.

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that as long as all the conditions listed in this Certification are met, any discharge from the Route 46 Corridor Improvement-Phase 4 Whitley 2B Project shall 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 pursuant to State Water Board Water Quality Order No. 2003-0017-DWQ, which requires compliance with all conditions of this Certification.

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicant's project description and the attached Project Information and Conditions, and (b) compliance with all applicable requirements of the Central Coast Water Board's policies and Water Quality Control Plan (Basin Plan).

for _____
Kenneth A. Harris, Jr.
Executive Officer
Central Coast Water Board

October 1, 2015
Date

PROJECT INFORMATION AND CONDITIONS

Application Date	Received: 03/13/2015 Completed: 03/13/2015
Applicant	Mr. Larry Bonner Caltrans 50 Higuera Street San Luis Obispo, CA 93401 Email: larry.bonner@dot.ca.gov (805) 549-3337
Applicant Representatives	Jennifer Moonjian Caltrans 50 Higuera Street San Luis Obispo, CA 93401 Email: jennifer.moonjian@dot.ca.gov (805) 542-4763
Project Name	Route 46 Corridor Improvement-Phase 4 Whitley 2B
Application Number	34015WQ02
Type of Project	Bridges, Overpasses and Crossings
Project Location	Unincorporated areas of northeastern San Luis Obispo County <u>Estrella River</u> Latitude: 35° 39' 44.082" N Longitude: -120° 23' 41.5932" W <u>Hopper Canyon</u> Latitude: 35° 39' 44.9964" N Longitude: -120° 22' 22.5048" W <u>Cholame Creek</u> Latitude: 35° 39' 47.5092" N Longitude: -120° 21' 46.5876" W
County	San Luis Obispo
Receiving Water(s)	Estrella River Hopper Canyon Creek Cholame Creek 317:00 Hydrologic Unit; 309.81 Hydrologic Subarea
Water Body Type	Streambed and riparian

<p>Designated Beneficial Uses</p>	<p><u>Estrella River</u> Municipal and Domestic Supply (MUN) Agricultural Supply (AGR) Ground Water Recharge (GWR) Water Contact Recreation (REC-1) Non-Contact Recreation (REC-2) Wildlife Habitat (WILD) Warm Fresh Water Habitat (WARM) Spawning, Reproduction, and/or Early Development (SPWN) Commercial and Sport Fishing (COMM)</p> <p><u>Hopper Canyon Creek</u> Municipal and Domestic Water Supply Protection of both recreation and aquatic life</p> <p><u>Cholame Creek</u> Municipal and Domestic Supply (MUN) Agricultural Supply (AGR) Ground Water Recharge (GWR) Water Contact Recreation (REC-1) Non-Contact Recreation (REC-2) Wildlife Habitat (WILD) Rare, Threatened or Endangered Species (RARE) Commercial and Sport Fishing (COMM)</p>
<p>Project Description (purpose/goal)</p>	<p>The purpose of this project is to improve safety and provide congestion relief on State Route 46 between post miles 46.0 and 50.2.</p> <p>The purpose of the entire corridor project is to improve safety and provide congestion relief on State Route 46. This is to be accomplished by creating an additional travel lane in each direction (east and west), separating the east and west-bound lanes by a median, improving inside and outside paved shoulder widths, and by producing left-turn channelization at all public road intersections within the project limits. Due to the size and cost of the project, construction is being done in phases, as funding becomes available. Phase 1 of the project (Union) began construction in April 2008 and was completed in July 2011. Phase 2 of the project (Whitley 1) began construction in January 2011 and was completed in October 2014. Phase 3 of the project (Whitley 2A) commenced in August 2012 and is anticipated to be completed by October 2015.</p> <p>Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff understands that the project includes the following activities, as more particularly described in the Application and supporting materials, and reflected in the plans and designs submitted with the Application:</p> <ol style="list-style-type: none"> 1. Phase 4 (Whitley 2B) of the overall project will continue to convert the conventional two-lane highway to a four-lane, divided expressway. The total length of this phase is 4.2 miles. The Whitley 2B phase begins just east of McMillan Canyon Creek (Route 46 PM 46.0) and extends just to the east of the Shandon

	<p>Roadside Rest Area (Route 46 PM 50.2).</p> <p>2. The roadway improvements in this section will impact three drainages: Estrella River (PM 46.0), where a section of the northern bank of the river will be excavated and rock slope protection will be installed above top of bank, backfilled, and re-contoured as a bank stabilization measure; Hopper Canyon Creek (PM 47.8), where an existing culvert will be replaced with an upgraded and lengthened culvert to accommodate the highway widening; and Cholame Creek (PM 48.3), where a new bridge will be constructed across the creek to accommodate new lanes.</p>
U.S. Army Corps of Engineers Permit No.	Individual Permit No. 245730S dated 05/10/2007
Federal Public Notice	N/A
Dept. of Fish and Wildlife Streambed Alteration Agreement	Streambed Alteration Agreement is pending. Final, signed copy shall be forwarded immediately upon execution.
Status of CEQA Compliance	Environmental Impact Report dated 05/19/2006 State Clearinghouse No. 20000011033 Lead Agency: Caltrans
Total Certification Fee	\$13,943
Area of Disturbance	<p>Approximately 1.973 acres / 2983 linear feet total</p> <p>Total Streambed: 0.358 acre / 560 linear feet permanent, 0.866 acres / 495 linear feet temporary Total Riparian: 0.508 acres / 763 linear feet permanent, 0.241 acres / 1165 linear feet temporary</p> <p><u>Estrella River</u> Riparian: 0.137 acre / 730 linear feet permanent; 0.235 acre / 1130 linear feet temporary</p> <p><u>Hopper Canyon Creek</u> Streambed : 0.027 acre / 180 linear feet permanent Riparian: 0.023 acre, 3 linear feet permanent; 0.006 acre / 35 linear feet temporary</p> <p><u>Cholame Creek</u> Streambed: 0.331 acre / 380 linear feet permanent; 0.866 acre / 495 linear feet temporary Riparian: 0.348 acre / 30 linear feet permanent</p>
Dredge Volume	N/A
Excavation Volume	N/A
Fill Volume	N/A

Compensatory Mitigation Requirements	1. The project shall implement the following compensatory mitigation:					
	Waterbody	Waterbody Type	Permanent Impacts (acres)	Mitigation (acres)	Temporary Impacts	Mitigation (acres)
	Estrella River					
		Streambed	0.000	0.000	0.000	0.000
		Riparian	0.137	0.000	0.235	0.235
	Hopper Canyon Creek					
		Streambed	0.027	0.054	0.000	0.000
		Riparian	0.023	0.023	0.006	0.006
	Cholame Creek					
		Streambed	0.331	0.662	0.866	0.866
	Riparian	0.348	0.348	0.000	0.000	
Total		0.866	1.732	1.553	1.553	
<p>The following discussion (a-c) further describes the required mitigation itemized in the above table that differs from previously agreed upon mitigation ratios for the Route 46 Corridor Improvement Project:</p> <p>a. 0.137 acre of permanent riparian impacts at Estrella River shall be mitigated through native hydroseeding for erosion control. This impact area is highly degraded, devoid of vegetation, and has no habitat value.</p> <p>b. 0.023 acre of permanent riparian impacts at Hopper Canyon shall be mitigated through re-establishment of riparian habitat at a 1:1 ratio, with mitigation to be conducted offsite at the Vogel mitigation site. This impact area is nearly devoid of vegetation and has little habitat value.</p> <p>c. 0.348 acre of permanent riparian impacts at Cholame Creek Bridge shall be mitigated onsite through the in-kind planting of cottonwoods and willows in the creek with a success criteria of 23 surviving trees (without supplemental irrigation) after five years of monitoring. An additional 0.348 acre of mitigation (reflected in the table above) shall be implemented through re-establishment of streambed/riparian habitat at the Vogel mitigation site. The tree planting and Vogel mitigation result in a total equivalent mitigation ratio of 2:1 for permanent riparian impacts at Cholame Creek.</p> <p>2. The Applicant shall implement compensatory mitigation installation, maintenance, and monitoring as described in the Final Mitigation and Monitoring Plan dated 09/30/2015, the Application, and all supporting documents.</p> <p>3. If offsite mitigation at the Vogel mitigation site has not been implemented twelve (12) months after commencement of construction of the project as required under this Certification, Caltrans shall adjust the mitigation ratios stated in the Certification</p>						

	<p>(and include this information in their annual mitigation and monitoring reporting) to compensate for the temporal loss of habitat and the continued impacts to water quality and its associated beneficial uses. Caltrans shall use the following formula to adjust mitigation ratios: multiply the delay (in months) by 0.05 and add this number to the previously established mitigation ratio. For example, the mitigation ratio for permanent impacts to streambed that is mitigated within the Estrella River watershed has been established at 2:1. If the mitigation installation is delayed six months, the new mitigation ratio would be calculated as: $(6 \times 0.05) + 2 = 2.3$. In this example, the new mitigation ratio would be 2.3:1.</p> <p>4. Should Caltrans determine that offsite mitigation cannot be implemented at the Vogel mitigation site (as outlined in the Final Mitigation and Monitoring Plan dated 09/30/2015), Caltrans shall submit a revised Mitigation and Monitoring Plan (MMP) that identifies a new mitigation site, describes the mitigation to be implemented at the site, and quantitatively demonstrates that the new mitigation will be of equal or superior quality to the proposed mitigation at the Vogel site. Central Coast Water Board staff shall have thirty (30) days to review and consider approval of any revised MMP. Caltrans shall have thirty (30) days to respond and provide supplemental information, if requested. Central Coast Water Board staff shall have fifteen (15) days to review any supplemental responses. If the revised MMP is not approved, Caltrans shall identify a new site and repeat the above-referenced process until a satisfactory MMP and mitigation site has been approved by Central Coast Water Board staff. At a minimum, the proposed revised MMP shall include:</p> <p>i. All of the information contained in Final Mitigation and Monitoring Plan dated 09/30/2015, including, but not limited to:</p> <ol style="list-style-type: none">a. Detailed mitigation design;b. Success criteria and performance standards;c. Implementation plan;d. Maintenance measures;e. Long-term management plan;f. Adaptive management measures; andg. Mitigation ratios, as described below:<ol style="list-style-type: none">1. The habitat replacement ratio for temporary riparian, streambed, and wetland impacts shall be 1:1 if conducted within the Estrella River watershed and 2:1 if conducted outside the Estrella River watershed;2. Permanent impacts to wetlands shall be mitigated at a ratio of 3:1 for the creation of new wetlands, if implemented within the Estrella River Watershed, and 4:1 if implemented outside the Estrella River watershed;3. Permanent impacts to wetlands shall be mitigated at a ratio of 6:1 for the re-establishment of degraded wetlands if implemented within the Estrella River Watershed and 9:1 if implemented outside the Estrella River watershed;4. Streambed that is permanently impacted by extended culverts, riprap, or concrete bridgeworks shall be
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	<p>mitigated at a ratio of 2:1 through the re-establishment of streambed and/or riparian vegetation if implemented within the Estrella River watershed, and 3:1 if implemented outside the Estrella River watershed; and</p> <ol style="list-style-type: none"> 5. Riparian habitat that is permanently impacted by the project shall be mitigated at a ratio of 2:1 through the re-establishment of riparian vegetation, if implemented within the Estrella River watershed, and 3:1 if implemented outside the Estrella River watershed. <ol style="list-style-type: none"> ii. A legally binding instrument shall be submitted to the Central Coast Water Board showing evidence of a conservation easement or other mechanism that reflects land use restrictions and preservation in perpetuity for any proposed mitigation sites. <ol style="list-style-type: none"> 5. Caltrans shall abide by the Minimization Route 46 Corridor Improvement Project FEIR/Environmental Assessment with Finding of No Significant Impact (May 2006), except that the Conditions outlined in this Certification shall take precedence if there are any inconsistencies between the two documents. 6. Offsite compensatory mitigation shall be installed within twelve (12) months of the commencement of project construction. Onsite compensatory mitigation shall be installed within twelve (12) months of completion of project construction.
<p>Project Requirements</p>	<p><u>Project practices that are required to comply with 401 Water Quality Certification are as follows:</u></p> <ol style="list-style-type: none"> 1. All work performed within waters of the State shall be completed in a manner that minimizes impacts to beneficial uses and habitat. Measures shall be employed to minimize land disturbances that will adversely impact the water quality of waters of the State. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete Project implementation. 2. Central Coast Water Board staff shall be notified if mitigations as described in the 401 Water Quality Certification application for this project are altered by the imposition of subsequent permit conditions by any local, state or federal regulatory authority. The Applicant shall inform Central Coast Water Board staff of any modifications that interfere with compliance with this Certification. 3. No construction activities shall be conducted below top of creek banks or in other waters of the State during the winter period November 1 and April 30, unless prior written approval has been obtained from Central Coast Water Board staff. Requests to conduct construction activities below top of creek banks or in other waters of the State during the winter period shall be submitted to Central Coast Water Board staff at least 21 days prior to the planned winter period work date. <p>Temporary Best Management Practices (BMPs) During Construction</p> <ol style="list-style-type: none"> 4. Caltrans shall implement and maintain an effective combination of temporary erosion and sedimentation control BMPs (e.g., erosion control fabrics, silt fences, fiber rolls or wattles, compost, straw with tackifiers, temporary basins, re-vegetation with hydraulically applied

	<p>mulches and native seed mixes) around construction areas to control and eliminate erosion and sedimentation.</p> <ol style="list-style-type: none">5. Caltrans shall implement and maintain washout, trackout, dust control, and any other applicable source control BMPs.6. Erosion and sedimentation control BMPs shall be applied to all disturbed earth surfaces.7. Stockpiles must be protected from erosion and sedimentation with soil stabilization measures. These measures must include plastic sheeting, jute mesh, geosynthetic material, or other effective BMPs. All stockpiles must be surrounded with a barrier to prevent sediment in runoff. Stockpiles must also be protected from wind erosion8. Gravel bags shall be filled with clean gravel. Sand bags are not permitted to be used for any purpose. Gravel bags must be used in all applications to control water movement.9. Erosion and sediment control measures and other construction BMPs shall be implemented and maintained in accordance with all specifications governing their proper design, installation, operation, and maintenance. <p>Rain Events</p> <ol style="list-style-type: none">10. Erosion and sediment control measures shall be on site prior to the start of construction and kept on site at all times so that they are immediately available for installation in anticipation of rain events.11. At no time, even during low flow events, shall equipment, oil, grease, fuel, wet concrete, etc. come in contact with standing or flowing water in water bodies.12. Caltrans shall not conduct construction activities below top of creek banks or in other waters of the State during rain events. Caltrans shall implement effective erosion control, sediment control, and other protective measures prior to the start of any rainfall. In addition, if work below top of creek banks or in other waters of the State is allowed during the time period between November 1 and April 30 (pursuant to Project Requirement No. 3 above), Caltrans shall not conduct construction activities below top of creek banks or in other waters of the State on any day for which the National Weather Service has predicted a 25% or more chance of at least 0.1 inch rain in 24 hours. In preparation for any such predicted rain event between November 1 and April 30, Caltrans shall install effective erosion control, sediment control, and other protective measures no later than the day prior to the predicted rain event. Construction activities below top of creek banks or in other waters of the State may resume after the rain has ceased, the National Weather Service predicts clear weather, and site conditions are dry enough to continue work without discharge of sediment or other pollutants from the project site. <p>Spill, Soil, and Trash Containment and Control</p> <ol style="list-style-type: none">13. Caltrans shall retain a spill plan and appropriate spill control and clean up materials (e.g., oil absorbent pads) onsite in case spills occur.14. All construction vehicles and equipment used on site shall be well
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	<p>maintained and checked daily for fuel, oil, and hydraulic fluid leaks or other problems that could result in spills of toxic materials.</p> <p>15. At all times, Caltrans shall conduct fueling and maintenance of vehicles and construction equipment at least 100 feet away from the water body. Caltrans shall stage and park vehicles, construction equipment, and mobile equipment at least 100 feet away from the water body.</p> <p>16. Caltrans does not anticipate that any excess soil from excavation activities will result from the project and that no soil will need be off-hauled from any of the construction sites for Phase 4. In the event that excess soil is generated by the project, Caltrans shall submit detailed plans for the offsite disposal of any excavated soil to Central Coast Water Board staff for review and approval at least twenty-one (21) days prior to the proposed activity.</p> <p>17. Caltrans shall confine all trash and debris in appropriate enclosed bins and dispose of the trash and debris at an approved site at least weekly.</p> <p>Dewatering and Stream Diversions</p> <p>18. Dewatering and stream diversion measures are not authorized based on the Application. If the project requires dewatering or diversion, Caltrans shall submit detailed dewatering/ diversion plans for Central Coast Water Board staff approval at least twenty-one (21) days prior to any dewatering or diversion. Dewatering/diversion plans shall include the area to be dewatered, timing of dewatering, method of dewatering to be implemented, the storm event design, a water quality risk assessment, monitoring and reporting, and a rain event contingency plan. All temporary dewatering/diversion methods shall be designed to have the minimum necessary impacts to waters of the State to isolate the immediate work area. All dewatering/diversion methods shall be installed such that natural flow is maintained upstream and downstream of the project area and the water pumped out through dewatering operations is returned to the water body downstream of the site after being allowed to settle out turbidity. Any temporary dams or diversions shall be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the project area. All dewatering/diversion methods shall be removed immediately upon completion of dewatering/diversion activities. Dewatering or diversion shall not commence until Caltrans has obtained Central Coast Water Board staff approval of any dewatering/diversion plans.</p> <p>Post-Construction Requirements</p> <p>19. All post-construction BMPs for the project, as described in the Application and submitted materials, shall be implemented and functioning prior to completion of the project.</p> <p>20. All construction-related equipment, materials, and any temporary BMPs no longer needed shall be removed and cleared from the project site upon completion of each section of the project, (e.g., the Estrella River section, the Hopper Canyon Creek section, and the</p>
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	Cholame Creek section).
Monitoring and Reporting Requirements	<p>The Applicant shall conduct the following monitoring:</p> <ol style="list-style-type: none"> 1. Visually inspect the project site and areas of waters of the State adjacent to project impact areas following completion of project construction and for five subsequent rainy seasons to ensure that the project is not causing excessive erosion, stream instability, or other water quality problems. If the project does cause water quality problems, contact the Central Coast Water Board staff member overseeing the project. You will be responsible for obtaining any additional permits necessary for implementing plans for restoration to prevent further water quality problems. 2. Monitor the compensatory mitigation site for five years. If success criteria are not achieved within that time, continue annual monitoring and maintenance until success criteria are achieved. Compensatory mitigation monitoring shall include assessment of growth, survival, percent cover, general health and stature, signs of reproduction, progress towards achieving success criteria, and any other measures identified in the Final Mitigation and Monitoring Plan dated 09/30/2015. <p>The Applicant shall provide the following reporting to RB3_401Reporting@waterboards.ca.gov [Note: Annual fees are based on submittal of reporting items 4-5 below]:</p> <ol style="list-style-type: none"> 1. Streambed Alteration Agreement - Submit a signed copy of the Department of Fish and Wildlife’s streambed alteration agreement to the Central Coast Water Board immediately upon execution and prior to any discharge to waters of the State. 2. Construction Commencement Notification - At least seven (7) days in advance of any ground disturbing or grubbing activities, submit notification to the Central Coast Water Board of the date when project construction will begin. 3. Discharge, Construction, and Mitigation Installation Completion Notification - Within seven days of completing all project discharge, construction, and mitigation installation activities, submit notification to the Central Coast Water Board of project discharge, construction, and mitigation installation completion. 4. Compensatory Mitigation and Monitoring Completion Notification – Within seven days of Applicant verification of achievement of all compensatory mitigation success criteria and completion of all monitoring, submit notification to the Central Coast Water Board of compensatory mitigation success criteria achievement and monitoring completion. Include identification of the date when the final Annual Project Status Report will be submitted. [Note: Submittal of Compensatory Mitigation and Monitoring Completion Notification does not terminate this Certification or its requirements.] 5. Annual Project Status Report – The Applicant shall submit to the Central Coast Water Board an Annual Project Status Report by May 31 of each year following the issuance of this Certification, regardless of whether project construction has started or not. The Applicant shall submit Annual Project Status Reports until the

