

Appendix A CEQA Environmental Significance Checklist

This checklist identifies physical, biological, social and economic factors that under CEQA might be affected by the proposed project. Where the checklist determination is something other than “no impact”, the associated environmental topic is further discussed in the environmental document.

Supporting documentation of all CEQA checklist determinations is provided in Chapters 2, 3, and 4 of this Initial Study/Environmental Assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or compensation measures under the appropriate topic headings in Chapters 2, 3, and 4.

Environmental Significance Checklist

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district might be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
VI. GEOLOGY & SOILS: Would the project:				
Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
VII. HAZARDS AND HAZARDOUS MATERIALS B Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
VIII. HYDROLOGY AND WATER QUALITY: Would the project:				
Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	X	
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
j) Inundation by tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
IX. LAND USE AND PLANNING: Would the project:				
Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
X. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
XI. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
XII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X

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XIII. PUBLIC SERVICES				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. TRANSPORTATION/TRAFFIC: Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVI. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing or new entitlements and resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
XVII. MANDATORY FINDINGS OF SIGNIFICANCE:				
Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X

Appendix B Special-Status Species

Many state and federal laws regulate impacts to wildlife. The US Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Game (CDFG) are responsible for implementing these laws.

“Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see Section 3.4.3, Special-Status Species and Occurrences, in this document for more detailed information regarding these species.

This appendix contains summary information on all special-status species potentially affected by the project. This includes information pertaining to each species’ habitat requirements and the likelihood that those habitats are present within the limits of the project. The habitats of some of these species have existed historically in the project area or only exist in isolated areas. This section also discusses potential impacts and permit requirements associated with plants and wildlife not listed or proposed for listing under the state or federal Endangered Species Act, including:

- CDFG fully protected plant species and plant species of special concern
- USFWS candidate plant species
- Non-listed California Native Plant Society (CNPS) rare and endangered plants
- CDFG fully protected species and species of special concern, and
- USFWS or NOAA Fisheries candidate species.

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Fed/State	Status		Habitat in Region Present/Absent	Species in Region Present/Absent	Habitat in ESL Present/Absent	Species in ESL Present/Absent	Rationale
			State	CNPS					
<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	Sonoma alopecurus	FE/-		1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is within 1.6 km (1 mile) of the ESL and was last confirmed in 1987 (CDFG 2005, Best et al. 1996).
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	-/-		1B.2	Present	Present	Unlikely	Unlikely	ESL is out of typical elevation range for the species. Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is approximately 16 km (10 miles) from ESL (California 2005).
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	-/-		4.3	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Species is often found on riverbanks or sandbars (Hickman 1993), which are largely absent from the ESL.
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	-/-		1B.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys.
<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	big-scale balsamroot	-/-		1B.2	Present	Present	Absent	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. ESL supports minimal habitat within elevation range for the species, and does not support serpentine soils with which species is often associated. Nearest occurrence approximately 8 km (5 miles) NNE of ESL (CDFG 2005).
<i>Blennosperma bakerii</i>	Sonoma sunshine	FE/SE		1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Southern limit of known range is within 1.6 (1 mile) of ESL (CDFG 2005, UC Berkeley/ Jepson Flora Project 2007). As per the Santa Rosa Plain Conservation Strategy (SRPCS), this species has the potential to occur. Potential impacts to this species are addressed in the corresponding Biological Assessment.

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Habitat in Region Present/Absent	Species in Region Present/Absent	Habitat in ESL Present/Absent	Species in ESL Present/Absent	Rationale
		Fed/State	CNPS					
<i>Calamagrostis bolanderi</i>	Bolander's reed grass	-/-	4.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location at Cunningham Marsh, 4.8 km (3 miles) SSW of Sebastopol (Best et al. 1996, UC Berkeley/ Jepson Flora Project 2007).
<i>Calamagrostis crassiglumis</i>	Thurber's reed grass	-/-	2.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location at Pitkin Marsh, approximately 8 km (5 miles) north of Sebastopol (CDFG 2005, Best et al. 1996).
<i>Campanula californica</i>	swamp harebell	-/-	1B.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location at Pitkin Marsh, approximately 8 km (5 miles) north of Sebastopol (CDFG 2005, Best et al. 1996).
<i>Carex albida</i>	white sedge	FE/SE	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest location, at Perry Marsh, 3.2 km (2 miles) north of Sebastopol, is historic (1939) and is considered extirpated (CDFG 2005); last seen at Pitkin Marsh, about 8 km (5 miles) north of Sebastopol, in 1988 (CDFG 2005).
<i>Carex buxbaumii</i>	Buxbaum's sedge	-/-	4.2	Present	Potential	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys.
<i>Carex comosa</i>	bristly sedge	-/-	2.1	Present	Potential	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest observation 16 km (10 miles) NW of ESL, last observed in 1896 (CDFG 2005).
<i>Castilleja uliginosa</i>	Pitkin Marsh Indian paintbrush	-/SE	1A	Present	Unlikely	Present	Unlikely	Suitable habitat is disturbed. Species was not observed during detailed botanical surveys and is presumed extinct. Only known locality was Pitkin Marsh, about 8 km (5 miles) north of Sebastopol (CDFG 2005, Best et al. 1996).