	<p>Applicant has conducted all required monitoring and mitigation has achieved all success criteria. The final Annual Project Status Report is due on or before the May 31 following the achievement of all mitigation success criteria. Each Annual Project Status Report shall include at a minimum:</p> <ol style="list-style-type: none">a. The status of the project: construction not started, construction started, or construction complete.b. The date of construction initiation, if applicable.c. The date of construction completion, if applicable.d. If project construction is complete:<ol style="list-style-type: none">i. A summary of daily activities, monitoring and inspection observations, and problems incurred and actions taken;ii. Status of permanent post-construction stormwater management BMPs, including photo documentation of all BMPs;iii. A description of the results of the annual visual inspection of the project site and areas of waters of the State adjacent to project impact areas, including:<ol style="list-style-type: none">1. Erosion conditions;2. Stream stability conditions;3. Water quality and beneficial use conditions;4. Clearly identified photo-documentation of all areas of permanent and temporary impact, prior to and after project construction; and5. Clearly identified representative photo-documentation of other project areas, prior to and after project construction.6. If the visual inspection monitoring period is over, but water quality problems persist, the Annual Report shall identify corrective measures to be undertaken, including extension of the monitoring period until the project is no longer causing excessive erosion, stream instability, or other water quality problemse. Mitigation reporting, if mitigation installation has started, including the following information:<ol style="list-style-type: none">i. Date of initiation of mitigation installation and date mitigation installation was completed;ii. If mitigation installation was completed, confirmation mitigation was installed according to the requirements of this Certification and as described in the Application and the Final Mitigation and Monitoring Plan dated 09/30/2015;iii. Analysis of monitoring data collected in the field;iv. Quantification of growth, percent cover, survival, general health and stature, signs of reproduction, and documentation of progress toward achieving all mitigation performance criteria as specified in the Final Mitigation and Monitoring Plan dated 09/30/2015;v. Qualitative and quantitative comparisons of current mitigation conditions with preconstruction conditions and previous mitigation monitoring results;vi. Any remedial or maintenance actions taken or needed;
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	<ul style="list-style-type: none">vii. Any additional information specified in the Final Mitigation and Monitoring Plan dated 09/30/2015; andviii. Annual photo-documentation representative of all mitigation areas, taken from vantage points from which Central Coast Water Board staff can identify changes in size and cover of plants. Compare photos of installed mitigation with photos of the mitigation areas prior to installation.f. A description of mitigation completion status that identifies the amount of mitigation monitoring and maintenance remaining, or certifies that mitigation is complete and all required mitigation monitoring and maintenance has been conducted and all success criteria achieved. If the monitoring period is over, but all success criteria have not been achieved, the Annual Report shall identify corrective measures to be undertaken, including extension of the monitoring period until the criteria are met.
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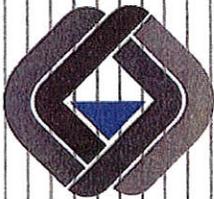
MATERIALS INFORMATION

6. Asbestos and lead Containing Paint Survey Report

SITE INVESTIGATION REPORT

**ASBESTOS AND LEAD-CONTAINING
PAINT SURVEY**

**ROUTE 46 BRIDGES
SAN LUIS OBISPO COUNTY,
CALIFORNIA**



GEOCON

**GEOTECHNICAL
&
ENVIRONMENTAL
CONSULTANTS**

PREPARED FOR

CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 6
FRESNO, CALIFORNIA

CALTRANS TASK ORDER NO.

05-3307U0-2P

GEOCON PROJECT NO. E8000-06-68

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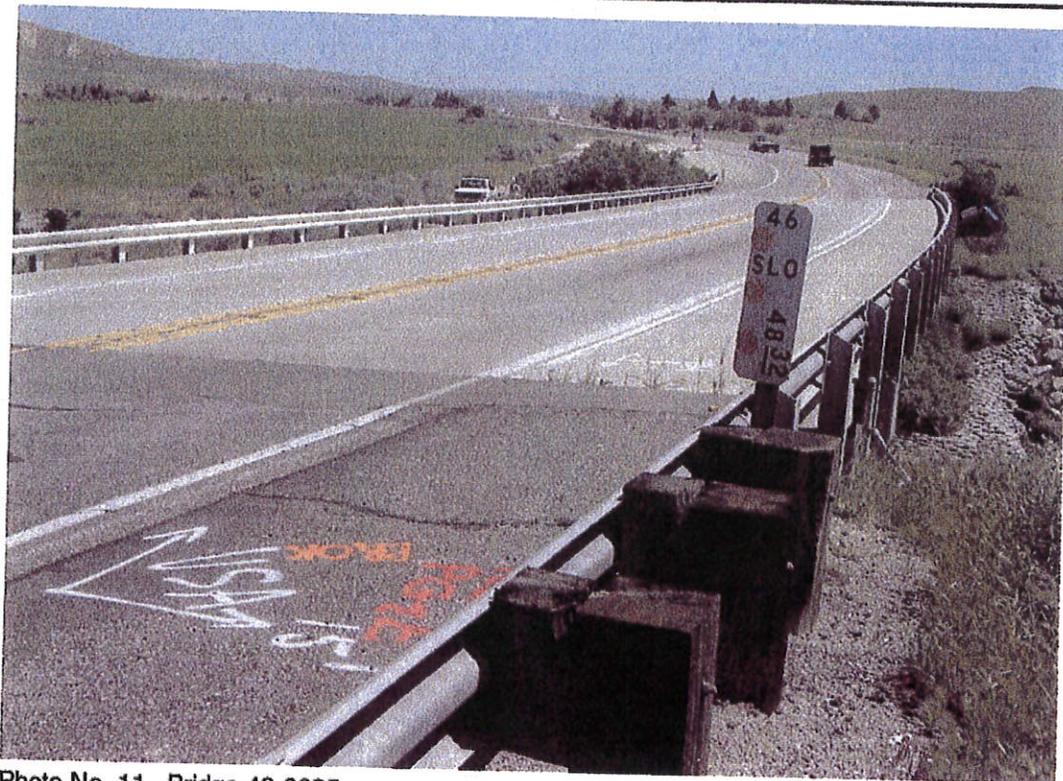


Photo No. 11 Bridge 49-0095



Photo No. 12 Bridge 49-0095 White-Painted Barrier Railing

SITE PHOTOS NO. 11 & 12

GEOCON
CONSULTANTS, INC.

5673 WEST LAS POSITAS BLVD. - SUITE 205 - PLEASANTON, CA. 94588
PHONE 925 469-9750 - FAX 925 469-9749



Route 46 Bridges

GEOCON Proj. No. E8000-06-68

San Luis Obispo County,
California

Task Order No. 05-3307U0-2P

June 2001



Photo No. 13 Bridge 49-0095 Concrete



Photo No. 14 Simmons Creek Bridge

SITE PHOTOS NO. 13 & 14

GEOCON
CONSULTANTS, INC.
 5673 WEST LAS POSITAS BLVD. - SUITE 205 - PLEASANTON, CA. 94588
 PHONE 925 469-9750 - FAX 925 469-9749



Route 46 Bridges		
GEOCON Proj. No. E8000-06-68	San Luis Obispo County, California	
Task Order No. 05-3307U0-2P	June 2001	

Bridge Name	Bridge Number	Postmile	ACM	LCP	Comments
Cholame Creek	49-0095	48.32	None	X	In peeling white paint on guard railing

Lead-Containing Paint

Total lead was detected in two samples of white paint collected from guardrails on Bridge 49-0095 at concentrations of 830 and 1,300 milligrams per kilogram (mg/kg). Total lead was also detected in two

Lead-Containing Paint

Geocon recommends that peeling/flaking LCP on Bridge 49-0095 be removed and disposed of by a licensed and certified abatement contractor in conjunction with the planned demolition work. The abatement contractor should be required to use personnel who have lead-related construction certification as supervisors or workers, as appropriate, from the California DHS for LCP removal work. Loose and peeling/flaking LCP require removal prior to demolition for waste segregation purposes: to separate potentially hazardous (Category III concentrated lead) waste from non-hazardous demolition debris (Category II intact lead-painted architectural components). For budgetary planning purposes, the approximate abatement cost for this material is \$5,000.

MATERIALS INFORMATION

7. Revised Foundation Report for Cholame Creek Bridge (Replace),
Bridge Number 49-0262 R/L, dated October 7, 2014

Memorandum

*Serious Drought
Help Save Water*

To: GARY BLAKESLEY
Branch Chief
Division of Engineering Services, Structure Design
Office of Bridge Design – Central, Branch 6

Date: October 7, 2014

File: 05-SLO-46-48.3
Project ID: 0512000076
EA 05-330781
Cholame Creek Bridge (Replace)
Bridge No. 49-0262 R/L

Attn: Vaikunthan Renganathan
Project Engineer

From: **DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES**

Subject: **REVISED FOUNDATION REPORT FOR CHOLAME CREEK BRIDGE (REPLACE)**

A Revised Foundation Report (FR) is provided for the above referenced project per your request, dated October 1, 2014. The recommendations presented herein are based on reviews of published data, site reconnaissance, subsurface investigations, and laboratory testing. The purpose of this report is to document subsurface geotechnical conditions, provide analyses of anticipated site conditions as they pertain to the project described herein, and to recommend design and construction criteria for the foundations of the bridges. This report also establishes a geotechnical baseline to be used in assessing the existence and scope of differing site conditions.

Existing Facilities and Proposed Improvements

Route 46 in the project area is a two-lane conventional highway with 12-foot travel lanes and 8-foot shoulders. It is one of the few east-west routes connecting Interstate 5 and U.S. Highway 101, and is a vital link between the Central Coast and Central Valley areas of California. The route primarily serves interregional and interstate traffic, however it is used daily by residents of the communities of Paso Robles, Cholame, Shandon, and Whitley Gardens for local travel. It is the only east-west route between Route 166 to the south and Route 156/152 to the north that can facilitate the movement of goods by truck.

Route 46, between Route 101 to the west and the Kern County line to the east, is being converted to a four-lane divided expressway. The widening in the current project area is being accomplished principally by adding two new lanes for westbound traffic to the north of the existing highway. The existing lanes will be rehabilitated, and will ultimately serve as the travel lanes for eastbound traffic. The completed roadway will have 5-foot inside shoulders, two 12-foot lanes, and 10-foot outside shoulders for each direction of travel. Median width will typically measure 62 feet. Median crossovers and, in some cases, turn channelization will be provided to access the rural roads and private driveways that intersect the highway.

Two new parallel bridges will be constructed to convey Route 46 traffic across Cholame Creek. The existing Cholame Creek Bridge (Bridge No. 49-0095) will be demolished. Constructed in 1959, the existing bridge is a four-span structure consisting of a continuous reinforced concrete slab on five continuous reinforced concrete “T-beams” supported by reinforced concrete pier walls and diaphragm abutments. The supports are founded on driven piles. The bridge measures 40’-7” wide by 184 feet long. The new bridges, the subject of this report, will be simple span cast-in-place post-tensioned box girder structures supported by seat type abutments. The eastbound structure, Bridge No 49-0262 R, will be 43’-0” wide and 192 feet long. The westbound structure, Bridge No. 49-0262 L, will be 55’-0” wide and 184 feet long. The structure depths of right and left bridges will be 8’-9” and 8’-3” respectively.

The following datums were used to reference horizontal and vertical positions of the proposed structures:

- Horizontal: North American Datum of 1983 (NAD83(92))
- Vertical: National Geodetic Vertical Datum of 1929 (NGVD29)

Pertinent Reports and Investigations

The following references were used to assist in the assessment of site conditions:

1. *Caltrans ARS Online (v2.3.06)*.
2. *Caltrans Seismic Design Criteria, Version 1.7*, April 2013.
3. *Final Hydraulic Report, Cholame Creek Bridge*, Caltrans Structure Hydraulics and Hydrology, Ronald McGaugh, December 10, 2012.
4. *Geologic Map of the San Luis Obispo County, California*, Compiled by Lew Rosenberg.
5. *Geotechnical Impact of Proposed Project: US Route 46 Widening, San Luis Obispo County, 05-SLO-46-32.2/36.4*, PSC Associates, Inc., 1992.

Field Investigation and Testing Program

Six geotechnical borings were performed to support foundation design recommendations for the proposed bridges. The maximum depth of investigation was approximately 200 feet. The borings were advanced using a self-cased wire-line drilling apparatus that provided continuous soil samples. Soils were visually classified in accordance with the Caltrans Soil and Rock Logging, Classification, and Presentation Manual (June 2010). Standard penetration tests (SPT), ASTM test method 1586, were performed at approximately 5-foot depth intervals to estimate in-place density of the native soil. Empirical correlations of soil strength parameters with SPT blow counts were used to estimate strength parameters of in-situ cohesionless soils. Pocket penetrometer

measurements of unconfined compressive strength were used to estimate the undrained shear strength of clay samples.

Table 1: 2012/2013 Drilling Summary

Boring No.	Completion Date	Drill Rig Type	Hammer Type	Hammer Efficiency (%)	Location		Ground Surface Elevation (ft)	Boring Depth (ft)
					Station (Route 46 CL))	Offset		
RC-12-001	8/1/2012	CS-2000	Automatic	77	1005+72	37' Lt.	1044.7	101.1
RC-12-002	8/15/2012	CS-2000	Automatic	77	1004+02	24' Lt.	1045.0	102.0
RC-12-005	10/9/2012	CME-750	Automatic	81	1004+92	32' Rt.	1021.0	200.3
RC-12-006	10/16/2012	CME-750	Automatic	81	1008+84	37' Lt.	1022.0	200.4
RC-13-001	5/14/2013	CS-2000	Automatic	85	1003+80	69' Rt.	1058.4	101.7
RC-13-002	5/15/2013	CS-2000	Automatic	85	1005+85	71' Rt.	1054.3	101.5

Laboratory Testing Program

Soil samples obtained from the subsurface investigation were submitted to the District 5 Materials Laboratory and Headquarters Geotechnical Laboratory for mechanical analyses, corrosion potential testing, and determination of Atterburg limits.

Site Conditions

Topography and Geology

The project is located near the southern end of the Salinas Valley in the Coast Ranges geomorphic province. The terrain consists of dissected plains surrounded by low to moderately steep hills. The westerly flowing Estrella River is the main drainage feature in the project area. Cholame Creek drains to the Estrella River approximately 2900 feet southwest of the Cholame Creek Bridge. The Estrella River is a tributary of the Salinas River, which drains to Monterey Bay.

Roadway elevations along the existing highway alignment within the immediate project limits range from approximately 1000 feet to about 1105 feet above mean sea level. The Cholame Creek watershed elevations range from approximately 4200 feet at Black Mountain to approximately 1020 feet at the proposed bridge site.

The region is divided into three geologic blocks separated by the San Andreas Fault to the east and the Sur-Nacimiento Fault Zone to the west. The Diablo Range is in the block located northeast of the San Andreas Fault. The Gabilan Range and the Salinas Valley are located in the central block. The Santa Lucia Range is located in the western block. "Basement" rocks in the western and eastern blocks consist of Franciscan Assemblage rocks and a complex of metamorphic units. Granitic intrusions form the bedrock in the central block, beneath the project area.

Pre-Cretaceous age rocks of the Sur Series are the oldest rocks in the area. These have been intruded by Cretaceous-age granite or granodiorite. This metamorphic-granitic complex is confined to the central fault block, beneath the Salinas Valley and Gabilan Range. Sedimentary rock formations and some volcanic units were deposited on top of the basement rocks during the Cretaceous and Tertiary Periods. Subsequently, during the Quaternary Period, clastic sediments were deposited primarily in marine/transgression environments, which alternated with periods of uplift and regression during which erosion and subaerial deposition occurred. The latest uplift (and/or drop in sea level) occurred in Late Pliocene to Mid-Pleistocene time, leaving the sediments at nearly their present-day elevations. Some of these formations have been folded and faulted by the same compressive forces that produced the San Andreas Fault system. Present-day topographic features and drainage patterns were established by Mid-Pleistocene time.

Dibblee (1971) mapped the bedrock beneath the project area as granitic rock ("gr"≅quartz granodiorite), which intruded and crystallized during Cretaceous time, 60 to 80 million years ago. Paso Robles Formation ("Q_{TP}"), deposited in Late Pliocene and early Pleistocene time (2 to 3 million years ago), overlies the granitic bedrock. The Paso Robles Formation consists of easily eroded sands and gravels with lesser amounts of silts and clay, deposited by running water. The formation varies in thickness, from a few feet on top of the granitic ridges west of Paso Robles, up to several hundred feet along the existing Route 46 alignment in the eastern portion of the project area. Bedding within the Paso Robles Formation is not usually apparent. However, the few available exposures suggest that bedding dips generally toward the north at low angles (1 to 2 degrees): Dibblee mapped the axis of a gentle anticline southwest of the project area.

The project area is underlain by Holocene alluvial deposits ("Q_a"), composed of unconsolidated, moderately sorted silt and sand with discontinuous lenses of clay and silty clay; and Paso Robles Formation ("QT_p"), consisting of sand and clay. A geologic map of the project area is provided in the attachments to this report.

Climate

The project is located in the Paso Robles Hills and Valleys sub-region of the Central California Coast Ranges ecological section. The climate in the project area is semi-arid, with hot summers and cool winters. The mean annual precipitation is 12 to 18 inches and the mean annual air temperature is about 59° F. Winters are generally mild with occasional single digit lows, but average highs in the 60's. Summers are hot. The average high temperature in the summer is 91° F, but temperatures

often peak the 100's. Nearly all precipitation accumulates during Pacific storms between October and May, with the majority falling during winter months. Vegetation in the project area primarily consists of grasslands and oak woodland, with willow trees growing near sources of water.

Soil Conditions

The borings on the westerly bank of Cholame Creek encountered 10 to 23 feet of alluvium composed of loose to medium dense sand and clayey sand, overlying dense to very dense sand, clayey sand, silty sand and hard clay of the Paso Robles Formation. The borings on the easterly bank of the creek encountered nearly 40 feet of alluvium consisting of stiff to hard sandy lean clay and loose to medium dense sand, silty sand, and clayey sand overlying Paso Robles Formation. Two geotechnical borings were advanced in the creek bottom. Those borings encountered approximately 10 to 20 feet of alluvium overlying Paso Robles Formation.

Groundwater

While drilling the last 10 to 15 feet of boring R-12-001, it was noticed that more water was being recovered than was being pumped down the hole to remove the drill cuttings. It was suspected that the boring had intercepted a confined aquifer. The water level was allowed to stabilize overnight, and was measured through the drill steel the following morning. The water level was 20.4 feet below the ground surface, at elevation 1024.3 feet. The boring was then instrumented as an open-standpipe observation well. The bottom 52 feet of the hole was backfilled with bentonite pellets in an attempt to seal off the suspected artesian groundwater. A 1-1/2" slotted PVC pipe was installed in the upper 49 feet of the hole and the annulus was backfilled with washed #8 sand. The upper 5 feet of the well annulus was sealed with bentonite to prevent surface water from intruding into the well. Subsequent water level measurements encountered groundwater between 33.6 feet and 35.3 feet below the ground surface, equating to groundwater elevations between 1011.1 feet and 1009.4 feet.

Boring RC-12-002 was instrumented with a piezometer to monitor artesian head. The piezometer was constructed to intercept any aquifers between elevation 943.0 feet and elevation 981.5 feet. The water level was measured at elevation 1003.9 feet on August 14, 2012, indicating a minimum of 22.4 feet of artesian head on that date.

A geotechnical investigation performed in May 2000 encountered groundwater at the approximate elevation of the creek bottom, around 1023 feet.