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Fed/State	Status		Habitat in Region Present/Absent	in Region Present/Absent	Species in ESL Present/Absent	Rationale
				CNPS				
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	-/-		1B.2	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is in the vicinity of Cotati (CNPS 2005).
<i>Downingia pusilla</i>	dwarf downingia	-/-		2.2	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest location, near Graton, 4.8 km (3 miles) NNW of Sebastopol, has not been seen since 1925 (CDFG 2005).
<i>Elymus californicus</i>	California bottle-brush grass	-/-		4.3	Present	Potential	Unlikely	Species is typically found in coniferous forest habitat, which is absent from the ESL. Nearest known occurrence is approx. 19 in (12 miles) outside of ESL near Occidental, and was last recorded in 1943 (Jepson Online Interchange). Suitable habitat is disturbed and species was not observed during detailed botanical surveys.
<i>Erodium acrophyllum</i>	round-leaved filaree	-/-		2.1	Present	Potential	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known occurrence is 11 km (7 miles) SE of the ESL, recorded from 1880 (CDFG 2005).
<i>Fritillaria liliacea</i>	fragrant fritillary	-/-		1B.2	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is at Annadel State Park, about 13 km (8 miles) NE of the ESL (CNDDDB, Best et al. 1996).
<i>Hemizonia congesta</i> ssp. <i>leucocephala</i>	Hayfield tarplant	-/-		3.	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is at the CDFG Todd Road Ecological Reserve, approximately 3 km (2 miles) NE of the ESL (Best et al. 1996)
<i>Iris longipetala</i>	coast iris	-/-		4.2	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys.

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Habitat in Region Present/Absent	Species in Region Present/Absent	Habitat in ESL Present/Absent	Species in ESL Present/Absent	Rationale
		Fed/State	CNPS					
<i>Lasthenia burkei</i>	Burke's goldfields	FE/SE	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Southern limit of known range is approximately 1.6 km (1 mile) north of ESL (CDFG 2005, Best et al. 1996).
<i>Lasthenia conjugens</i>	Contra Costa goldfields	FE/-	1B.1	Present	Present	Present	Unlikely	As per the SRPCS, this species has the potential to occur. Potential impacts to this species are addressed in the corresponding Biological Assessment.
<i>Legenere limosa</i>	legenere	-/-	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest occurrence is 11 km (7 miles) from the ESL (CDFG 2005).
<i>Leptosiphon grandiflorus</i>	large-flowered leptosiphon	-/-	4.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is approximately 5 km (3 miles) NE of ESL (CDFG 2005).
<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	Pitkin Marsh lily	FE/SE	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Only remaining location, at Cunningham Marsh, is 5 km (3 miles) SSW of Sebastopol (CDFG 2005).
<i>Limnanthes vinculans</i>	Sebastopol meadowfoam	FE/SE	1B.1	Present	Present	Present	Potential	Not observed during detailed botanical surveys. Nearest known locations are adjacent to the ESL (at Hessel Road) and were used as reference sites for the survey (CDFG 2005, Best et al. 1996).
<i>Lotus formosissimus</i>	harlequin lotus	-/-	4.2	Present	Potential	Present	Unlikely	As per the SRPCS, this species has the potential to occur. Potential impacts to this species are addressed in the corresponding Biological Assessment. Suitable habitat is disturbed and species was not observed during detailed botanical surveys.