Table 2: Groundwater Monitoring

<i>Boring ID</i>	<i>Support</i>	<i>Surface Elevation (feet)</i>	<i>Monitored Elevation Range (feet)</i>	<i>Date</i>	<i>Depth to Groundwater (feet)</i>	<i>Groundwater Elevation (feet)</i>
R-12-001	Abut. 2 (Lt.)	1044.7	995.7-1039.7	8/14/2012	33.6	1011.1
				8/20/2012	33.9	1010.8
				3/15/2013	34.0	1010.7
				5/21/2014	35.3	1009.4
R-12-002	Abut. 1 (Lt.)	1045.0	943.0-981.5	8/14/2012	41.1	1003.9
				3/15/2013	38.9	1006.1
				5/21/2014	42.1	1002.9

Scour Evaluation

Channel degradation was a recurrent problem between 1962 and 1997. The degradation caused undermining of the pile caps at the pier walls of the existing bridge and exposure of the piles, bank erosion, and failures of the bank slope protection measures. Rock slope protection (RSP), sacked concrete riprap, and rock check dams were placed at various times to address those issues. However, throughout the bridge's recorded history failures/washouts of the countermeasures usually followed their placement. In 1997, extensive channel and bank improvements were completed upstream and downstream of the bridge under an emergency contract. The improvements included strengthening the rock checkdam with sheetpiles; and placing gabions, RSP, and concrete sack riprap along sections of the channel and banks. Scour monitoring devices (tilt sensors and a stage gage) were installed on the bridge in 1999. The bridge has been listed as "Scour Critical" since 1997 even though the 1997 countermeasures have held up. The 1999 Bridge Inspection Report recommended construction of a new deep foundation at Pier 3. A 2005 Bridge Scour Evaluation – Plan of Action recommended total replacement of the bridge. The 2005 report stated that if the sheet pile check dam were to fail the critical scour elevation would likely be reached instantaneously.

The following scour data was provided by Structures Hydraulics and Hydrology in the 2012 Final Hydraulics Report. The scour calculations are based on a 75-year design life for the proposed structures, and assume that the site is underlain by silty to fine sand with little or no cohesion. The report recommends that the current project not substantially disturb the emergency countermeasures that were completed in 1997.

Table 3: Scour Summary

Scour Type	Scour Depth (feet)
Degradation	3.8
Contraction Scour	1.0
Abutment Scour	0.8

The new bridge abutments will be protected against scour by rock slope protection, so scour was not considered in calculating pile tip elevations at those supports.

Corrosion Evaluation

Representative soil samples taken during the foundation investigation were tested for corrosion potential. The Department considers a site corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water samples taken at the site:

- Chloride concentration is greater than or equal to 500 ppm
- Sulfate concentration is greater than or equal to 2000 ppm
- The pH is 5.5 or less

Since resistivity serves as an indicator parameter for the possible presence of soluble salts, tests for sulfate and chloride are usually not performed unless the resistivity of the soil is 1,000 ohm-cm or less.

Table 4: Corrosion Test Summary

Boring	Depth	SIC Number	Minimum Resistivity (Ohm-Cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
RC-12-001	0'-35'	C494601	621	7.74	146	1989
	35'-60'	C494602	1154	8.43	N/A	N/A
	60'-80'	C494603	1563	8.54	N/A	N/A
	80'-100'	C494604	1554	8.66	N/A	N/A
RC-12-002	16'-17.5'	C494605	2255	9.46	N/A	N/A
	26'-27.5'	C494606	826	8.6	N/A*	N/A*
	36'-39'	C494607	3350	8.95	N/A	N/A
	86'-87'	C494609	1518	8.56	N/A	N/A
	91'-92.5'	C494610	660	8.35	N/A*	N/A*
	95'-97'	C494611	2030	8.62	N/A	N/A
RC-12-005	57'-60'	C494621	1744	8.03	N/A	N/A
	83'-85'	C494622	3248	8.7	N/A	N/A
	125'-127'	C494623	2209	8.44	N/A	N/A
	183'-185'	C494624	2668	8.58	N/A	N/A
RC-12-006	46'-47'	C494625	1892	8.77	N/A	N/A
	57.5'-58.5'	C494626	1666	8.33	N/A	N/A
	71.5'-73'	C494627	2838	8.71	N/A	N/A
	97'-99'	C494628	1563	8.39	N/A	N/A
	109'-110.5'	C494629	2820	8.63	N/A	N/A
	128'-130'	C494630	2956	8.64	N/A	N/A
	192'-195'	C494631	1508	8.51	N/A	N/A
	196'-198'	C494632	1515	7.99	N/A	N/A
RC-13-001	13.5'-15'	C494637	968	8.04	67	81
	22'-23'	C494639	2103	9.09	N/A	N/A
	37'-38'	C494640	2053	9.55	102	626
	63.5'-65'	C494641	1270	8.68	N/A	N/A
	71'-73'	C494642	851	8.55	48	140
	93.5'-96'	C494643	1880	8.87	N/A	N/A
RC-13-002	8'-10'	C494644	863	8.44	137	137
	30'-32'	C494645	430	8.15	429	590
	42'-43.5'	C494646	1293	8.79	N/A	N/A
	56.5'-58'	C494647	3135	9.25	N/A	N/A
	62'-64'	C494648	950	8.64	71	163
	73'-74'	C494649	1742	8.92	N/A	N/A
Corrosive if:			≤ 1000	≤ 5.5	≥ 500	≥ 2000

*Insufficient sample quantity to test for chlorides and sulfates

Based on corrosion test results, and because the project area is not within 1000 feet of salt or brackish water, the site is considered non-corrosive.

Seismic Recommendations

The project is located within a seismically active region of California. There are several earthquake faults in close proximity to the project area. Table 5 lists the active and potentially active faults in the vicinity of the project as described in Caltrans 2012 Fault Database. Corresponding Moment Magnitudes and distances to the bridge site are also given. A fault map is included in the attachments to this report.

Table 5: Active and Potentially Active Faults

<i>Fault</i>	<i>Moment Magnitude of Maximum Credible Earthquake¹</i>	<i>Fault ID²</i>	<i>Type of Fault³</i>	<i>Distance to Fault from Project Area (kilometers)⁴</i>
San Andreas Fault Zone (Parkfield section)	7.9	214	SS	9.9
San Andreas Fault Zone (Cholame section) rev	7.9	220	SS	10.0
Rinconada 2011 CFM	7.4	209	SS	29.7
Lost Hills	6.7	217	R	41.0
Oceanic – West Huasna	6.9	223	R	44.3
Cambria Fault	6.3	228	N	46.2

A design response spectrum for the project area was estimated using *Caltrans ARS Online (v2.3.06)*, a web-based tool that calculates both deterministic and probabilistic acceleration response spectra for any location in California based on criteria provided in Appendix B of *Caltrans Seismic Design Criteria*. The procedure used by *ARS Online* was developed to calculate the minimum seismic design requirements for bridges on State highways. The method calculates design response spectra over a range of periods. The design response spectrum is based on the envelope of a deterministic and a probabilistic spectrum. The deterministic spectrum is calculated as the arithmetic average of median response spectra computed using the Chiou & Youngs and Campbell & Bozorgnia ground motion prediction equations (CY-CB GMPE). These equations are applied to all faults in or near

¹ According to *Caltrans 2012 Fault Database*

² *Caltrans 2012 Fault Database* Identifier

³ SS=strike-slip fault; R=reverse fault; N=normal fault

⁴ Perpendicular distance to fault or fictitious extension of fault

California considered to be active in the last 700,000 years (late Quaternary age) and capable of producing a moment magnitude earthquake of 6.0 or greater.

The probabilistic spectrum is obtained from the *2008 USGS Seismic Hazard Map* for the 5% in 50 years probability of exceedance (or 975 year return period). The spectral values are adjusted with a soil amplification factor based on an average of the Boore-Atkinson (2008), Campbell Bozorgnia (2008), and Chiou-Youngs (2008) ground motion prediction models. The *2009 USGS Probabilistic Seismic Hazard Analysis Interactive Deaggregation Tool* was used to check the probabilistic spectrum.

The design response spectrum was governed by the probabilistic spectrum with a soil amplification factor for a V_{S30} ⁵ of 340 meters per second. The V_{S30} value was determined from a P-S log of boring RC-12-005. The final design response spectrum is provided in the attachments to this report.

No known active or potentially active faults project towards or cross the highway alignment within the project limits. Therefore, there is low potential for surface fault rupture to occur and no mitigation efforts are necessary.

Liquefaction is a near-total loss of soil strength due to an increase in pore water pressure during cyclic loading, such as occurs during an earthquake. Loose sands and gravels with 35 percent fines or less that have the potential of being saturated are susceptible to liquefaction. Generally, the younger and looser the sediment, and the shallower the water table, the more susceptible the soil is to liquefaction. Sediments most susceptible to liquefaction include historical and late Holocene age river channel and flood plain deposits, and poorly compacted fills. Bedrock and dense soils, including well-compacted fills have a low susceptibility to liquefaction. Liquefaction is most prevalent in areas where groundwater lies within 30 feet of the ground surface; liquefaction rarely occurs in areas with groundwater deeper than 50 feet.

Based on inspection of the Log of Test Borings, and assuming contemporary groundwater elevations, the potential for liquefaction in the area of the Cholame Creek Bridges is considered to be low. While there is a high potential for strong ground motion, there are no loose granular soils present at an elevation where they would be saturated with groundwater. If groundwater were present at the elevation of the creek bottom as it was at the time of 2000 subsurface investigation, there is potentially approximately 7 feet of liquefiable soil at the locations of the easterly bridge abutments, between elevations 1014 feet and 1021 feet.

Foundation Recommendations

Driven H-piles are the recommended foundation type for the Cholame Creek Bridge abutments and abutment wingwalls. HP 10x57 piles are proposed. Driven piles having the recommended lengths

⁵Average shear wave velocity for the upper 30 meters of soil

and cross section will meet the requirements for permissible settlement under Service Limit State loads provided on the “Final Foundation Data Sheet.” Pile tip elevations for the abutments were conservatively calculated assuming groundwater present to the elevation of the creek bottom. Bridge Design – Central, Branch 6 provided the lateral load pile tip elevations for the abutment wingwalls reported in the following tables.

Table 6: Left Bridge Abutment Foundation Design Recommendations									
Support	Pile Type	LRFD Service-I Limit State Load Per Support (kips)		LRFD Service-I Limit State Total Load per Pile (Compression) (kips)	Nominal Resistance (kips)	Cut-off Elevation (ft)	Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
		Total	Permanent						
Abut. 1	HP 10X57	4426	4032	125	250	1029.53	1009 (a) 1011 (c)	1009	250
Abut. 1 Left WW	HP 10X57	45	20	45	90	1052.23	1036 (a) 1051 (c) 1032 (d)	1032	90
Abut. 1 Right WW	HP 10X57	45	20	45	90	1055.29	1036 (a) 1054 (c) 1035 (d)	1035	90
Abut. 2	HP 10X57	4426	4032	125	250	1028.01	994 (a) 1005 (c)	994	250
Abut. 2 Left WW	HP 10X57	45	20	45	90	1051.23	1034 (a) 1050 (c) 1031 (d)	1031	90
Abut. 2 Right WW	HP 10X57	45	20	45	90	1054.29	1034 (a) 1053 (c) 1034 (d)	1034	90

Notes:

- 1) *Design tip elevations for Abutments are controlled by: (a) Compression and (c) Settlement respectively.*
- 2) *Design tip elevations for Abutment Wingwalls are controlled by: (a) Compression, (c) Settlement, and (d) Lateral Load respectively.*
- 3) *The specified tip elevation shall not be raised.*

Table 7: Right Bridge Abutment Foundation Design Recommendations									
Support	Pile Type	LRFD Service-I Limit State Load Per Support (kips)		LRFD Service-I Limit State Total Load per Pile (Compression) (kips)	Nominal Resistance (kips)	Cut-off Elevation (ft)	Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
		Total	Permanent						
Abut. 1	HP 10X57	3665	3281	118	240	1034.08	1008 (a) 1024 (c)	1008	240
Abut. 1 Left WW	HP 10X57	45	20	45	90	1057.69	1038 (a) 1056 (c) 1038 (d)	1038	90
Abut. 1 Right WW	HP 10X57	45	20	45	90	1060.03	1038 (a) 1059 (c) 1040 (d)	1038	90
Abut. 2	HP 10X57	3665	3281	118	240	1033.17	999 (a) 1007 (c)	999	240
Abut. 2 Left WW	HP 10X57	45	20	45	90	1056.69	1022 (a) 1055 (c) 1037 (d)	1022	90
Abut. 2 Right WW	HP 10X57	45	20	45	90	1059.03	1023 (a) 1058 (c) 1039 (d)	1023	90

Notes:

- 1) *Design tip elevations for Abutments are controlled by: (a) Compression and (c) Settlement respectively.*
- 2) *Design tip elevations for Abutment Wingwalls are controlled by: (a) Compression, (c) Settlement, and (d) Lateral Load respectively.*
- 3) *The specified tip elevation shall not be raised.*

Table 8: Left Bridge Pile Data Table							
Location	Pile Type	Nominal Resistance		Cut-off Elevation (ft)	Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression (kips)	Tension (kips)				
Abut. 1	HP 10X57	250	N/A	1029.53	1009 (a) 1011 (c)	1009	250
Abut 1 Left WW	HP 10X57	90	N/A	1052.23	1036 (a) 1051 (c) 1032 (d)	1032	90
Abut 1 Right WW	HP 10X57	90	N/A	1055.29	1036 (a) 1054 (c) 1035 (d)	1035	90
Abut 2	HP 10X57	250	N/A	1028.01	994 (a) 1005 (c)	994	250
Abut 2 Left WW	HP 10X57	90	N/A	1051.23	1034 (a) 1050 (c) 1031 (d)	1031	90
Abut 2 Right WW	HP 10X57	90	N/A	1054.29	1034 (a) 1053 (c) 1034 (d)	1034	90

Notes:

- 1) *Design tip elevations for Abutments are controlled by: (a) Compression and (c) Settlement respectively.*
- 2) *Design tip elevations for Abutment Wingwalls are controlled by: (a) Compression, (c) Settlement, and (d) Lateral Load respectively.*
- 3) *The specified tip elevation shall not be raised.*

Table 9: Right Bridge Pile Data Table							
Location	Pile Type	Nominal Resistance		Cut-off Elevation (ft)	Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression (kips)	Tension (kips)				
Abut. 1	HP 10X57	240	N/A	1034.08	1008 (a) 1024 (c)	1008	240
Abut 1 Left WW	HP 10X57	90	N/A	1057.69	1038 (a) 1056 (c) 1038 (d)	1038	90
Abut 1 Right WW	HP 10X57	90	N/A	1060.03	1038 (a) 1059 (c) 1040 (d)	1038	90
Abut 2	HP 10X57	240	N/A	1033.17	999 (a) 1007 (c)	999	240
Abut 2 Left WW	HP 10X57	90	N/A	1056.69	1022 (a) 1055 (c) 1037 (d)	1022	90
Abut 2 Right WW	HP 10X57	90	N/A	1059.03	1023 (a) 1058 (c) 1039 (d)	1023	90

Notes:

- 1) Design tip elevations for Abutments are controlled by: (a) Compression and (c) Settlement respectively.
- 2) Design tip elevations for Abutment Wingwalls are controlled by: (a) Compression, (c) Settlement, and (d) Lateral Load respectively.
- 3) The specified tip elevation shall not be raised.

Construction Considerations

Pile driving is expected to be difficult due to the well-consolidated nature of the foundation soils. It may be necessary to drill pilot holes prior to driving piles in order to attain the specified tip elevation. Drilling must be in accordance with Section 49-2.01C(3), "Drilling," of the Standard Specifications. Drilled holes must not extend deeper than 10 feet above the specified tip elevation. The Office of Geotechnical Design North is to be contacted if the constructed pile tip elevation is above the specified tip elevation.

The contract special provisions should specify that the contractor provide a driving system submittal to ensure that the proposed hammer will be sufficient to drive the piles to the specified tip elevation with a reasonable blow count, but without damaging the piles. The submittal must meet the requirements of Section 49-2.01A(3)b, "Driving System Submittal," of the Standard Specifications.

Some of the abutment piles from the existing Cholame Creek Bridge (Bridge No. 49-0095) may interfere with piles for the new bridge for eastbound traffic. Conflicting piles from the existing

bridge may be removed entirely and the holes backfilled prior to driving new piles, or the conflicting piles for the new bridge may be relocated with the approval of the Engineer.

Project Information

Standard Special Provision 2-1.06B “Project Information”, discloses to bidders and contractors a list of pertinent information available for their inspection prior to bid opening. The following is information originating from Geotechnical Services. Items listed to be included in the Information Handout will be provided in Acrobat (.pdf) format to the Addressee of this report via electronic mail.

Data and information attached with the project plans are:

- A. Log of Test Borings (Cholame Creek Bridge, Bridge No. 49-0262 R/L).

Data and information included in the Information Handout provided to the Bidders and Contractors are:

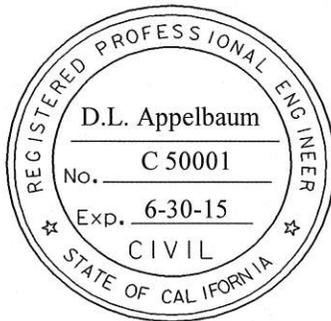
- A. Revised Foundation Report for Cholame Creek Bridge (Replace) dated October 7, 2014.

Data and information available for inspection at the District Office:

- A. None

Closure

The recommendations contained in this report are based on specific project information regarding structure type, location, and design loads that have been provided by Office of Bridge Design – Central, Branch 6. If any conceptual changes are made during final project design, the Office of Geotechnical Design – North, Branch D should review those changes to determine if the foundation recommendations contained in this report are still applicable. Any questions regarding the recommendations contained herein should be directed to the attention of Dan Appelbaum, (805) 549-3745, or Mike Finegan, (805) 549-3194, at the Office of Geotechnical Design – North, Branch D.



Supervised by,

Handwritten signature of Daniel L. Appelbaum in blue ink.

DANIEL L. APPELBAUM, PE
Transportation Engineer
Geotechnical Design – North
Branch D

Handwritten signature of Michael S. Finegan in blue ink.