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Species in Region		Habitat in ESL Present/Absent	Species in ESL Present/Absent	Rationale
		Fed/State	CNPS	Habitat in Region Present/Absent	Region Present/Absent			
<i>Microseris patudosa</i>	marsh microseris	-/-	1B.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location, in the vicinity of Todd Road (non-specific), is approximately 3 km (2 miles) NE of the ESL (CDFG 2005).
<i>Monardella villosa</i> ssp. <i>globosa</i>	robust monardella	-/-	1B.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Most known occurrences are found at higher elevations than those which are supported in the ESL (Jepson Online Interchange). Nearest known locality is approximately 16 km (10 miles) west of ESL, last seen in 1941 (CDFG 2005).
<i>Navarretia cotulifolia</i>	Cotula navarretia	-/-	4.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location, is approximately 3 km (2 miles) NE of ESL (UC Berkeley/ Jepson Flora Project 2007, Best et al. 1996).
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	-/-	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is approximately 13 km (8 miles) NE of the ESL (CDFG 2005, Best et al. 1996).
<i>Navarretia leucocephala</i> ssp. <i>plieantha</i>	many-flowered navarretia	FE/SE	1B.2	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest known location is near Windsor, approximately 16 km (10 miles) from ESL (CDFG 2005).
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>	Gairdner's yampah	-/-	4.2	Present	Present	Present	Unlikely	As per the SRPCS, this species has the potential to occur. Potential impacts to this species are addressed in the corresponding Biological Assessment.
								Suitable habitat is disturbed and species was not observed during detailed botanical surveys.

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Habitat in Region Present/Absent	Species in Region Present/Absent	Habitat in ESL Present/Absent	Species in ESL Present/Absent	Rationale
		Fed/State	CNPS					
<i>Pleuropogon hooverianus</i>	North Coast semaphore grass	-/ST	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. A wide-ranging species, nearest known locality is east of Cotati, approximately 6.4 km (4 miles) from the ESL (CDFG 2005).
<i>Potentilla hickmanii</i>	Hickman's cinquefoil	FE/SE	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Nearest reported locality, at Cunningham Marsh, 5 km (3 miles) SSW of Sebastopol, is likely not this taxon (CDFG 2005). No other known locations are found in Sonoma County.
<i>Ranunculus lobbii</i>	Lobb's aquatic buttercup	-/-	4.2	Present	Present	Present	Present	Roadside ditches provide suitable habitat. Species found during detailed botanical surveys (GANDA and CH2M HILL 2006; see Appendix E).
<i>Rhynchospora californica</i>	California beaked-rush	-/-	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Additionally, most of the ESL is outside of the elevation range to support the species. Unconfirmed in recent years from nearest known location at Cunningham Marsh, approximately 5 km (3 miles) SSW of Sebastopol (CDFG 2005).
<i>Rhynchospora capitellata</i>	brownish beaked-rush	-/-	2.2	Present	Present	Absent	Unlikely	ESL is out of species' known elevation range. Species was not observed during detailed botanical surveys. Unconfirmed in recent years from nearest known location at Perry Marsh, approximately 3 km (2 miles) north of Sebastopol (CDFG 2005).
<i>Rhynchospora globularis</i> var. <i>globularis</i>	round-headed beaked-rush	-/-	2.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Additionally, most of the ESL is outside of the elevation range to support the species. Unconfirmed in recent years from nearest known location at Cunningham Marsh, approximately 5 km (3 miles) SSW of Sebastopol (CDFG 2005).