MICHAEL S. FINEGAN, PE, Chief
Geotechnical Design - North
Branch D

- c: Roy Bibbens / GDN Records (E-copy)
Jack Walker – Design Engineer (E-Copy)
John Luchetta – Project Manager (E-copy)
Structure Construction R.E. Pending File (email RE_pending_file@dot.ca.gov)
Eric Karlson – District Materials Engineer (E-copy)
Craig Whitten – DES Office Engineer, Office of PS&E (E-copy)
GeoDOG - Digital Archive of Geotechnical Data (E-copy)
Job File / Branch D Records

LIST OF ATTACHMENTS

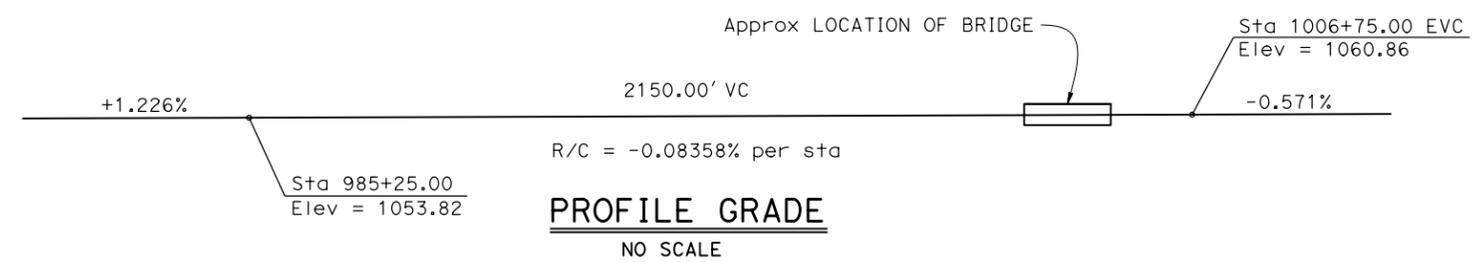
ATTACHMENT 1	GENERAL PLAN
ATTACHMENT 2	GEOLOGIC MAP
ATTACHMENT 3	EARTHQUAKE FAULTS
ATTACHMENT 4	FINAL DESIGN RESPONSE SPECTRUM
ATTACHMENT 5	MATERIAL PROPERTIES SUMMARY

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	46			

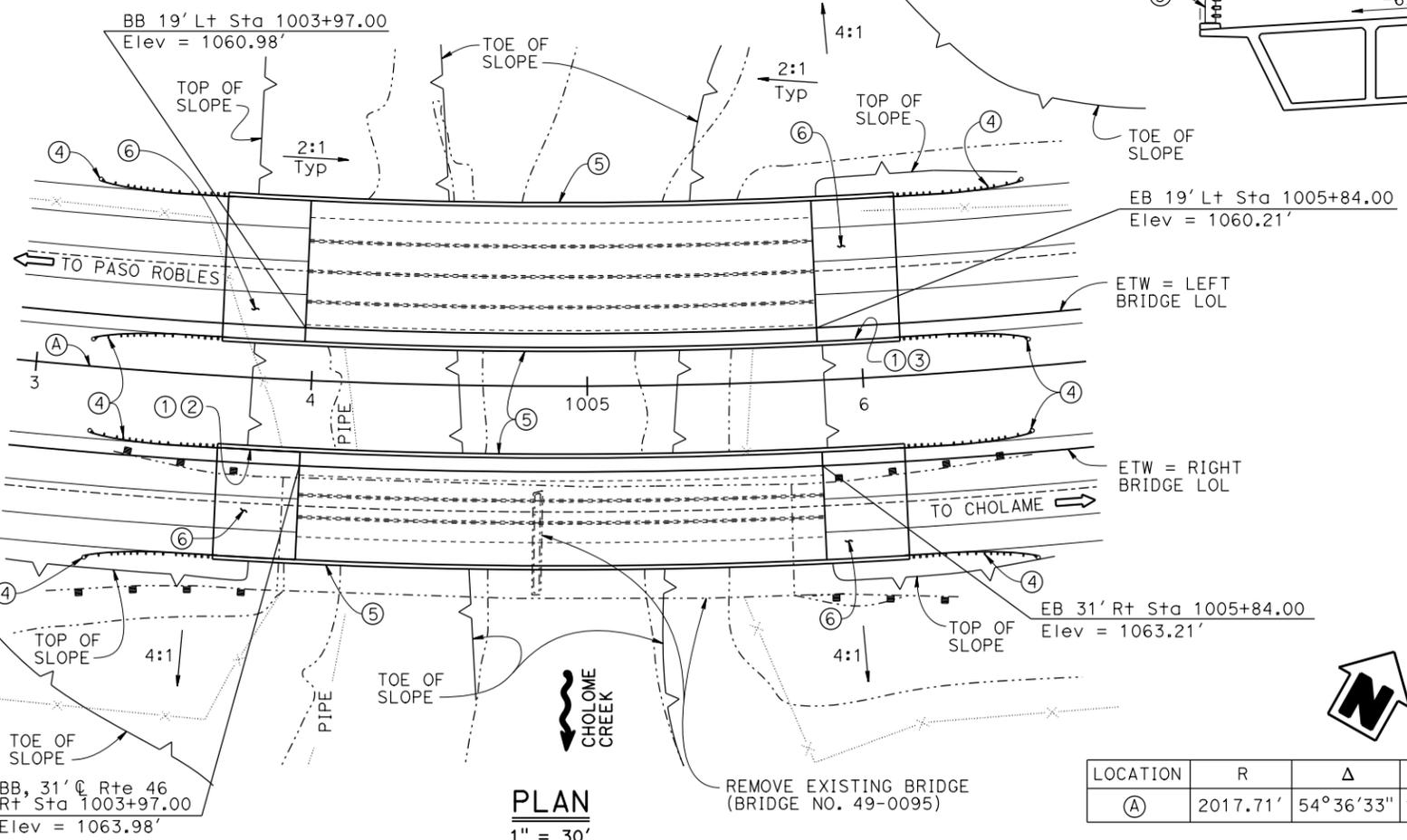
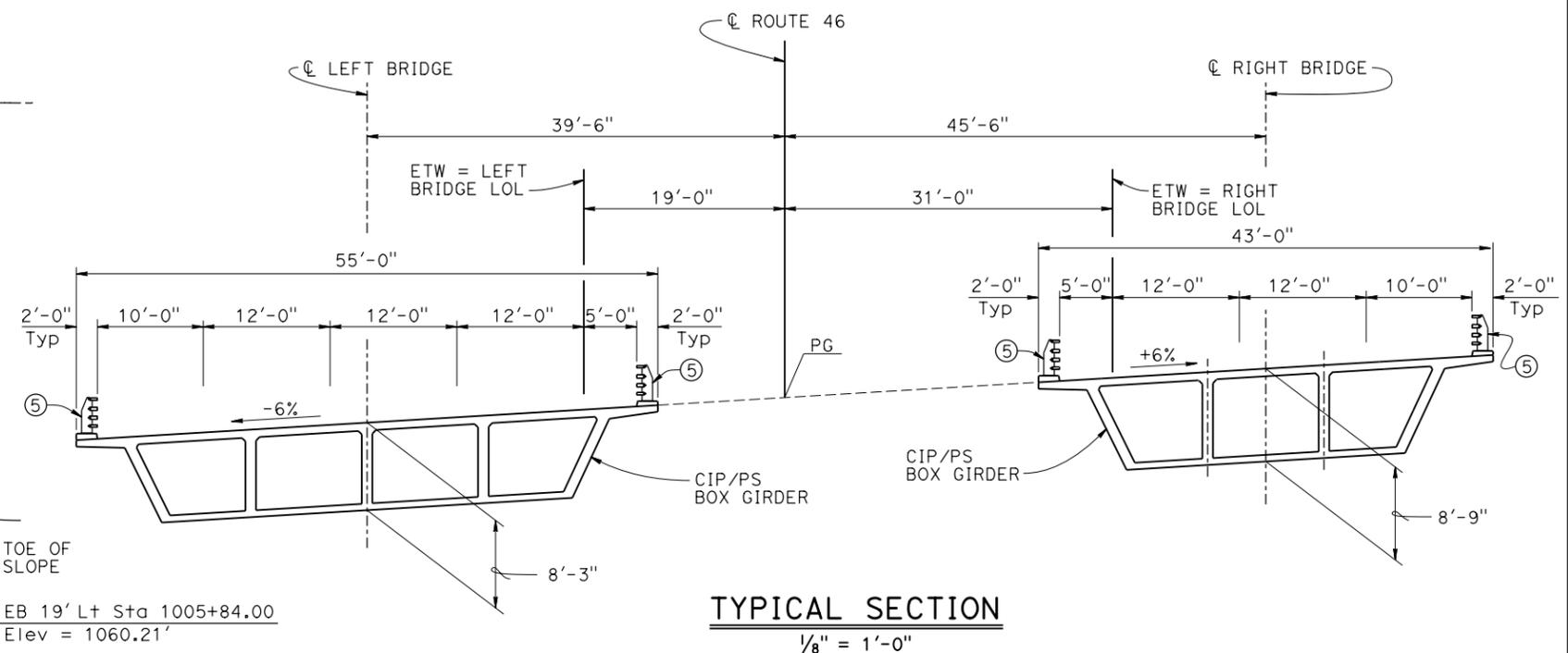
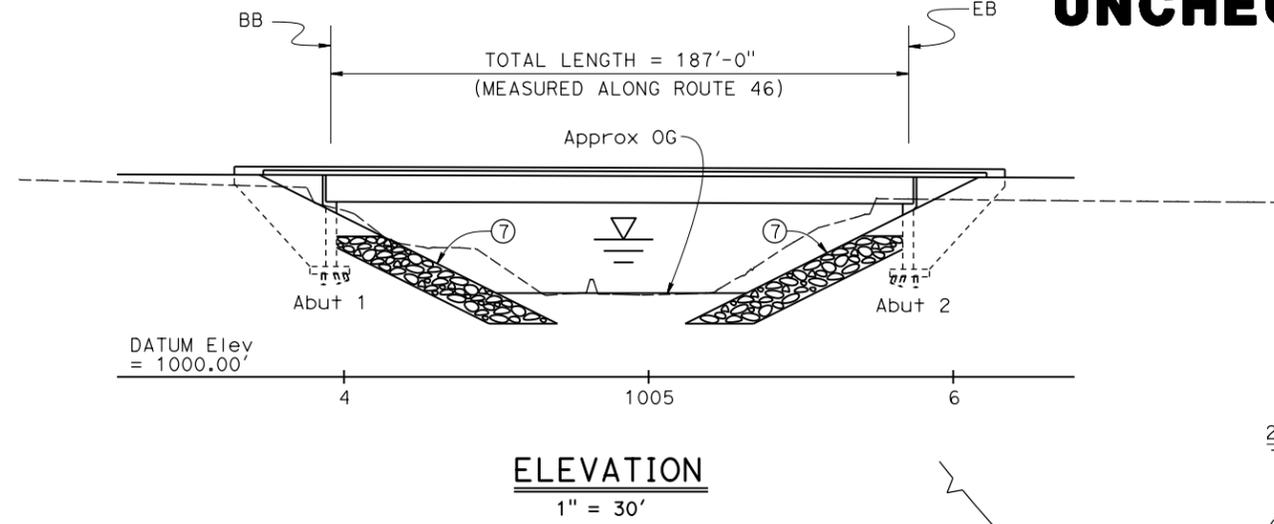
REGISTERED STRUCTURAL ENGINEER	X	DATE
VAIKUNTHAN RENGANATHAN No. S 5686 Exp. 6-30-2016 STRUCTURAL ENGINEER STATE OF CALIFORNIA		
PLANS APPROVAL DATE		

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

- NOTES:
- ① Paint "Cholame Creek Bridge"
 - ② Paint "Bridge No. 49-0262R"
 - ③ Paint "Bridge No. 49-0262L"
 - ④ MBGR, see "ROADWAY PLANS"
 - ⑤ California ST-70 Bridge Rail
 - ⑥ Structure Approach (Type N 30S)
 - ⑦ Rock Slope Protection, See "ROADWAY PLANS"



UNCHECKED DETAILS



LOCATION	R	Δ	T	L
(A)	2017.71'	54°36'33"	1041.62'	1923.10'

SPACE FOR QUANTITIES

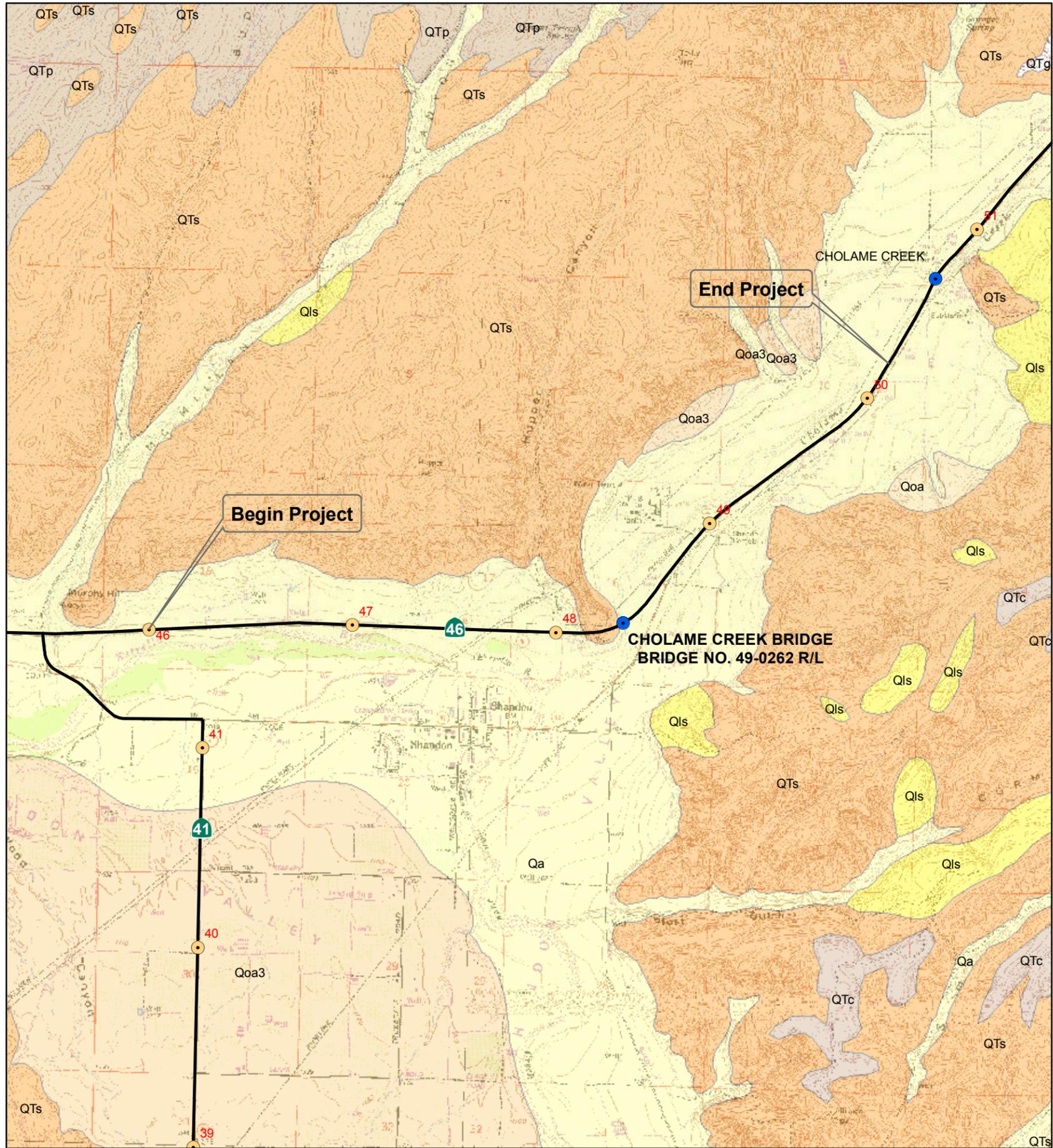
ATTACHMENT 1

GARY BLAKESLEY DESIGN ENGINEER	DESIGN	BY VAIKUNTHAN RENGANATHAN	CHECKED SEIJI MORIMOTO	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	49-0262RL	CHOLAME CREEK BRIDGE GENERAL PLAN
	DETAILS	BY DAVID ELLIOTT / SUSAN NG	CHECKED VAIKUNTHAN RENGANATHAN	LAYOUT	BY D. ELLIOTT		DESIGN BRANCH	6	
	QUANTITIES	BY RACHEL WASHINGTON	CHECKED X	SPECIFICATIONS	BY X		POST MILE	46.0/50.2	

UNIT: 3591	PROJECT NUMBER & PHASE: 05 1200 0076 1	CONTRACT NO.: 05-330784	REVISION DATES	SHEET	OF
DISREGARD PRINTS BEARING EARLIER REVISION DATES			3-14-13	5-1-13	9-28-13
			6-27-14	1	X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

FILE => 49-0262R1-a-ap 1.dgn



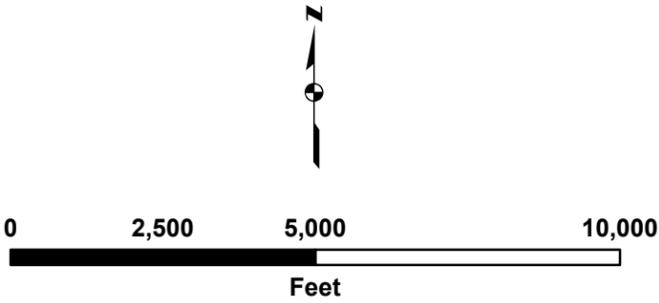
Geologic Map

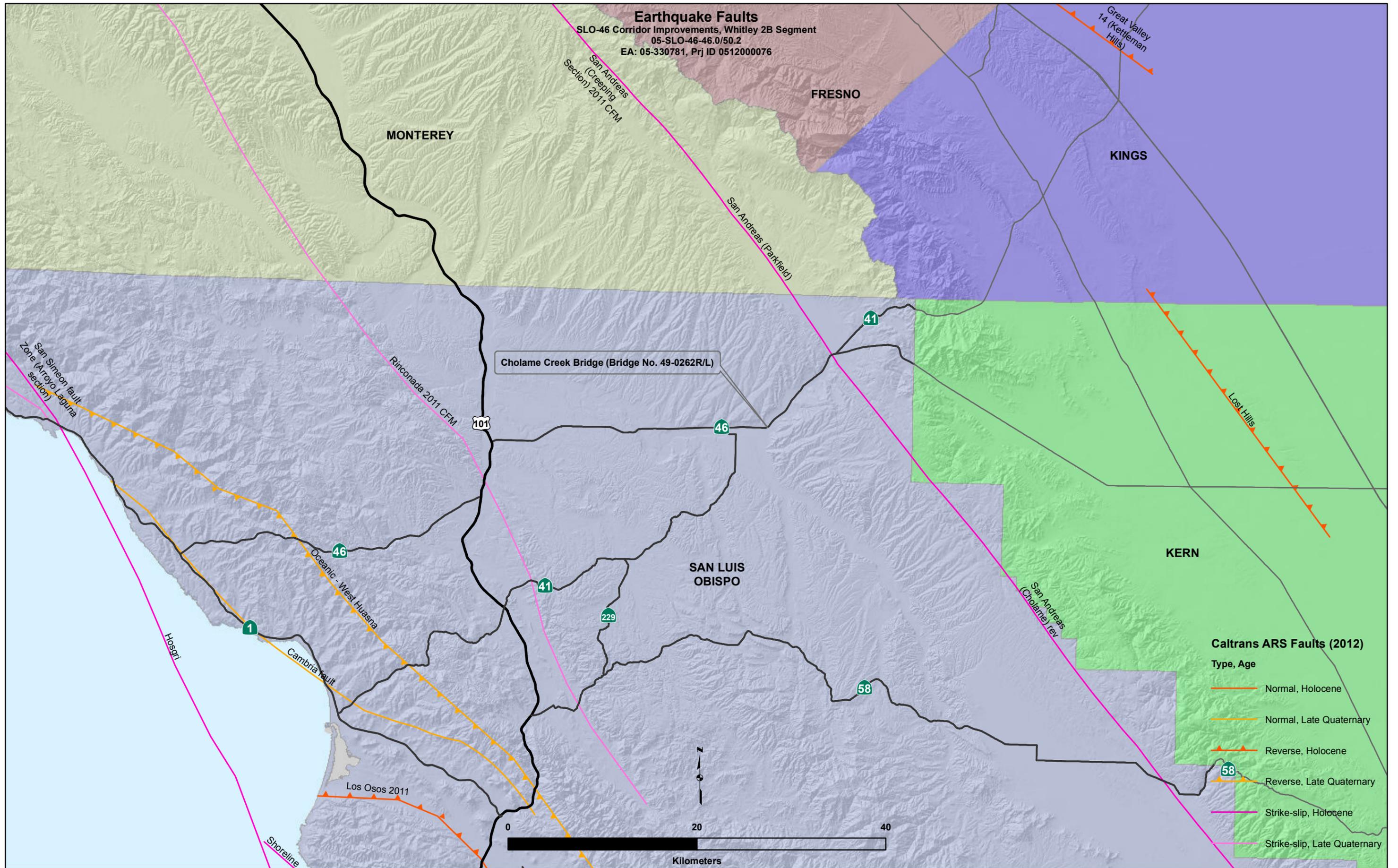
SLO-46 Corridor Improvements
 Whitley 2B Segment
 05-SLO-46-46.0/50.2

- State Highways
- Whole Postmiles
- State Highway Bridges

GEOLOGY

- Unit**
- Qa Alluvial deposits, undifferentiated (Holocene)—Unconsolidated, heterogeneous, moderately sorted silt and sand with discontinuous lenses of clay and silty clay
 - Qls Landslide deposits (Quaternary)—Heterogeneous mixture of deposits ranging from large block slides of indurated bedrock to debris flows in semiconsolidated sand and clay
 - Qoa Early to late Pleistocene alluvial deposits, undifferentiated
 - Qoa3 Older alluvium, youngest (lowest terrace)
 - QTp Paso Robles Formation, undifferentiated (Pleistocene-Pliocene?)—Terrestrial sediments of Salinas Valley, weakly indurated pebble gravel with minor sand and clay.
 - QTs Paso Robles Formation, sand and clay
 - QTc Continental deposits, undifferentiated (Pleistocene-Pliocene?)—Semiconsolidated, relatively fine-grained, oxidized sand and silt. Probably equivalent to Paso Robles Formation