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Habitat in Region Present/Absent	in Region Present/Absent		Habitat in ESL Present/Absent	Species in ESL Present/Absent	Rationale
		Fed/State	CNPS		Present/Absent	Present/Absent			
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	-/-	4.2	Present	Potential	Present	Unlikely	Species is typically found in areas of disturbance in coastal woodland areas. Species was not observed during detailed botanical surveys.	
<i>Trifolium amoenum</i>	showy Indian clover	FE/-	1B.1	Present	Present	Present	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. Formerly, a wide-ranging species. Presumed extinct until rediscovered in 1993 near Occidental, approximately 10 km (6 miles) NW of ESL (CDFG 2005).	
<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	saline clover	-/-	1B.2	Present	Present	Present	Unlikely	Suitable habitat is highly disturbed and considered low-quality habitat. Species was not observed during detailed botanical surveys. No confirmed locations within 16 km (10 miles) of ESL; nearest are at the south end of Sonoma Valley (CDFG 2005).	
<i>Triphysaria floribunda</i>	San Francisco owl's-clover	-/-	1B.2	Present	Potential	Present	Unlikely	Suitable habitat is highly disturbed and considered low-quality habitat. Species was not observed during detailed botanical surveys. Nearest known occurrence is more than 16 km (10 miles) west of the ESL (CDFG 2005).	
<i>Zigadenus micranthus</i> var. <i>fontanus</i>	marsh zigadenus	-/-	4.2	Present	Potential	Unlikely	Unlikely	Suitable habitat is disturbed and species was not observed during detailed botanical surveys. While the ESL is in the species range, it does not support serpentine soils, with which the species is associated.	
Wildlife									
Invertebrates									
<i>Syncaris pacifica</i>	California freshwater shrimp	FE/SE	N.A.	Present	Present	Present	Present	Present	Known to occur in the ESL. Found in Blucher Creek (Serpa 2006).

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Habitat in Region Present/Absent	Species in Region Present/Absent		Habitat in ESL Present/Absent	Species in ESL Present/Absent	Rationale
		Fed/State	CNPS		Present/Absent	Present/Absent			
Fish									
<i>Oncorhynchus mykiss irideus</i>	Central California Coast Steelhead ESU	-/SSC	N.A.	Present	Present	Present	Present	Present	All creeks in ESL are hydrologically connected to the Laguna de Santa Rosa, which is known to be occupied by the species. Designated Critical Habitat for this species occurs in Blucher Creek and greater watershed.
Amphibians									
<i>Ambystoma californiense</i>	California tiger salamander	FE/SSC	N.A.	Present	Present	Present	Present	Present	Known to occur in the immediate proximity of ESL (CDFG 200a7).
<i>Rana aurora draytonii</i>	California red-legged frog	FT/SSC	N.A.	Present	Absent	Present	Present	Unlikely	ESL is outside the currently established range of this species. Not documented within the vicinity of ESL (CDFG 2007a).
Reptiles									
<i>Emys (Clemmys) marmorata</i>	western pond turtle	-/SSC	N.A.	Present	Present	Present	Present	Present	Known to occur in ESL. Observed during steelhead habitat surveys and observed in Washoe Creek in 1988.
Birds									
<i>Elanus leucurus</i>	white-tailed kite	-/SFP	N.A.	Present	Present	Present	Present	Present	A variety of confirmed and probable nests documented in or near ESL.
<i>Buteo regalis</i>	Ferruginous hawk	-/SSC	N.A.	Present	Present	Present	Present	Unlikely	Nesting not common in Sonoma County. Winter migrant only.
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	-/SE	N.A.	Present	Unlikely	Present	Present	Unlikely	No documented nesting occurrences in Sonoma County for more than 50 years. One vagrant observed in 1988. Suitable habitat present but species unlikely to occur.
<i>Athene cunicularia hypugaea</i>	western burrowing owl	-/SSC	N.A.	Present	Present	Present	Present	Unlikely	There are no records for this species within the ESL (CNDDDB).
<i>Chaetura vauxi</i>	Vaux's swift (nesting)	-/SSC	N.A.	Present	Unlikely	Present	Present	Unlikely	No suitable tree nesting habitat in ESL, but possible nesting habitat in chimneys. Known to nest in two locations near the ESL.

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Habitat in Region		Species in Region		Habitat in ESL		Species in ESL		Rationale
		Fed/State	CNPS	Present/Absent	Present/Absent	Present/Absent	Present/Absent	Present/Absent	Present/Absent	Present/Absent		
<i>Empidonax traillii brewsteri</i>	little willow flycatcher	-/SE	N.A.	Present	Present	Potential	Present	Unlikely	Present	Unlikely	Some suitable riparian habitat present. Not known to occur in Sonoma county.	
<i>Lanius ludovicianus</i>	loggerhead shrike	-/SSC	N.A.	Present	Present	Potential	Present	Potential	Present	Potential	Suitable nesting and foraging habitat available within or near ESL.	
<i>Agelaius tricolor</i>	tricolored blackbird	-/SSC	N.A.	Present	Present	Present	Present	Potential	Present	Potential	Free probable breeding records near the ESL between 1986 and 1991. Closest known CNDDDB occurrence approximately 3 km (2 mi) from the ESL (CDFG 2007a).	
Mammals												
<i>Antrozous pallidus</i>	Pallid bat	-/SSC	N.A.	Present	Present	Present	Present	Unlikely	Present	Unlikely	Some suitable habitat present. Closest known CNDDDB occurrence is approximately 8 km (5 mi) from ESL.	
<i>Corynorhinus (Plecotus) townsendii townsendii</i>	Pacific (Townsend's) western big-eared bat	-/SSC	N.A.	Present	Present	Present	Present	Potential	Present	Potential	Suitable habitat present. Closest known CNDDDB occurrence is approximately 22 km (14 mi) from ESL.	
<i>Eumops perotis californicus</i>	Greater western mastiff bat	-/SSC	N.A.	Present	Present	Potential	Present	Unlikely	Present	Unlikely	Not expected. Not previously known from northern California except for a few recent records; no suitable habitat within ESL.	
<i>Taxidea taxus</i>	American badger	-/SSC	N.A.	Present	Present	Present	Present	Unlikely	Present	Unlikely	Habitats within or near ESL are marginal. Closest known CNDDDB occurrence is approximately 5 km (3 mi) from the ESL	

Special-Status Plants and Wildlife with Potential to Occur in the Proposed Project ESL

Scientific Name	Common Name	Status		Habitat in Region Present/Absent	Species in Region Present/Absent		Habitat in ESL Present/Absent	Species in ESL Present/Absent		Rationale
		Fed/State	CNPS		Present/Absent	Present/Absent		Present/Absent	Present/Absent	
Notes:										

Status Codes:

Federal Status

- FE – Federally listed as endangered
- FT – Federally listed as threatened
- FC – Candidate for federal listing

State Status

- SE – State listed as endangered
- ST – State listed as threatened
- SSC – State Species of Concern
- SR – State listed as rare
- SFP – Fully Protected

N.A. = Not applicable

California Native Plant Society (CNPS) Status

- 1A – Plants presumed extinct in California
- 1B – Plants rare, threatened, or endangered in California and elsewhere
- 2 – Plants rare, threatened, or endangered in California, but more common elsewhere
- 3 – Plants about which we need more information – a review list
- 4 – Plants of limited distribution – a watch list

CNPS threat code extensions

- .1 – Seriously endangered in California.
- .2 – Fairly endangered in California.
- .3 – Not very endangered in California.
- ? – Not determined.

Sources

California Natural Diversity Database (CNDDDB). 2007. RareFind3. California Department of Fish and Game, Sacramento.
 California Native Plant Society (CNPS). 2007. Inventory of Rare and Endangered Plants of California. Online edition, v6-05a. California Native Plant Society. Sacramento, CA. Howald, Ann. 2006.
 GANDA and CH2M HILL. 2006. Special-Status Plant Surveys Caltrans Highway 116 Rehabilitation Project, Cotati to Sebastopol (EA 131571). See Appendix E.
 US Fish and Wildlife Service. 2005. "Endangered Species Lists." January 2007.

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY (916) 653-4086



*Flex your power!
Be energy efficient!*

January 14, 2005

TITLE VI POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in black ink that reads "Will Kempton".

WILL KEMPTON
Director

"Caltrans improves mobility across California"

Appendix D Summary of Relocation Benefits

CALIFORNIA DEPT. OF TRANSPORTATION RELOCATION ASSISTANCE PROGRAM

RELOCATION ASSISTANCE ADVISORY SERVICES

The California Department of Transportation (the Department) will provide relocation advisory assistance to any person, business, farm or non-profit organization displaced as a result of the Department's acquisition of real property for public use. The Department will assist residential displacees in obtaining comparable decent, safe and sanitary replacement housing by providing current and continuing information on sales price and rental rates of available housing. Non-residential displacees will receive information on comparable properties for lease or purchase.

Residential replacement dwellings will be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, displacees will be offered comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include supplying information concerning federal and state assisted housing programs, and any other known services being offered by public and private agencies in the area.