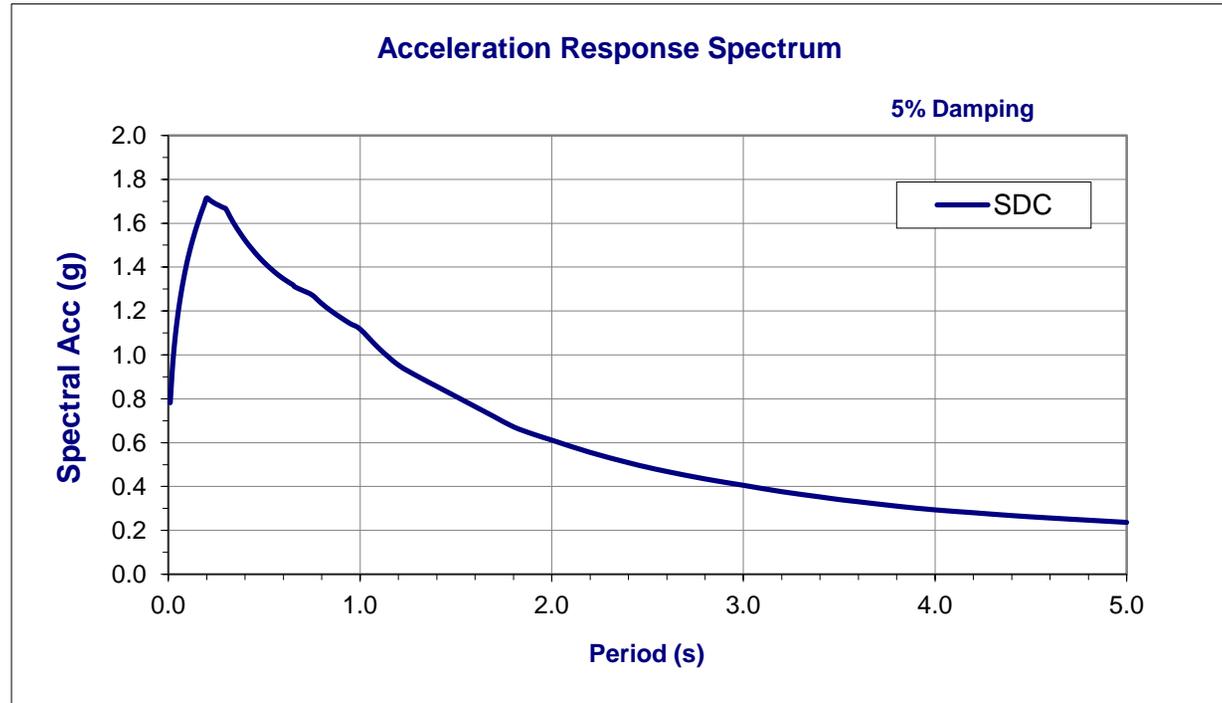


Cholame Creek Bridge (Replace)

Bridge No. 49-0262 R/L

SDC Controlling Procedure : **Probabilistic**

Period (s)	SDC
0.010	0.782
0.020	0.922
0.030	1.030
0.050	1.185
0.075	1.324
0.100	1.432
0.120	1.502
0.150	1.591
0.200	1.715
0.250	1.687
0.300	1.666
0.400	1.523
0.500	1.421
0.750	1.273
1.000	1.118
1.500	0.811
2.000	0.612
3.000	0.406
4.000	0.294
5.000	0.237



Deterministic Procedure Data

Fault San Andreas (Cholame Seg.)
Fault ID 220
Style SS
Mmax 7.9
Dip 90 deg
Z_{TOR} 0/0 km

R_{rup} 9.97 km
R_{jb} 9.97 km
R_x 9.97 km
V_{S30} 340 m/s
Z_{1.0} N/A m
Z_{2.5} N/A km

Notes

ARS curve was modified for Near Fault Directivity Effect (SDC Section 6.1.2.1)

MATERIALS PROPERTIES SUMMARY

CHOLAME CREEK BRIDGE (BRIDGE NO. 49-0262 R/L)

05-SLO-46-48.3

DESCRIPTION	RC-12-001				RC-12-002				
	Boring No.	RC-12-001				RC-12-002			
Station	1005+72				1004+02				
Line	Rte. 46 CL				Rte. 46 CL				
Offset	37' Lt.				24' Lt.				
Date Sampled	8/1/2012	8/1/2012	8/1/2012	8/1/2012	8/14/2012	8/14/2012	8/14/2012	8/14/2012	
Sample ID	494601	494602	494603	494604	494605	494606	494607	494608	
Depth Below OG	0'-35'	35'-60'	60'-80'	80'-100'	16'-17.5'	26'-27.5'	36'-39'	41'-42.5'	
USCS Classification					SP-SC	SC-SM	SW-SC	SC	
PARTICLE SIZE ANALYSIS	50 mm (2")								
	37.5 mm (1 1/2")								
	25 mm (1")								
	19 mm (3/4")					100			
	12.5 mm (1/2")					99			
	9.5 mm (3/8")					99			
	4.75 mm (No. 4)					98			
	2.36 mm (No. 8)					95	100	100	
	1.18 mm (No. 16)					84	98	95	
	600 um (No. 30)					58	97	62	
	300 um (No. 50)					34	91	28	
	150 um (No. 100)					18	69	14	
	75 um (No. 200)					11	49	9	
5 um									
1 um									
PI	Liquid Limit					26		32	
	Plasticity Index					6		14	
Expansion Index									
CORROSION	Resistivity (ohm-cm)	621	1154	1563	1554	2255	826	3350	
	pH	7.74	8.43	8.54	8.66	9.46	8.6	8.95	
	Chlorides (ppm)	146	N/A	N/A	N/A	N/A	N/A*	N/A	
	Sulfates (ppm)	1989	N/A	N/A	N/A	N/A	N/A*	N/A	
DENSITY AND MOISTURE CONTENT	In Situ	Dry Density (pcf)							
		Moisture (%)						12.1	
	Optimum	Dry Density (pcf)							
		Moisture (%)							
Specific Gravity									
CUe TRIAXIAL	REMOILED 90% IN SITU	Effective Stress	Total	Friction Angle (°)					
			Total	Cohesion (psf)					
		Stress	Effective	Friction Angle (°)					
			Effective	Cohesion (psf)					
	90% REMOILED	Total Stress	Total	Friction Angle (°)					
			Total	Cohesion (psf)					
		Stress	Effective	Friction Angle (°)					
			Effective	Cohesion (psf)					
Unconfined Compressive Strength (psi)									
Consol.	Consolidation Index (Cc)								
	Recompression Index (Cr)								
	Initial Void Ratio								

* Insufficient sample quantity to test for chloride and sulfate concentration

MATERIALS PROPERTIES SUMMARY

CHOLAME CREEK BRIDGE (BRIDGE NO. 49-0262 R/L)

05-SLO-46-48.3

DESCRIPTION	RC-12-002		RC-12-005					
	Boring No.	RC-12-002		RC-12-005				
Station	1004+02		1004+92					
Line	Rte. 46 CL		Rte. 46 CL					
Offset	24' Lt.		32' Rt.					
Date Sampled	8/14/2012	8/14/2012	8/14/2012	10/2/2012	10/2/2012	10/3/2012	10/9/2012	
Sample ID	494609	494610	4+94611	494621	494622	494623	494624	
Depth Below OG	86'-87'	91'-92.5'	95'-97'	57'-60'	83'-85'	125'-127'	183'-185'	
USCS Classification	SM	CL	SM	SM	SM	SM	SM	
PARTICLE SIZE ANALYSIS	50 mm (2")							
	37.5 mm (1½")							
	25 mm (1")							
	19 mm (¾")							
	12.5 mm (½")							
	9.5 mm (3/8")					100	100	
	4.75 mm (No. 4)				100	99	100	99
	2.36 mm (No. 8)	100	100		99	97	99	97
	1.18 mm (No. 16)	97	99	100	94	90	93	86
	600 µm (No. 30)	88	96	96	85	74	71	64
	300 µm (No. 50)	69	82	79	68	50	39	42
	150 µm (No. 100)	47	63	49	48	30	25	28
	75 µm (No. 200)	35	53	28	33	19	20	20
5 µm				11	5	11	7	
1 µm				5	2	7	3	
PI	Liquid Limit		46	--	21	--	--	
	Plasticity Index		26	NP	2	NP	NP	
Expansion Index								
CORROSION	Resistivity (ohm-cm)	1518	660	2030	1744	3248	2209	2668
	pH	8.56	8.35	8.62	8.03	8.7	8.44	8.58
	Chlorides (ppm)	N/A	N/A*	N/A	N/A	N/A	N/A	N/A
	Sulfates (ppm)	N/A	N/A*	N/A	N/A	N/A	N/A	N/A
DENSITY AND MOISTURE CONTENT	In Situ	Dry Density (pcf)						
		Moisture (%)		16.2				
	Optimum	Dry Density (pcf)						
		Moisture (%)						
		Specific Gravity						
CUC RECONSOLIDATED 90% REMOILED 90% IN SITU	Total Stress	Friction Angle (°)	Friction Angle (°)					
			Cohesion (psf)					
		Effective Stress	Friction Angle (°)	Friction Angle (°)				
				Cohesion (psf)				
	Stress	Friction Angle (°)	Friction Angle (°)					
			Cohesion (psf)					
		Effective Stress	Friction Angle (°)	Friction Angle (°)				
				Cohesion (psf)				
Unconfined Compressive Strength (psi)								
Consol.	Consolidation Index (Cc)							
	Recompression Index (Cr)							
	Initial Void Ratio							

* Insufficient sample quantity to test for chloride and sulfate concentration

MATERIALS PROPERTIES SUMMARY CHOLAME CREEK BRIDGE (BRIDGE NO. 49-0262 R/L)

05-SLO-46-48.3

DESCRIPTION	Boring No. RC-12-006								
	Station 1004+84								
DESCRIPTION	Line Rte. 46 CL								
	Offset 37' Lt.								
DESCRIPTION	Date Sampled	10/10/2012	10/10/2012	10/11/2012	10/11/2012	10/16/2012	10/17/2012	10/17/2012	10/17/2012
	Sample ID	494625	494626	494627	494628	494629	494630	494631	494632
DESCRIPTION	Depth Below OG	46'-47'	57.5'-58.5'	71.5'-73'	97'-99'	109'-110.5'	128'-130'	192'-195'	196'-198'
	USCS Classification	SC	SC	SM	CL	SC-SM	SM	CL-ML	SM
PARTICLE SIZE ANALYSIS	50 mm (2")								
	37.5 mm (1 1/2")								
	25 mm (1")								
	19 mm (3/4")								
	12.5 mm (1/2")								
	9.5 mm (3/8")	100				100			
	4.75 mm (No. 4)	99	100		100	99	100		
	2.36 mm (No. 8)	96	99		99	89	98		
	1.18 mm (No. 16)	88	96	100	99	75	90	100	100
	600 um (No. 30)	73	88	96	98	59	65	99	99
	300 um (No. 50)	59	79	70	97	47	44	92	93
	150 um (No. 100)	44	65	45	89	36	29	75	67
75 um (No. 200)	36	49	32	72	26	23	55	45	
5 um	16	18	12	19	8	8	17	13	
1 um	11	10	7	4	2	2	9	7	
PI	Liquid Limit	28	25	18	31	22	19	23	
	Plasticity Index	14	10	2	11	5	3	6	NP
Expansion Index									
CORROSION	Resistivity (ohm-cm)	1892	1666	2838	1563	2820	2956	1508	1515
	pH	8.77	8.33	8.71	8.39	8.63	8.64	8.51	7.99
	Chlorides (ppm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Sulfates (ppm)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DENSITY AND MOISTURE CONTENT	In Situ	Dry Density (pcf)							
		Moisture (%)							
	Optimum	Dry Density (pcf)							
		Moisture (%)							
Specific Gravity									
CUe TRIAXIAL REMOLDED 90% IN SITU	Effective Total Stress	Friction Angle (°)							
		Cohesion (psf)							
	Effective Stress	Friction Angle (°)							
		Cohesion (psf)							
	90% In Situ	Friction Angle (°)							
		Cohesion (psf)							
	Effective Stress	Friction Angle (°)							
		Cohesion (psf)							
Unconfined Compressive Strength (psi)									
Consol.	Consolidation Index (Cc)								
	Recompression Index (Cr)								
	Initial Void Ratio								

MATERIALS PROPERTIES SUMMARY CHOLAME CREEK BRIDGE (BRIDGE NO. 49-0262 R/L)

05-SLO-46-48.3

DESCRIPTION	RC-13-001							
	1003+80							
DESCRIPTION	Rte. 46 CL							
	69' Rt.							
DESCRIPTION	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013
	Boring No.	RC-13-001						
Station	1003+80							
Line	Rte. 46 CL							
Offset	69' Rt.							
Date Sampled	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013	5/14/2013
Sample ID	494637	494638	494639	494640	494641	494642	494643	
Depth Below OG	13.5'-15'	18'-19'	22'-23'	37'-38'	63.5'-65'	71'-73'	93.5'-96'	
USCS Classification	SC	CL	SW-SM	SM	SM	CH	SM	
PARTICLE SIZE ANALYSIS	50 mm (2")							
	37.5 mm (1 1/2")							
	25 mm (1")							
	19 mm (3/4")							
	12.5 mm (1/2")			100				
	9.5 mm (3/8")			98	100			
	4.75 mm (No. 4)	100		91	99			
	2.36 mm (No. 8)	99	100	75	96	100	100	100
	1.18 mm (No. 16)	98	98	64	88	99	98	98
	600 um (No. 30)	92	94	51	67	95	92	91
	300 um (No. 50)	79	82	27	40	78	84	81
	150 um (No. 100)	62	68	13	25	47	73	57
	75 um (No. 200)	48	55	9	18	27	61	35
	5 um							
1 um								
PI	Liquid Limit	30	42				51	
	Plasticity Index	14	26	NP	NP	NP	31	NP
Expansion Index								
CORROSION	Resistivity (ohm-cm)	968		2103	2053	1270	851	1880
	pH	8.04		9.09	9.55	8.68	8.55	8.87
	Chlorides (ppm)	67		N/A	102	N/A	48	N/A
	Sulfates (ppm)	81		N/A	626	N/A	140	N/A
DENSITY AND MOISTURE CONTENT	In Situ							
	Optimum							
	Dry Density (pcf)							
	Moisture (%)							
CUE TRIAXIAL REMOULDED 90% IN SITU	Friction Angle (°)							
	Cohesion (psf)							
	Friction Angle (°)							
	Cohesion (psf)							
	Friction Angle (°)							
	Cohesion (psf)							
	Friction Angle (°)							
	Cohesion (psf)							
Unconfined Compress. Consol.	Compressive Strength (psi)							
	Consolidation Index (Cc)							
	Recompression Index (Cr)							
	Initial Void Ratio							

MATERIALS PROPERTIES SUMMARY CHOLAME CREEK BRIDGE (BRIDGE NO. 49-0262 R/L)

05-SLO-46-48.3

DESCRIPTION	Boring No. RC-13-002						
	Station 1005+85						
DESCRIPTION	Line Rte. 46 CL						
	Offset 71' Rt.						
DESCRIPTION	Date Sampled	5/15/2013	5/15/2013	5/15/2013	5/15/2013	5/15/2013	5/15/2013
	Sample ID	494644	494645	494646	494647	494648	494649
DESCRIPTION	Depth Below OG	8'-10'	30'-32'	42'-43.5'	56.5'-58'	62'-64'	73'-74'
	USCS Classification	CL	CL	SM	SW-SM	CL	SM
PARTICLE SIZE ANALYSIS	50 mm (2")						
	37.5 mm (1 1/2")						
	25 mm (1")						
	19 mm (3/4")						
	12.5 mm (1/2")						
	9.5 mm (3/8")				100		
	4.75 mm (No. 4)		100	100	99		100
	2.36 mm (No. 8)	100	99	98	94	100	92
	1.18 mm (No. 16)	99	98	96	83	97	82
	600 um (No. 30)	95	94	92	57	93	74
	300 um (No. 50)	83	86	81	26	86	66
	150 um (No. 100)	65	75	56	13	71	52
	75 um (No. 200)	51	64	35	8	56	36
	5 um						
	1 um						
PI	Liquid Limit	32	49			41	
	Plasticity Index	14	29	NP	NP	22	NP
Expansion Index							
CORROSION	Resistivity (ohm-cm)	863	430	1293	3135	950	1742
	pH	8.44	8.15	8.79	9.25	8.64	8.92
	Chlorides (ppm)	137	429	N/A	N/A	71	N/A
	Sulfates (ppm)	137	590	N/A	N/A	163	N/A
DENSITY AND MOISTURE CONTENT	Dry Density (pcf) In Situ						
	Moisture (%) In Situ						
	Dry Density (pcf) Optimum						
	Moisture (%) Optimum						
Specific Gravity							
CUE TRIAXIAL REMOLDED 90% IN SITU	Effective Total Stress						
	Friction Angle (°)						
	Cohesion (psf)						
	Effective Total Stress						
	Friction Angle (°)						
	Cohesion (psf)						
	Effective Total Stress						
	Friction Angle (°)						
Cohesion (psf)							
Unconfined	Compressive Strength (psi)						
	Consolidation Index (Cc)						
	Recompression Index (Cr)						
	Initial Void Ratio						

MATERIALS INFORMATION

8. Final Hydraulic Report for Cholame Creek Bridge (Replace),
Bridge Number 49-0262 R/L, dated December 10, 2012

State of California – Department of Transportation
Division of Engineering Services
Structure Design Services

Structure Hydraulics and Hydrology

FINAL HYDRAULIC REPORT

Cholame Creek Bridge

Located on US Route 46 over Cholame Creek in the County of San Luis Obispo

Old Bridge No. 49-0095
New Bridge No. 49-0262 R/L

Project ID 0512000076

EA 05-330781

05-SLO-46-PM 46.0/50.2

December 10, 2012

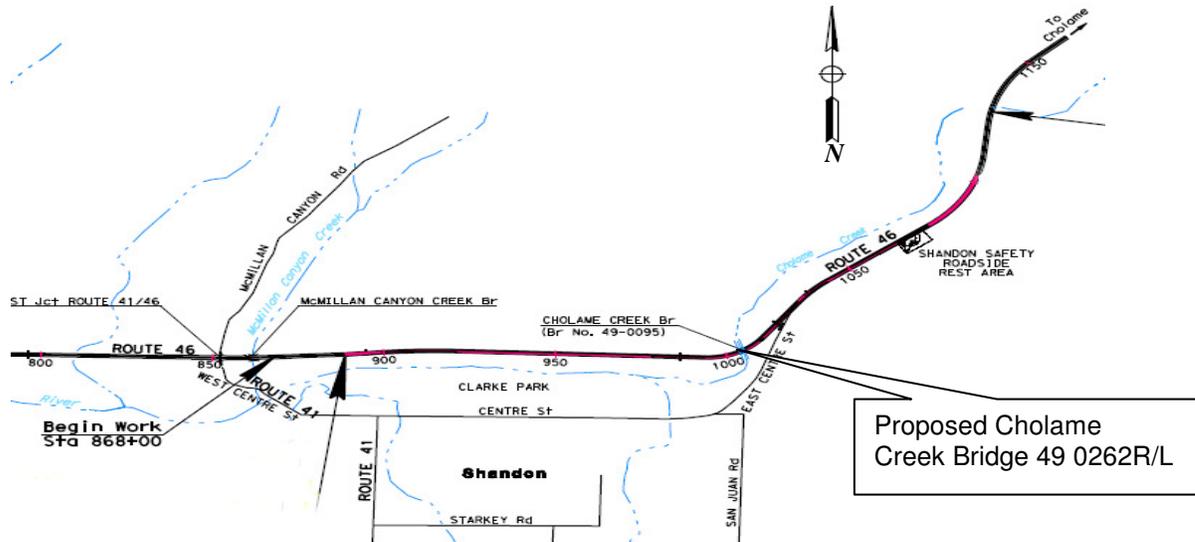
PREPARED BY:
Ronald McGaugh

REVIEWED BY:
Rick Macala

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


REGISTERED ENGINEER





General:

It is proposed to replace the existing structure along the new alignment of state Route 46. This replacement includes right and left bridges and 2 Alternatives.

Alternative 1 consists of a simple span structure. Structures depth of the right and left bridges are 8.75' and 8.25', respectively. This alternative is preferred, but is only viable if the results from the structure hydraulic study indicates adequate freeboard for the design flood.

Alternative 2 consists of two equal-length spans. Structures depth of both right and left bridges is approximately 3'-9". The bents will likely be composed of two columns for the Right bridge and three columns for the Left bridge. We anticipate using 3' diameter circular columns, and are considering 5' diameter CIDH shafts as a possible foundation option.