RESIDENTIAL RELOCATION PAYMENTS PROGRAM

The links below are to the Relocation Assistance for Residential Relocation Brochure.

http://www.dot.ca.gov/hq/row/pubs/residential_english.pdf

http://www.dot.ca.gov/hq/row/pubs/residential_spanish.pdf

http://www.dot.ca.gov/hq/row/pubs/mobile_eng.pdf

http://www.dot.ca.gov/hq/row/pubs/mobile_sp.pdf

THE BUSINESS AND FARM RELOCATION ASSISTANCE PROGRAM

http://www.dot.ca.gov/hq/row/pubs/business_farm.pdf

http://www.dot.ca.gov/hq/row/pubs/business_sp.pdf

ADDITIONAL INFORMATION

No relocation payment received will be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without being given at least 90 days advance

notice, in writing. Occupants of any type of dwelling eligible for relocation payments will not be required to move unless at least one comparable “decent, safe and sanitary” replacement residence, open to all persons regardless of race, color, religion, sex or national origin, is available or has been made available to them by the state.

Any person, business, farm or non-profit organization, which has been refused a relocation payment by the Department, or believes that the payments are inadequate, may appeal for a hearing before a hearing officer or the Department’s Relocation Assistance Appeals Board. No legal assistance is required; however, the displacee may choose to obtain legal council at his/her expense. Information about the appeal procedure is available from the Department’s Relocation Advisors.

The information above is not intended to be a complete statement of all of the Department’s laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the state’s relocation services. Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of the Department’s relocation programs.

IMPORTANT NOTICE

To avoid loss of possible benefits, no individual, family, business, farm or non-profit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation relocation advisor at:

Michael Hoover
michael_hoover@dot.ca.gov
State of California
Department of Transportation, District #04
PO Box 23660
Oakland, CA 94623-0660

Appendix E List of Technical Documents

Information regarding the location of prehistoric archaeological sites is not to be released to the public. The legal justification for protecting this information is based in California Public Resources Code Section 6254.10.

Initial Site Assessment [ISA] Results for Road Rehabilitation project 04-131571. Caltrans District 4 Department of Environmental Engineering. December 14, 2000.

Site Investigation Report: State Route 116 Cotati to Sebastopol Sonoma County, California. Prepared for California Department of Transportation District 3 by Shaw Environmental, Sacramento, Calif. April 22, 2003.

Biological Assessment for California Freshwater Shrimp (Syncaris pacifica), California Tiger Salamander (Ambystoma californiense), and Endangered Plants, Sonoma State Route 116 Roadway Rehabilitation Project Between Cotati and Sebastopol Sonoma County, California. Caltrans District 4 Office of Biological Sciences and Permits. September, 2007.

Biological Assessment (Steelhead), Sonoma State Route 116 Roadway Rehabilitation Project Between Cotati and Sebastopol Sonoma County, California. Caltrans District 4 Office of Biological Sciences and Permits. September, 2007.

Natural Environment Study: State Route 116 Roadway Rehabilitation Project, Sonoma County, California. Caltrans District 4 Office of Biological Sciences and Permits. September, 2007.

SR-116–Improvements from Cotati to Sebastopol, Sonoma County, Visual Impact Assessment. Caltrans District 4 Office of Landscape Architecture. May, 2007.

Relocation Impact Statement (Draft) 04-SON-116 KP 45.1-56.0 EA 13171. Caltrans District 4 Division of Right of Way. April, 2007.

Historical Resources Evaluation Report for the proposed improvements on State Route 116, the “Gravenstein Highway” between Cooper Road in Sebastopol and Alder Avenue in Cotati, Sonoma County, California. Prepared for the California Department of Transportation [by the] Anthropological Studies Center, Sonoma State University, Rohnert Park, California. June, 2003. Revised September, 2006. Not available for public review.

Historic Property Survey Report for the proposed improvements on State Route 116, the “Gravenstein Highway” between Cooper Road in Sebastopol and Alder Avenue in Cotati, Sonoma County, California. California Department of Transportation District 4 Office of Cultural Resource Studies. September, 2006.

Appendix G SHPO Concurrence in Eligibility

STATE OF CALIFORNIA - THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

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

P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov



November 1, 2006

Reply To: FHWA060928A

Jennifer Darcangelo
Chief, Office of Cultural Resource Studies
Caltrans District 4
111 Grand Avenue
PO Box 23660
Oakland, CA 94623-0660

Re: Determinations of Eligibility for the Proposed Improvements to State Route 116, the "Gravenstein Highway: between Cooper Road in Sebastopol and Alder Avenue in Cotati; CA (04-SON-116 PM 27.78/34.53, EA 13157)"

Dear Ms. Darcangelo:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA)*.

The California Department of Transportation (Department) is requesting my concurrence, pursuant to Stipulation VIII.C.5 of the PA, that the Enmanji Buddhist Temple, located at 1200 Gravenstein Highway in Sebastopol, is eligible for the National Register of Historic Places (NRHP) at the local level of significance under criterion C as a fine example of a Japanese Buddhist temple built in the Eclectic style of the late Kamakura period. The period of significance is 1933-1934. **I concur.**

In addition the department has determined that the following properties were previously listed or determined eligible for the NRHP:

- Llano House, 4353 Gravenstein Highway, listed on the NRHP in 1978
- CA-SON-159, determined eligible for the NRHP in August of 1993
- CA-SON-1695, determined eligible for the NRHP in June of 1994

Due to the early listing of the Llano House on the NRHP (1978) the Department evaluated the Llano House to determine the criteria under which the property could be considered significant. The Department determined that the Llano House is eligible under criteria A and C. Under criterion A, the Llano House was one of the earliest Anglo-American buildings constructed in the Sebastopol area and is perhaps the oldest extant wood framed building in the region. The building is associated with pioneer settlement patterns of the region and continues to be a significant property under

Ms. Darcangelo
November 1, 2006
Page 2

FHWA060928A

criterion A. Under criterion C the Llano House is eligible as it embodies the distinctive characteristics of vernacular architecture and illustrates the evolution of taste, materials, and technologies of the region during the periods of construction. In addition the house is possibly the oldest extant building in the region. **I concur.**

In addition the Department has determined that the 65 properties listed on pages 5-6 of the HPSR for the project are not eligible for the NRHP. **I concur.**

Thank you for taking historic properties into account as part of your project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or e-mail at nlindquist@parks.ca.gov.

Sincerely,

Susan K. Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Appendix H NRCS Farmland Determination

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 5/23/07			
Name Of Project SON-116 Roadway Rehabilitation		Federal Agency Involved FHWA			
Proposed Land Use Transportation		County And State Sonoma, California			
PART II (To be completed by NRCS)		Date Request Received By NRCS			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply -- do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %			
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By NRCS 6/11/2007			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		1.1			
B. Total Acres To Be Converted Indirectly		0.0			
C. Total Acres In Site		1.1	0.0	0.0	0.0
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide And Local Important Farmland					
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion		0	0	0	0
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)					
PART VI (To be completed by Federal Agency)		Maximum Points			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))					
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS		160	0	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	0	0	0
Total Site Assessment (From Part VI above or a local site assessment)		160	0	0	0
TOTAL POINTS (Total of above 2 lines)		260	0	0	0
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Reason For Selection:					

* Soil map units that are classified as prime, unique or of statewide importance must be irrigated to be considered as such. The criteria for farmland of statewide importance explicitly states that farmland of statewide importance must have "a developed irrigation supply that is dependable and of adequate quality. A dependable water supply is one which is available for the production of the commonly grown crops in 8 out of 10 years..." Though some of the farmland is in the statewide importance class, because it is not irrigated, it is not considered of statewide importance. Form AD-1006 (10-83)

Appendix I Letter from CDC

STATE OF CALIFORNIA, RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, GOVERNOR



DEPARTMENT OF CONSERVATION

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET • MS 18-01 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-0850 • FAX 916 / 327-3430 • TDD 916 / 324-2555 • WEBSITE conservation.ca.gov

May 7, 2007

Mr. Oliver Iberien, Environmental Planner
California Department of Transportation
Office of Environmental Analysis
P.O. Box 23660
Oakland, CA 94623-0440

Subject: Public Agency Acquisition of Land Enrolled in Williamson Act Contract -
Department of Transportation, Sebastopol-Cotati Roadway Rehabilitation
Project, Sonoma County

Dear Mr. Iberien:

Thank you for your letter of April 10, 2007, notifying the Department of Conservation (Department) of the possible acquisition of 0.7219 acres of grazing land enforceably restricted by Williamson Act contract by the Department of Transportation (Caltrans). The purpose of the acquisition is pavement restoration and operational improvements on State Route (SR) 116 between Sebastopol and Cotati in Sonoma County (County). The project includes addressing obsolete features such as skew intersections, non-channelized turning lanes and undersized roadway shoulder dimensions and addressing the mobility needs of bicyclists and mass-transit users.