For either alternative, District is planning to specify rock slope protection at both embankments.

This evaluation is based on a review of Caltrans Bridge Maintenance Records, As-Built plans, hydrologic and hydraulic reports submitted for FEMA, and General Plans submitted by Structure Design. The General Plans are dated 11/19/2012.

The data and references of this hydraulic report are obtained from the following sources:

- Caltrans Bridge Maintenance Records.
- Preliminary Hydraulic Report dated October 2009.
- Field photo documentation, and bridge site submittal information received by this office dated September 2009.
- Historical cross sections for bridge 49-0095 Cholame Creek.
- US Geological Survey (Regional Regression Method) Magnitude and Frequency of Floods in California--Bulletin 77-21. Used for the National Stream Statistics Program.
- Evaluating Scour At Bridges 4th edition

All elevations in this report are based on the survey data provided by District 5 CAiCE, and the preliminary design information provided by Structure Design. The Vertical Datum is NGVD 29.

Flood History:

Channel degradation was a recurrent issue since 1962. This degradation caused severe exposure/undermining of pier footings, bank erosion, and failures of the bank slope protections. To address these issues, rock slope protection, sacked concrete riprap, "toe wall", and a checkdam were placed. However, throughout the bridge's recorded history, failures/washouts of these countermeasures usually followed its placement. In 1997, extensive channel and bank improvements upstream and downstream were completed. These included strengthening the checkdam with sheetpiles, placing gabions, RSP and concrete sack riprap along sections of the channel and banks. Additionally, in 1999 scour monitoring devices were also installed. These devices included a Stream Stage Gage and a Clinometer (tilt sensor).

The earliest recorded coding for scour potential (Item 113) was found in the 1997 Bridge Inspection Report. The 113 was coded '3', and this code has not changed since. However, since the completion of the channel improvements in 1997, there has not been any further mention of channel degradation, bank failures, or undermining of the footing at Pier 3. There is no flooding history for this location.

Basin:

Cholame Creek drains approximately 236 square miles. The watershed spans from the South Eastern Monterey County to the North Eastern portion of San Luis Obispo County and encompasses all of the Cholame Valley. Watershed elevations range from approximately 4200 feet at Black Mountain to approximately 990 feet at the proposed bridge site. This watershed seems to have potential for debris yield. Channel slope was estimated at 1.5 %, approximately 1000 feet upstream of the proposed bridge site and 3% downstream of the proposed bridge site. Average annual precipitation within the watershed is about 15 inches.

Discharge:

Since this watershed is ungauged the National Streamflow Statistics program (NSS) was used to estimate the discharge. This yielded a Q_{100} flow value of approximately 19,000 cfs. This is a conservative value as compared to the calculations during the 1997 renovations. The flow used at that time was approximately 15,000 cfs. For design purposes the Q_{100} flow value of approximately 19,000 cfs shall be used.

Streambed:

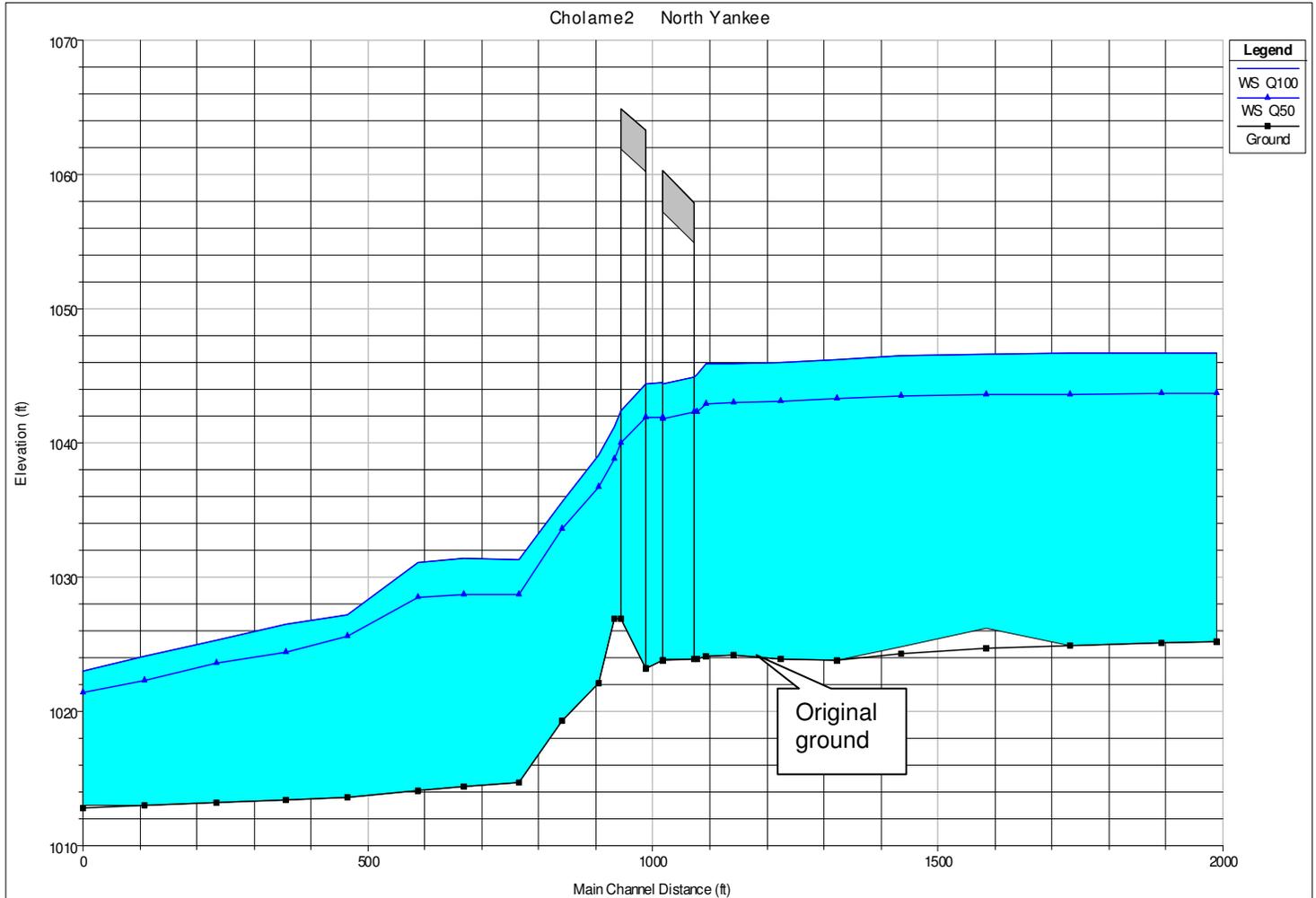
The existing channel is relatively straight. It is anticipated that the bridge will have a no skew. Degradation has been a problem for this structure, but since the 1997 renovations the channel has not changed much. For the natural channel bottom a previous Log of Test Borings indicated fine sands to elevation 1004. Maximum penetration for the Borings was to elevation 991 ft.

Model Preparation and Parameters

US Army Corps of Engineers software Hec-Ras was used to create the 1 dimensional model for this project. The General Plans were referenced to acquire the planned deck elevation height. Proposed freeboard is measured from the water surface elevation to the lowest chord of the soffit of each structure.

Parameters used for the modeling included:

Q_{100} = 19,000 cfs Manning's $n=0.036$ Slope = 1%



Bridge profile from Hec-Ras model

Water Surface Elevations:

		Water Surface Elevation (ft)	Soffit (ft)	Freeboard (ft)
Alternative 1	Left bridge	1044.9	1049.6	4.7
	Right bridge	1044.4	1054.5	10.1
Alternative 2	Left bridge	1044.6	1053.9	9.3
	Right bridge	1044.6	1059.3	14.7

These water surface elevations are based on the existing ground and assume no great changes to the original ground of the channels.

Scour:

The scour calculations are based on the boring records from May 2010. The conditions indicate multiple layers of sand down to about 987 ft. These indicate a silty to fine sandy soil type foundation with no scour armoring capabilities, and low cohesion i.e. erodible. If a pier or column were used, degradation rates would be approximately 0.3 ft / year. Degradation rates for the abutments are approximately 0.01 ft / year. Anticipated scour degradation is for a 75 year bridge life.

Scour Analysis for Alternative 1

Scour type	Rate of scour	Anticipated scour depth
Contraction Scour (ft):	1.0 ft	1.0 ft
Degradation Abutments	0.05 ft/year	3.8
Pier Scour	Single span no scour	0 ft
Abutment Scour	0.01	0.8 ft

Scour Analysis for Alternative 2

Scour type	Rate of scour	Anticipated scour depth
Contraction Scour (ft):	1.0 ft	1.0 ft
Degradation Abutments	0.05 ft/year	3.8
Pier Scour	Two span	13.9 ft
Abutment Scour	0.01	0.8 ft

Tidal:

There is no anticipated tidal influence in the immediate vicinity of this structure, and there is no anticipated backwater from Estrella River.

Drift:

It is not anticipated that there will be a problem with drift or debris.

Foundations:

At this time there is no Preliminary Foundation report, so Structure Hydraulics cannot make a definitive recommendation for any foundations, but due to the history of this channel the foundations should be very deep piles

Design Parameters and Recommendations:

It is recommended that this project does not substantially disturb the emergency measures along the bottom of the channel that were completed in 1996-1997. It is recommended that the sheet pile checkdam stay in place, as well as the gabion mattress and the rock riprap upstream and downstream, in the channel bottom and banks.

Below is a summary of key design parameters based on the hydrology and hydraulic analysis performed for this structure.

HYDROLOGIC/HYDRAULIC SUMMARY		
Drainage Area: 236 mi ²		
5 degree bridge skew – 61-foot-wide channel – 1% slope		
Q ₁₀₀ Discharge (cfs)	19,000 (All values are based on this discharge)	
Q ₅₀ Discharge (cfs)	13,267	
	Alternative 1	Alternative 2
Average Velocity Left bridge (ft/s)	10.8	11.0
Average Velocity Right bridge (ft/s)	11.3	16.0
Minimum soffit Elevation Left Bridge(feet)	1046.9	1046.6
Minimum soffit Elevation Right Bridge(feet)	1046.4	1046.6
Left Pier scour elevation (feet)	N/A	1009.3
Right Pier scour elevation (feet)	N/A	1009.9
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. Addendums may be necessary as Foundation Reports are completed.		

Upon reviewing this information, please contact Ronald McGaugh at (916) 227-8026 or Steve Ng at (916) 227-8018 if there are any questions or concerns.

MATERIALS INFORMATION

9. Water Source Information



CITY OF EL PASO DE ROBLES

"The Pass of the Oaks"

March 31, 2015

Jack Walker
Caltrans
Design Manager
2015 East Shields Ave., Suite 100
Fresno, CA 93726

RE: Route 46 Widening Project

Dear Mr. Walker:

The Paso Robles Wastewater Treatment Plant (3200 Sulphur Springs Road) produces Secondary-23 quality recycled water that the State's public health regulations allow to be used for dust control and soil compaction at construction sites. However, the plumbing and access roads at the treatment plant are not set up to accommodate the 2,000+ truck trips I expect would be required to provide the millions of gallons of water that are needed for your project, without interfering with operation of the treatment plant.

If your prospective contractor would like to use recycled water from the Paso Robles Wastewater Treatment Plant, they would have to extend a 4" ductile iron pipeline approximately 450 feet** to the south and set up a dedicated hydrant or filling station just outside the entrance to the plant (see attached markup). They would also have to secure permission from the Central Coast Regional Water Quality Control Board to use the recycled water at the construction site.

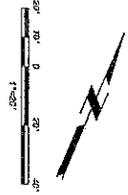
**Such a pipeline may also have a future secondary benefit of supplying recycled water for irrigation of landscaping within Caltrans' US101 right of way.

If you have questions, please contact me at (805) 227-7200 Ext. 7716.

Sincerely,

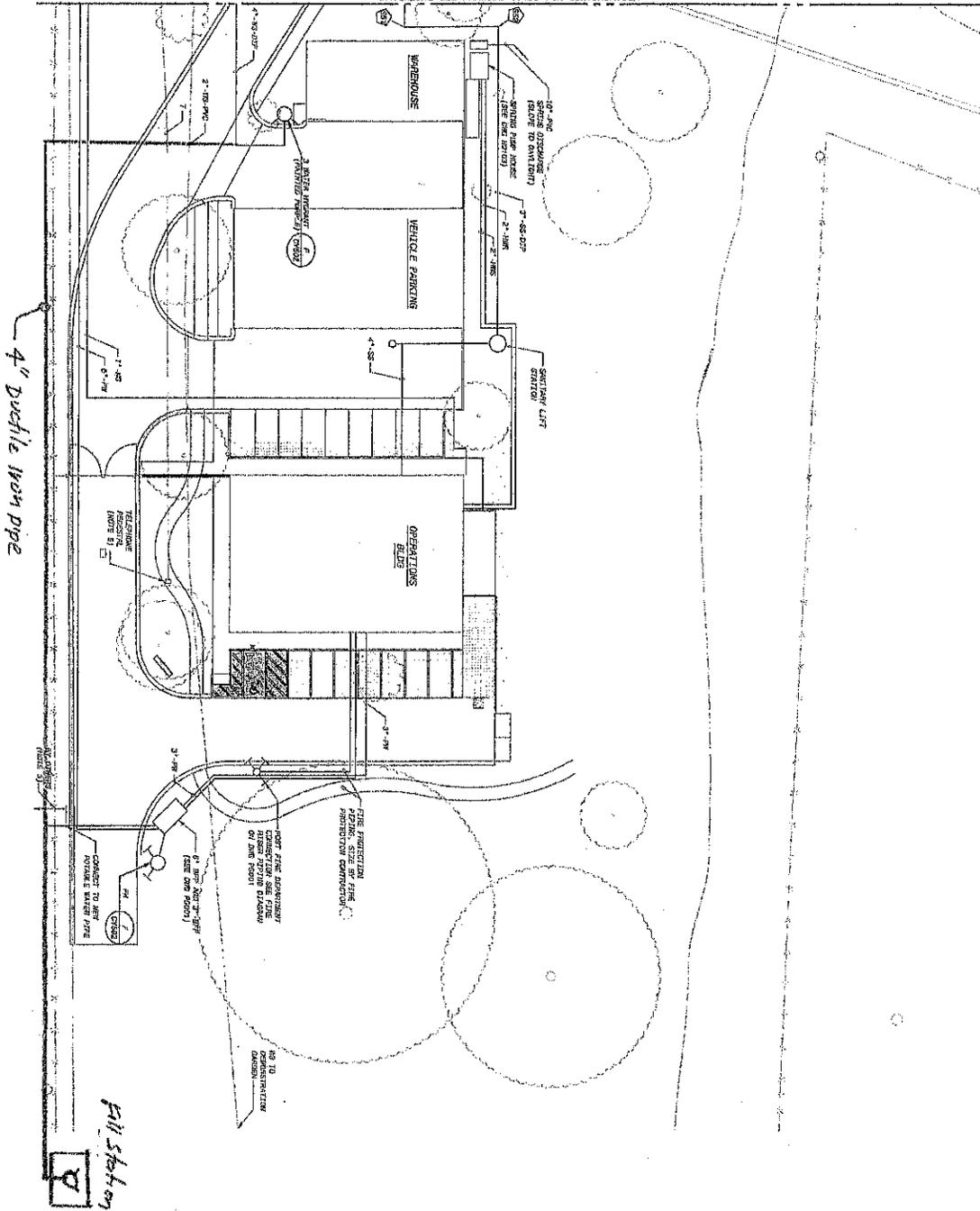
Matt Thompson, PE
Wastewater Resources Manager

cc: File



- NOTES:**
1. SEE DRAWING CY111 FOR THE NUMBER COORDINATES, AND THE STATION COORDINATES AND ELEVATIONS.
 2. ALL POINTS OF RISING ABOVE SHALL BE INDICATED.
 3. A NEW WATER MAIN CROSSING UNDER THE TUNNEL BE CONSTRUCTION SHALL COORDINATE AND BE CONNECTED TO THE EXISTING LINE.
 4. ALL PIPES SHALL HAVE A MINIMUM OF 2' COVER.
 5. REMOVAL PERSONAL AND CONCRETE SHALL BE PROTECTED IN PLACE DURING CONSTRUCTION.

MATCH LINE - SEE DRAWING CY109 FOR CONTINUATION



CONFORMED TO BID

CITY OF PASO ROBLES
WASTEWATER TREATMENT PLANT UPGRADE
CIVIL
YARD PIPING PLAN
AREA 3

BLACK & VEATCH
Black & Veatch Corporation
Walnut Creek, California

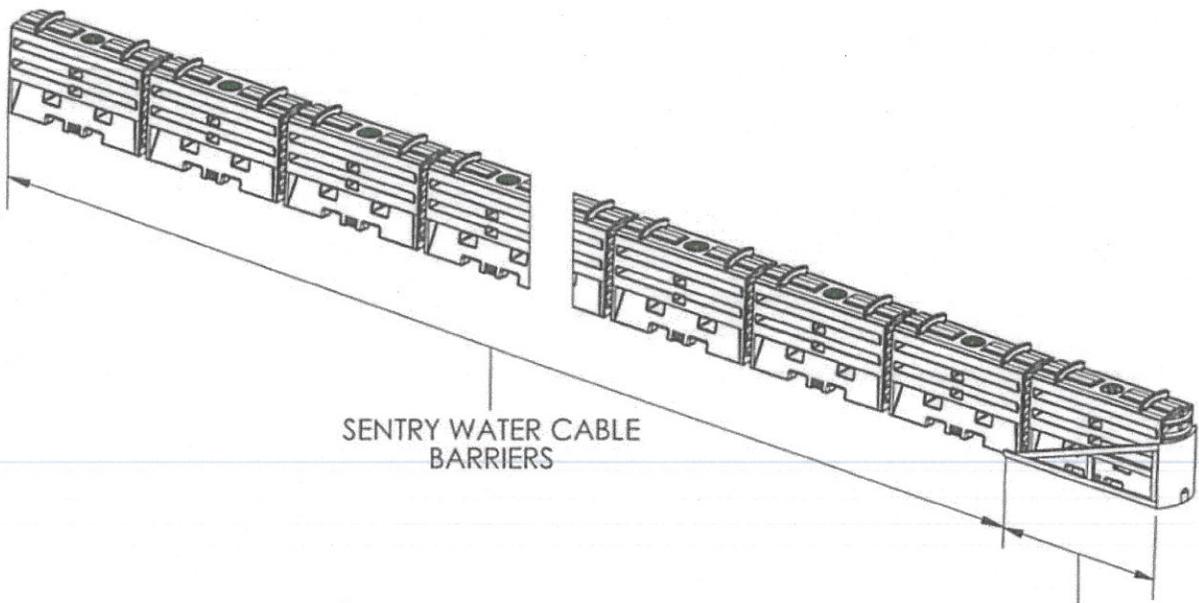


NO.	DATE	DESCRIPTION AND SCOPE OF WORK	DESIGNED BY	CHECKED BY
1	11/05/2010	PRELIMINARY DESIGN	GRADY, J. GALT	GRADY, J. GALT
2	11/05/2010	FINAL DESIGN	GRADY, J. GALT	GRADY, J. GALT

PROJECT NO.	103110
DATE	11/05/2010
SCALE	AS SHOWN
PROJECT LOCATION	111001010 - 111001010
PROJECT OWNER	CITY OF PASO ROBLES
PROJECT ENGINEER	GRADY, J. GALT
PROJECT CHECKER	GRADY, J. GALT
PROJECT APPROVER	GRADY, J. GALT
PROJECT DATE	11/05/2010
PROJECT TIME	10:47 AM
PROJECT LOCATION	111001010 - 111001010
PROJECT OWNER	CITY OF PASO ROBLES
PROJECT ENGINEER	GRADY, J. GALT
PROJECT CHECKER	GRADY, J. GALT
PROJECT APPROVER	GRADY, J. GALT
PROJECT DATE	11/05/2010
PROJECT TIME	10:47 AM

MATERIALS INFORMATION

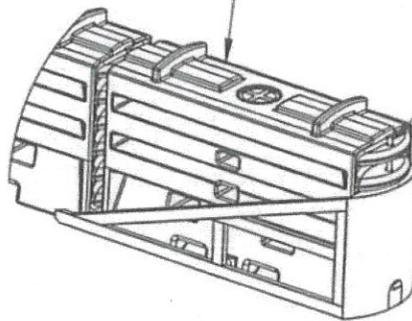
10. Temporary Alternative Crash Cushion System
 - A. ABSORB 350 (TL-3)
 - B. SLED (TL-3)
 - C. ACZ-350 (TL-3)



SENTRY WATER CABLE
BARRIERS

6'-4"
[1.93]
SLED END TREATMENT

EMPTY YELLOW MODULE



T-PIN WITH KEEPER PIN

CONTAINMENT IMPACT SLED

SLED END TREATMENT

**TraFFix
Devices Inc.**



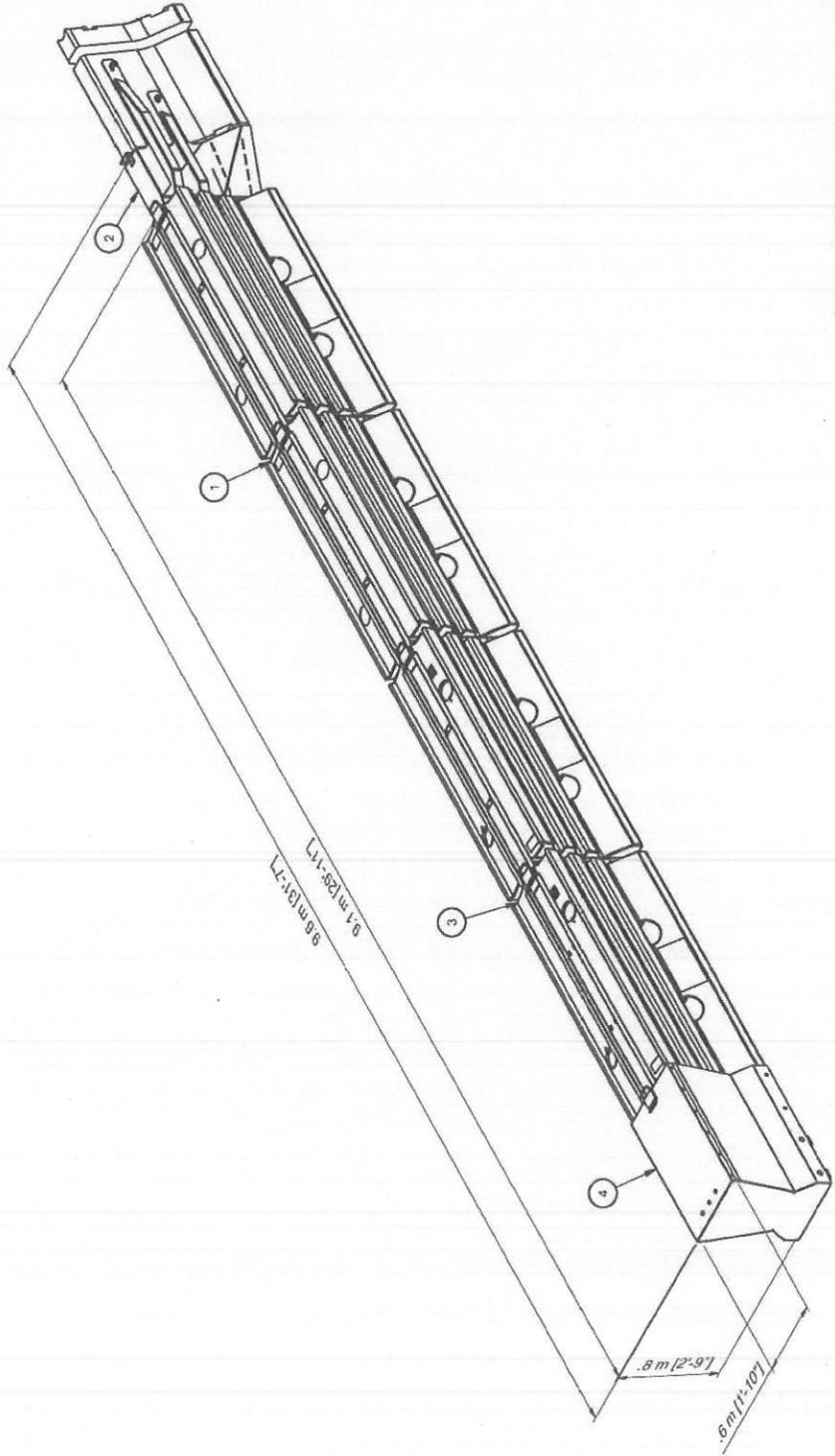
SER##

SHEET NO.

DATE:

08/27/2010

PARTS LIST			
ITEM	STOCK NO.	DESCRIPTION	QTY.
1		ACZ-350 SECTION 2	1
2		ACZ-350 TRANSITION ASSY	1
3		ACZ-350 SECTION 1	1
4		ACZ-350 NOSE ASSY	1

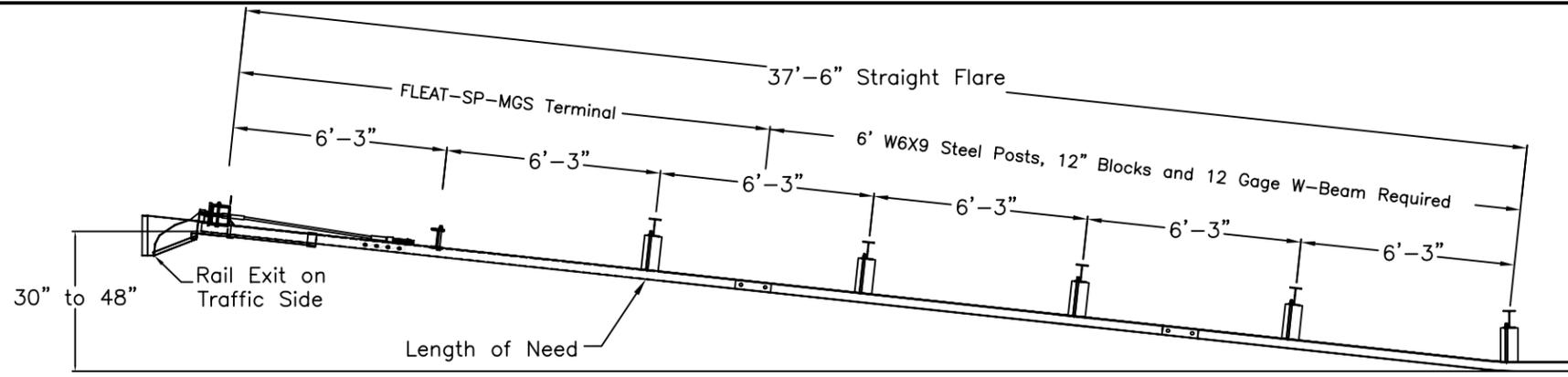


DATE	11/12/2008	ENERGY ABSORPTION SYSTEMS, INC. ENGINEERING AND RESEARCH DEPARTMENT
DESIGNED BY	ASTRON, COX	
CHECKED BY		
APPROVED BY		
SCALE		
ACZ-350 TL-3 CRASH CUSHION		
UNLESS OTHERWISE NOTED, ALL DIMENSIONS AND FINISHES SHOULD BE ACCORDING TO ASME Y14.5M UNLESS OTHERWISE SPECIFIED		 SHEET 1 of 1

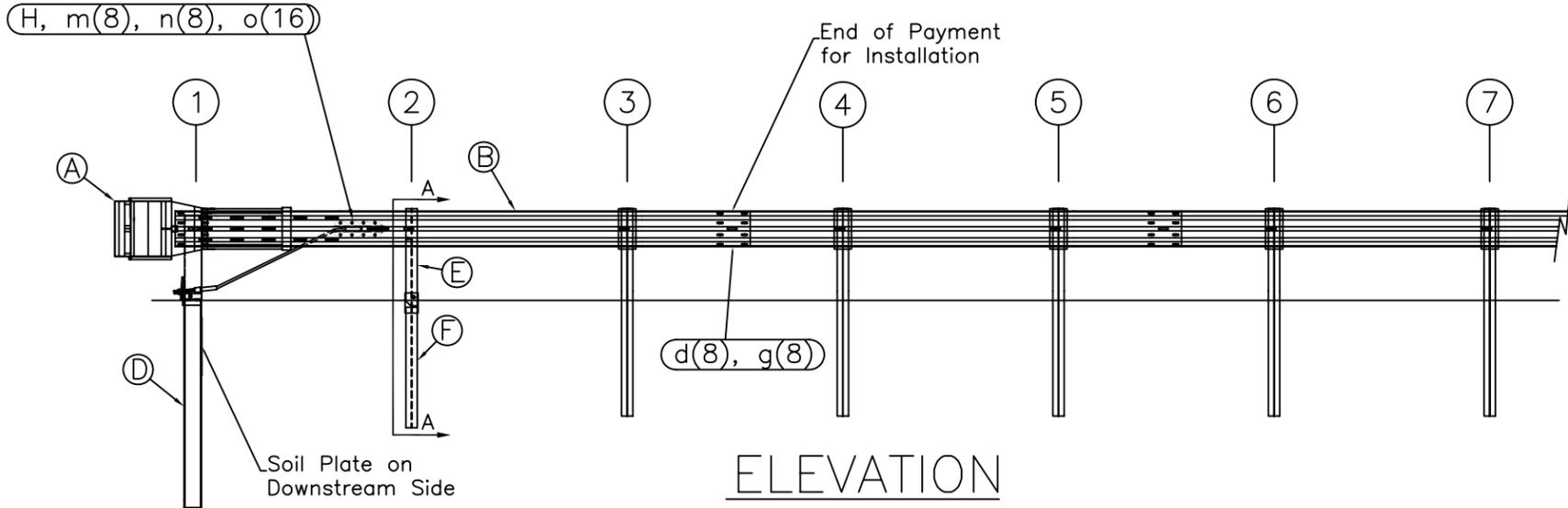
Figure 1

MATERIALS INFORMATION

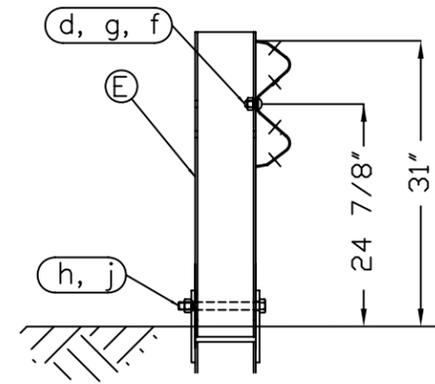
11. Alternative Flared Terminal System
 - A. Type FLEAT-SP-MGS Terminal System
 - B. Type SRT-31 Terminal System
 - C. Type 31" X-TENSION Terminal System



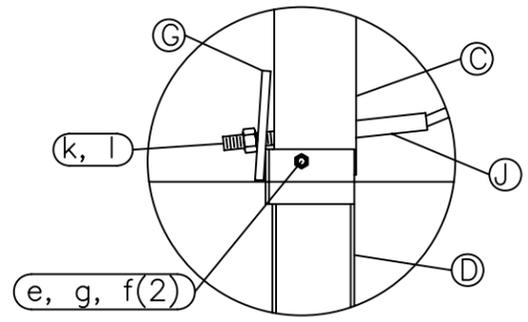
PLAN



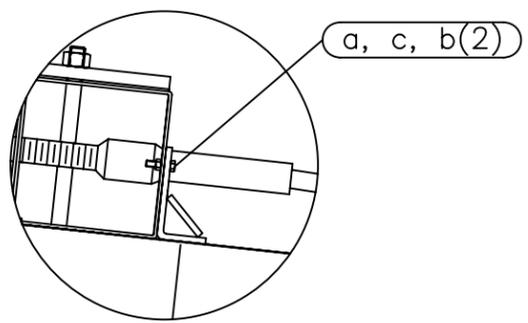
ELEVATION



SECTION A-A
Post #2



Post #1 Connection Detail



Impact Head Connection Detail

ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	F3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	MGS-SF1303
C	1	FIRST POST TOP (6X6X $\frac{1}{2}$ " Tube)	TPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	TPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP3B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770

HARDWARE (ALL DIMENSIONS IN INCHES)			
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	9	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1	5/8 Dia. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	10	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	CABLE ANCHOR BOX SHOULDER BOLT	SB58A
n	8	1/2 A325 STRUCTURAL NUT	N055A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A

GENERAL NOTES:

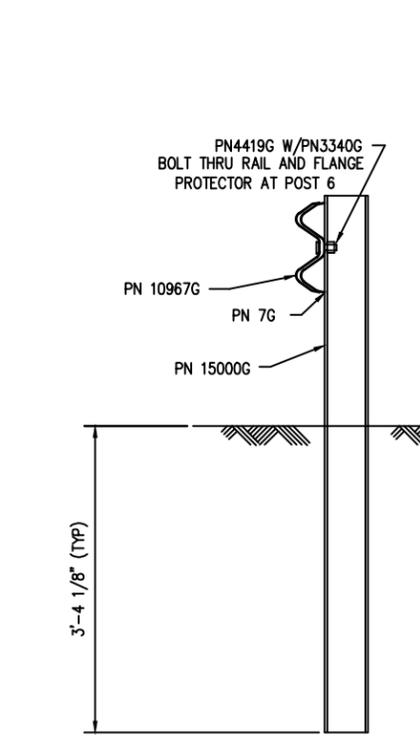
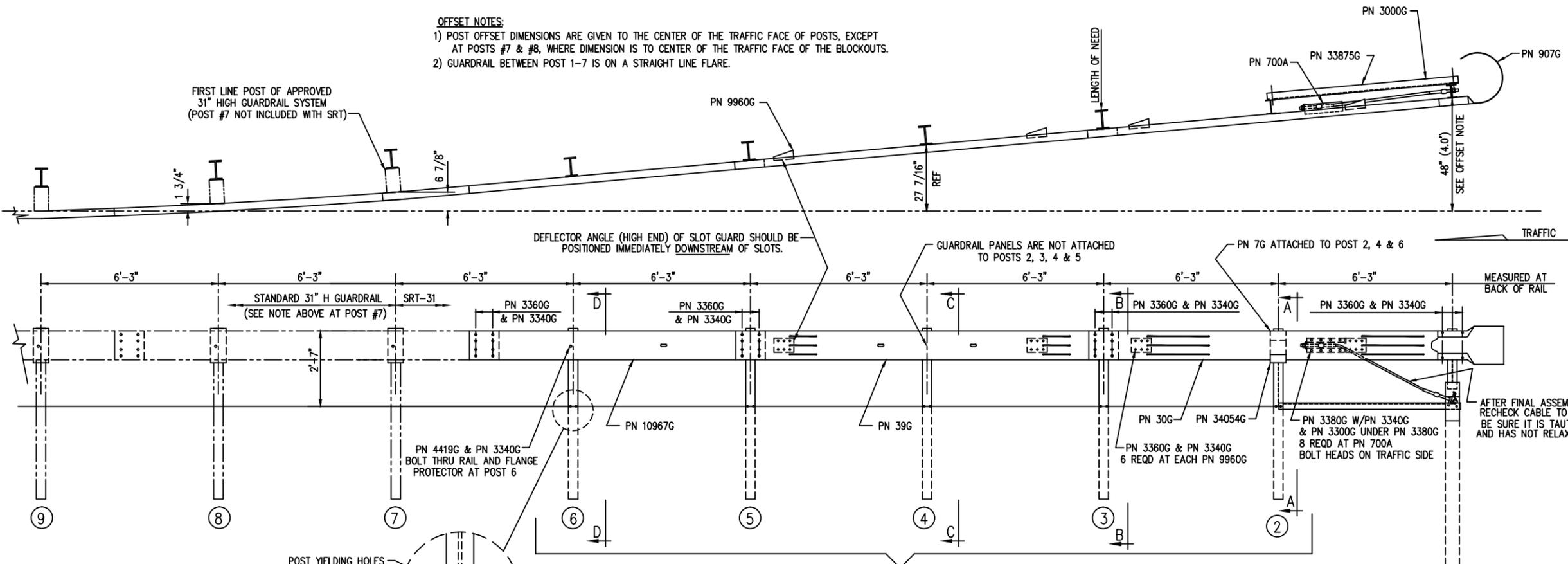
- All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
- The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
- The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
- When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
- The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

Big Spring, TX
Phone: 432-263-2435
or Phone: 330-346-0721

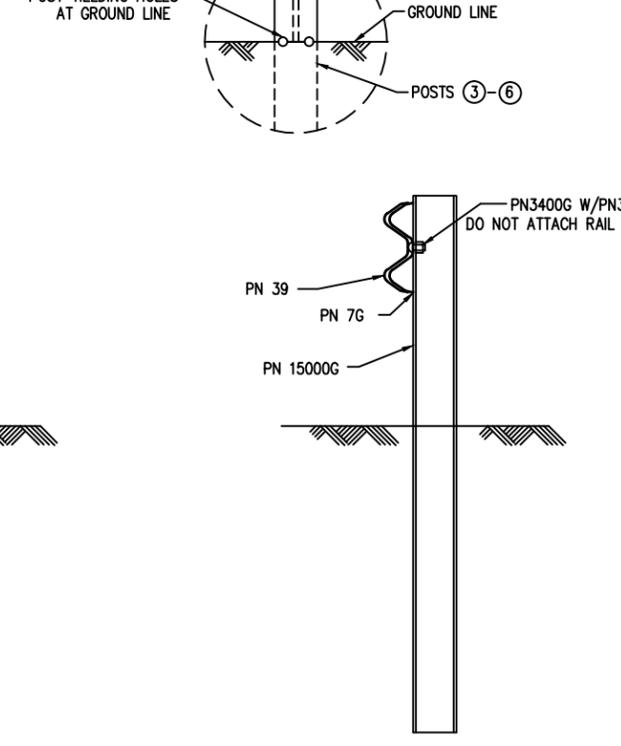
FLEAT-SP-MGS Terminal Midwest Guardrail System 31" Top of Rail		Sheet:	1
		Date:	02/24/10
Drawing Name: FLT-SP-S-MGS		By:	JRR
		Scale:	None
		Rev:	0

OFFSET NOTES:
 1) POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF POSTS, EXCEPT AT POSTS #7 & #8, WHERE DIMENSION IS TO CENTER OF THE TRAFFIC FACE OF THE BLOCKOUTS.
 2) GUARDRAIL BETWEEN POST 1-7 IS ON A STRAIGHT LINE FLARE.

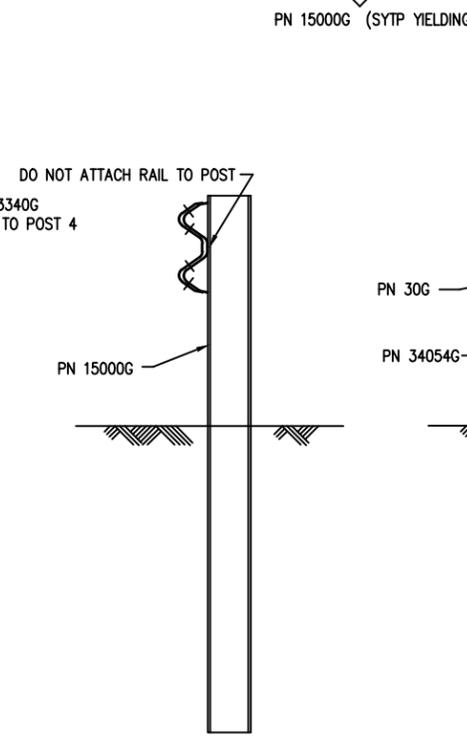
FIRST LINE POST OF APPROVED 31" HIGH GUARDRAIL SYSTEM (POST #7 NOT INCLUDED WITH SRT)



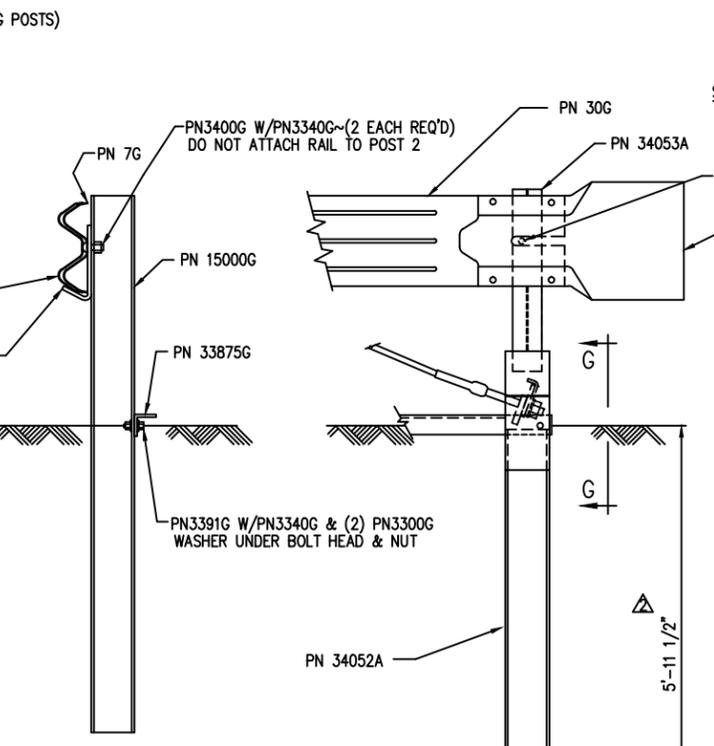
SECTION "D-D"
(@ POST #6)



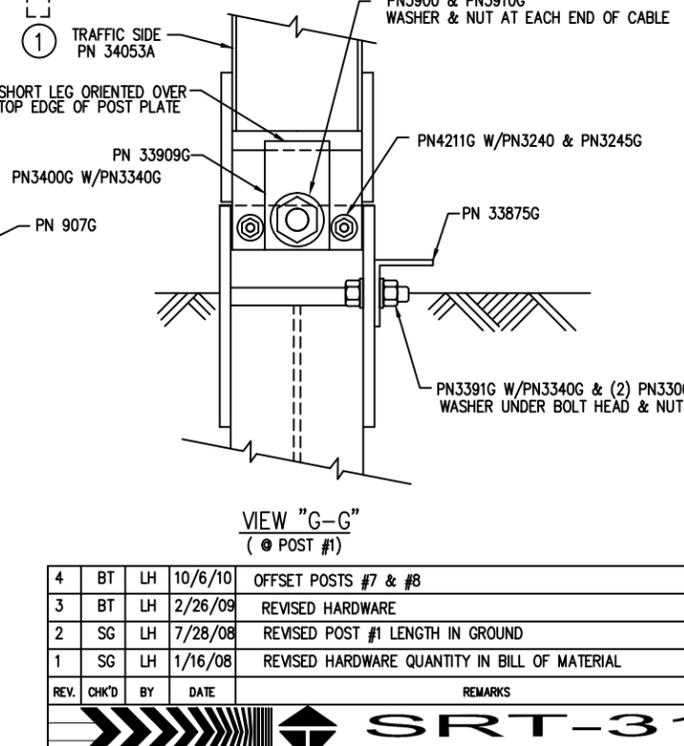
SECTION "C-C"
(@ POST #4)



SECTION "B-B"
(@ POST #3 & #5)



SECTION "A-A"
(@ POST #2)



ENLARGED VIEW @ POST #1

BILL OF MATERIAL		
PN	QTY	DESCRIPTION
7G	3	12/6"/FLG PROTECTOR (AT POST 2, 4 & 6)
30G	1	12/12/6"/S SRT-1 (GUARDRAIL)
39G	1	12/12/6"/S SRT-2 (GUARDRAIL)
700A	1	CABLE ANCHOR BRACKET
907G	1	12/BUFFER/ROLLED (TERMINAL)
3000G	1	3/4 x 6'-6" CABLE
HARDWARE		
3240G	2	5/16" WASHER (AT POST 1)
3245G	2	5/16" HEX NUT (AT POST 1)
3300G	12	5/8" WASHER
3340G	67	5/8" HEX HGR NUT
3360G	52	5/8" x 1 1/4" HGR SPLICE BOLT
3380G	8	5/8" x 1 1/2" HEX HD BOLT
3400G	4	5/8" x 2" HGR POST BOLT (AT POSTS 1, 2 & 4)
3391G	2	5/8" x 1 3/4" HEX BOLT (A325) (AT STRUT)
3900G	2	1" WASHER (AT CABLE)
3910G	2	1" HEX NUT (AT CABLE)
4211G	2	5/16" x 1 3/4" HEX BOLT (AT POST 1)
4419G	1	5/8" x 1 3/4" COUNTERSUNK HD BOLT (AT POST 6)
9960G	4	SLOT GUARD BRACKET
10967G	1	12/9'4.5/3'1.5"/S SRT-3 (GUARDRAIL)
15000G	5	6'-0" SYT POST (W6 X 8.5)
33909G	1	CABLE ANCHOR BRACKET (AT POST 1)
33875G	1	ANGLE STRUT 3 x 3 x 1/4
34052A	1	CR POST 1 BOT (W6 X 15)
34053A	1	CR POST 1 TOP (W6 X 8.5)
34054G	1	POST SHELF ANGLE (AT POST 2)

REV.	CHK'D	BY	DATE	REMARKS
4	BT	LH	10/6/10	OFFSET POSTS #7 & #8
3	BT	LH	2/26/09	REVISED HARDWARE
2	SG	LH	7/28/08	REVISED POST #1 LENGTH IN GROUND
1	SG	LH	1/16/08	REVISED HARDWARE QUANTITY IN BILL OF MATERIAL

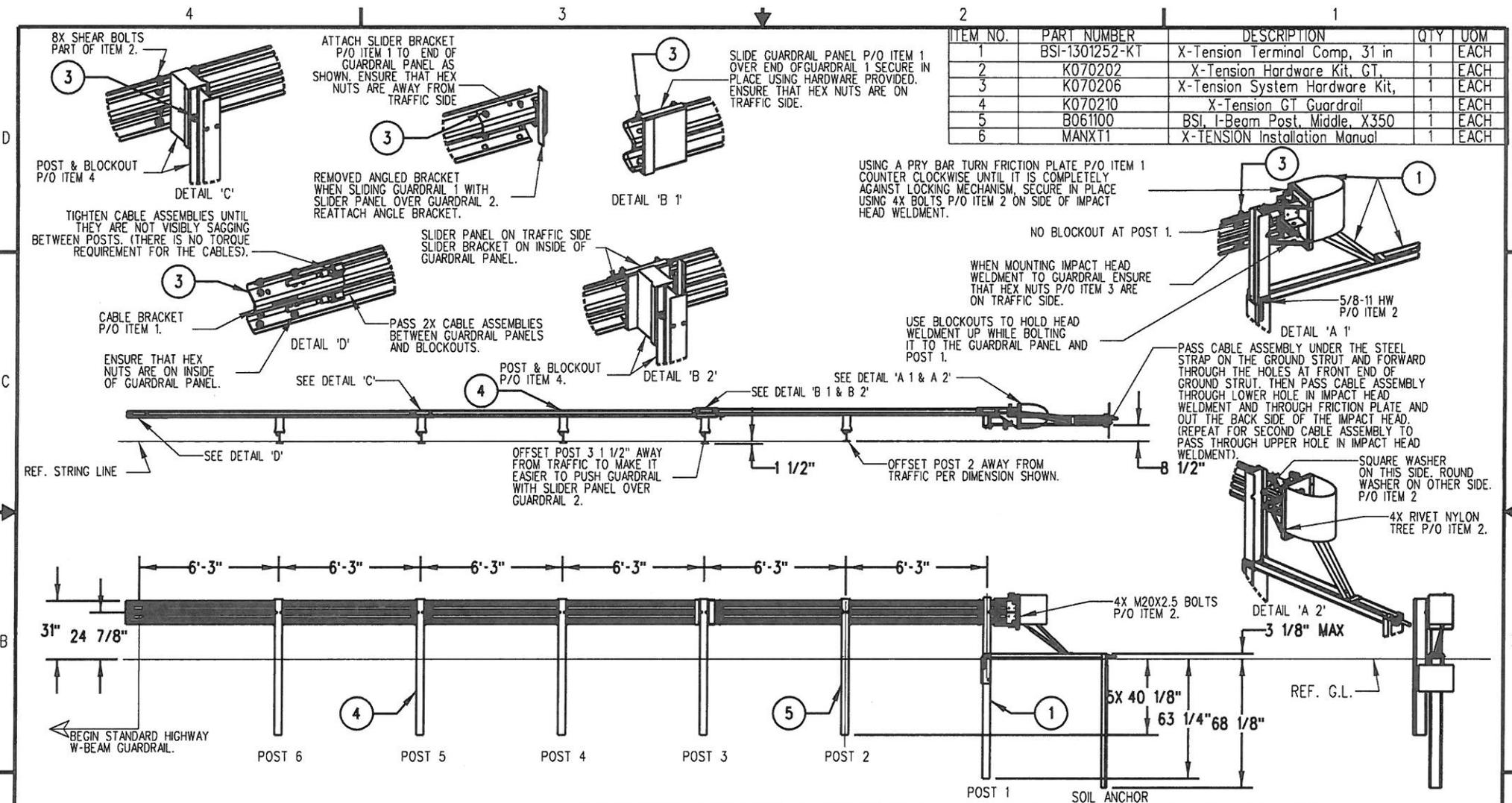
SRT-31

SLOTTED RAIL TERMINAL SRT-31 (31" H)
ERECTION DETAILS
(3 PANELS, CR AND SYT POSTS)

DRAWN	BT
CHECKED	SG
SCALE	NTS
DATE	10/30/07
ENG. FILE #	SS436-01E
SHT.No.	E1 OF 1
DRAWING NO.	SS 436
REV.	4

TRINITY HIGHWAY PRODUCTS, LLC.
2525 STEMMONS FREEWAY
DALLAS, TX 75207

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY	UOM
1	BSI-1301252-KT	X-Tension Terminal Comp, 31 in	1	EACH
2	K070202	X-Tension Hardware Kit, GT.	1	EACH
3	K070206	X-Tension System Hardware Kit,	1	EACH
4	K070210	X-Tension GT Guardrail	1	EACH
5	B061100	BSL I-Beam Post, Middle, X350	1	EACH
6	MANXT1	X-TENSION Installation Manual	1	EACH

- NOTES: UNLESS OTHERWISE SPECIFIED.
- SYSTEM TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
 - ONLY TIGHTEN THE CABLE ASSEMBLIES USING THE NUTS AT THE CABLE BRACKET (SEE DETAIL 'D'). DO NOT TIGHTEN THE CABLES AT THE FRONT OF THE GROUND ANCHOR.
 - WHEN DRIVING STEEL POST, ENSURE THAT A DRIVING CAP WITH TIMBER OR PLASTIC INSERT IS USED TO PREVENT DAMAGE TO THE GALVANIZING TO THE TOP OF THE POST.

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APPROVALS DRAWN BY: NMV DRAWN DATE: 2/08/13 APPR'D BY: JMT APPR'D DATE: 2/08/13		THRD ANGLE PROJECTION  INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-1994 DO NOT SCALE DRAWING	
REV	ECN*	DATE	SCALE
B	2067	03/02/13	B
A	2022	2/08/13	B
1			1:50

LINDSAY
TRANSPORTATION SOLUTIONS

BARRIER SYSTEMS INC.
3333 Voco Valley Parkway, Ste 800
Vacoala, CA 95688
Tel: 800-800-5691
www.barriersystemsinc.com

TITLE: X-TENSION GUARDRAIL TERMINAL SYSTEM
STEEL POST WITH COMPOSITE BLOCKOUT
31" RAIL HEIGHT

SIZE: B
DWC NO.: B
SCALE: 1:50
SHEET: 1 OF 1

MATERIALS INFORMATION

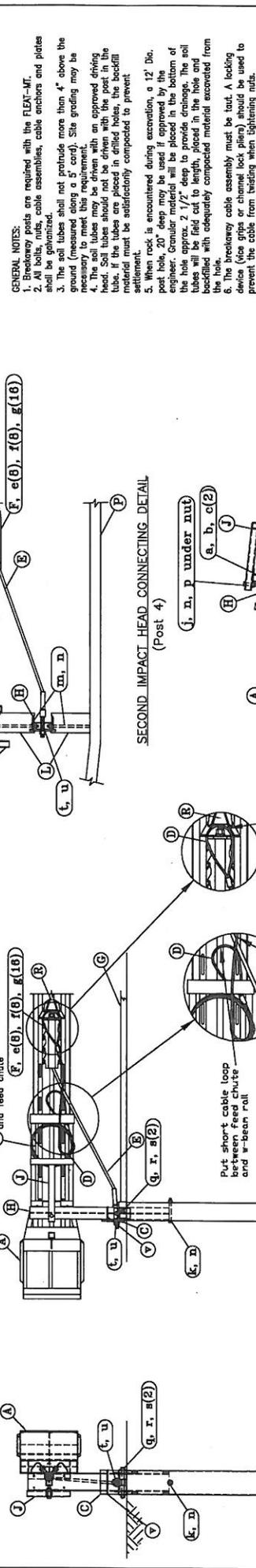
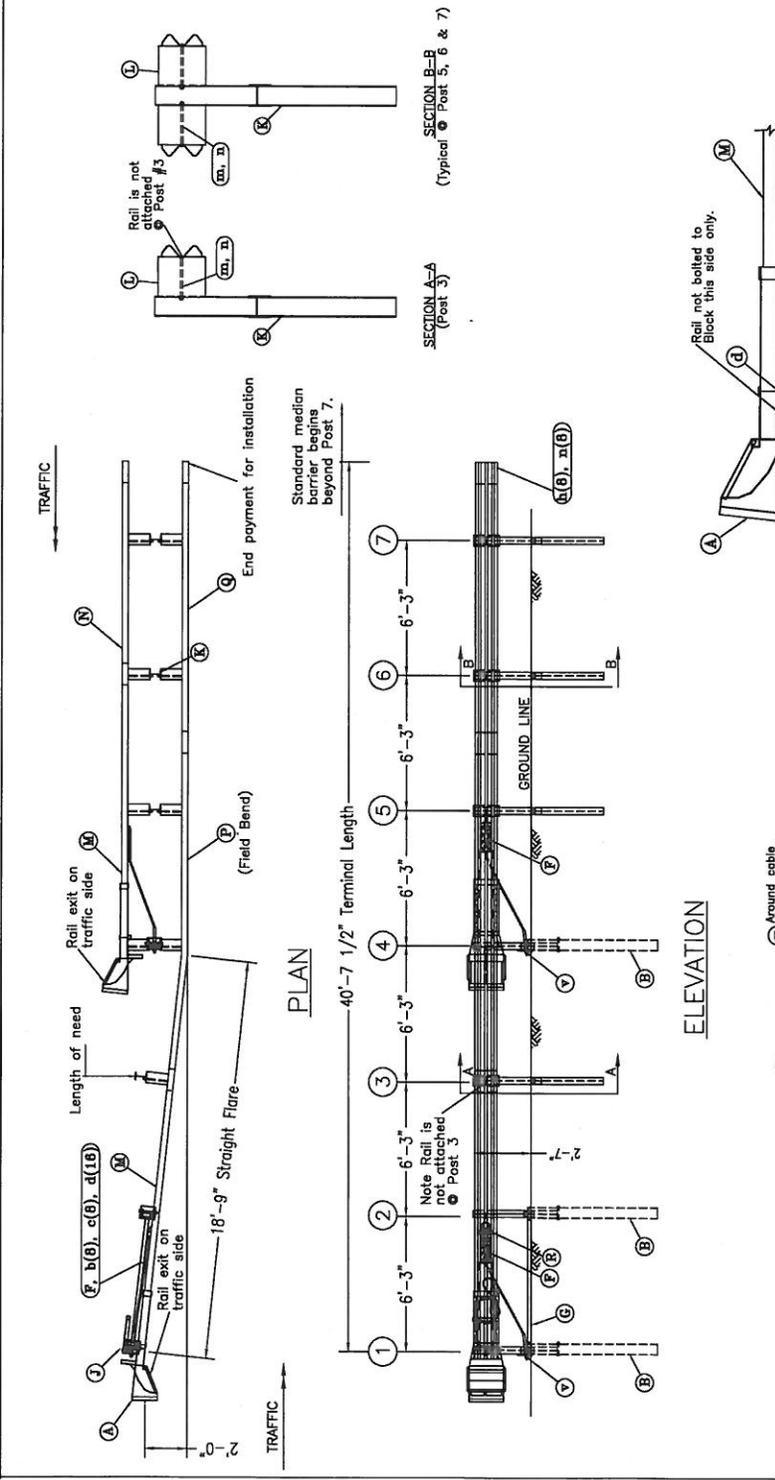
12. Alternative Crash Cushion System

A. Crash Cushion (TYPE CAT)

B. Crash Cushion (TYPE BRAKEMASTER 350)

C. Crash Cushion (TYPE X-MAS)

ITEM	QTY	DESCRIPTION	PART#
A	2	FLEAT IMPACT HEAD	F3000
B	3	SOIL TUBE, 6" x 8" x 6'-0"	S730
C	2	BEARING PLATE	E750
D	1	3/8" GALV Cable 20'-0"	C3820
E	2	BCT CABLE ANCHOR ASSEMBLY	E770
F	2	CABLE ANCHOR BOX	S760
G	1	GROUND STRUT	E780
H	3	BREAKAWAY END POSTS 1, 2, & 4	MSPB620
J	1	POST BREAKER	PRMT
K	4	BREAKAWAY LINE POSTS 3, 5, 6 & 7	MSPB621
L	9	TIMBER BLOCKOUT OR RECYCLED EQUIV	P675
M	2	W-BEAM END SECTION, 12 GA. 12.5"	SF1303
N	1	W-BEAM GUARDRAIL, 12 GA. 9'-4 1/4"	G1202A
P	1	W-BEAM GUARDRAIL, 12 GA. 15'-7 1/2"	G1204A
Q	1	W-BEAM GUARDRAIL, 12 GA. 12'-6"	G1203A
R	1	DEFLECTOR BOX	DBMT
HARDWARE			
a	2	5/16" DIA. x 3" HEX BOLT	B5160304A
b	2	5/16" HEX NUT	N0516
c	4	5/16" WASHER	W0516
d	2	3/8" DIA. x 3" LAG SCREW	E350
e	16	1/2" DIA. SHOULDER BOLT	SB58A
f	16	1/2" A325 NUT	N055A
g	32	1/2" WASHER	W050A
h	41	5/8" DIA. X 1 1/4" SPLICE BOLT	B580122
j	1	5/8" DIA. x 3" HEX BOLT	B580304
k	3	5/8" DIA. x 7 1/2" HEX BOLT	B580754
m	9	5/8" DIA. x 14" H.G.R. BOLT	B581402
n	54	5/8" H.G.R. NUT	N050
p	1	5/8" H.G.R. WASHER	W050
q	3	3/4" DIA. x 10" HEX BOLT	B341004
r	3	3/4" HEX NUT	N030
s	6	3/4" WASHER	W030
t	4	1" ANCHOR CABLE HEX NUT	N100
u	4	1" ANCHOR CABLE WASHER	W100
v	3	CABLE TIE	CT100ST



GENERAL NOTES:

- Breakaway posts are required with the FLEAT-MT.
- All bolts, nuts, cable assemblies, cable anchors and plates shall be galvanized.
- The soil tubes shall not penetrate more than 4" above the ground surface (see Note 4). Site grading may be necessary to meet this requirement.
- The soil tubes may be driven with an approved driving head. Soil tubes should not be driven with the post in the tube. If the tubes are placed in drilled holes, the backfill material must be satisfactorily compacted to prevent settlement.
- When rock is encountered during excavation, a 12" Dia. pipe shall be installed and the soil tubes shall be placed on top of the pipe. Consideration shall be given to the bottom of the hole approx. 2 1/2' deep to provide drainage. The soil tubes will be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
- The breakaway cable assembly must be tested. A loading device (vice grips or channel lock pliers) should be used to prevent the cable from breaking when tightening nuts.

Sheet: **S1**

Date: 09/20/11

By: JRR

Scale: NC/NE

Revision: MED/PLT-S/MGS

Project Name: Median FLEAT Terminal Midwest Guardrail System Steel Posts

RST

Road Systems, Inc.

Big Spring, TX
Phone: 409-865-6655
or Fax: 409-865-6721