Required Findings

The Williamson Act requires that a public agency shall not locate a public improvement within an agricultural preserve unless the following findings are made:

- *The location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve (Government Code §51292(a)).*
- *If the land is agricultural land covered under a contract pursuant to this chapter for any public improvement, that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement (Government Code §51292(b)).*

The letter states that contracted land cannot be avoided because no other space exists for the planned improvements other than areas bordering the current right-of-way. The maps provided with the letter do not distinguish between contracted and noncontracted land, although it appears that contracted land lies south of SR 116 and noncontracted land lies to the north. In addressing the finding in §51292(b), Caltrans should explain

*The Department of Conservation's mission is to protect Californians and their environment by:
Protecting lives and property from earthquakes and landslides; Ensuring safe mining and oil and gas drilling;
Conserving California's farmland; and Saving energy and resources through recycling.*

Mr. Oliver Iberien, Environmental Planner
May 7, 2007
Page 2 of 3

why the project cannot feasibly utilize noncontracted land to the north only. Caltrans should also specifically address the finding in §51292(a).

Caltrans may also want to consider whether the exception in §51293(g) applies if the improvements involve any of *All state highways on routes as described in Section 301 to 622, inclusive, of the Streets and Highways Code, as those sections read on October 1, 1965*. This requires that improvements involve only the highway as described in the October 1, 1965 statute and not other roadways, such as a different route, bypass, intersection, overpass, frontage road, on-ramp, etc. If it determines that the exception applies, Caltrans should provide explanation and documentation in support as it would for the §51292 findings.

Eminent Domain

A Williamson Act contract is an enforceable restriction pursuant to Article XIII, §8 of the California Constitution and Government Code §51252. Assuming other necessary requirements are met, acquisition of Williamson Act land must meet requirements of eminent domain law for acquisition by eminent domain or in lieu of eminent domain (e.g., Code of Civil Procedure §1230.010 et seq. and Government Code §7260 et seq.) in order to void the contract pursuant to §51295. If the acquisition does not void the contract, Caltrans' uses of contracted property will be affected and limited by the terms of the contract and provisions of the Act.

At least one Caltrans district has informed the Department that its acquisition process follows the policies and procedures described in Chapter 8 of the Caltrans Right of Way Manual, including Exhibit 8-EX-1, Article 6. Acquisition Policies. In the subject acquisition, if Caltrans were to follow these policies and procedures, it would appear to meet the intent of §51295 regarding voiding the subject contract with respect to the land so acquired. Please understand, however, that the Department does not provide counsel regarding eminent domain law but encourages Caltrans to obtain legal counsel for this purpose.

CEQA

The letter states that Caltrans is preparing an Initial Study/Mitigated Negative Declaration (MND) for June 2007 public release. In order to complete its review of the subject acquisition, the Department requests a copy of the MND.

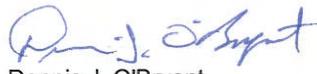
Additional Notification

Please be advised that pursuant to Government Code §51291(d), the Department and local governing body must be notified of any proposed, significant changes to the project. The Department must also be notified within 10 days when the property is actually acquired (§ 51291(c)). If Caltrans' acquisition voids the involved contract

Mr. Oliver Iberien, Environmental Planner
May 7, 2007
Page 3 of 3

under § 51295, and Caltrans then determines not to locate the proposed public improvement on the subject property or any part thereof, before returning the land to private ownership, it must notify the Department and local governing body. The land must be reenrolled in a new contract or encumbered by an enforceable restriction at least as restrictive as that provided by the Williamson Act (§ 51295) and subject contract. If you have any questions about our comment or need further assistance, please contact Bob Blanford, Research Analyst, at (916) 327-2145.

Sincerely,



Dennis J. O'Bryant
Program Manager

cc: The Honorable Eeve T. Lewis
Sonoma County Assessor
585 Fiscal Drive, Room 104F
Santa Rosa, CA 95403-2872
Sonoma County Board of Supervisors
Sonoma County Administration Building
575 Administration Drive, Room 100A
Santa Rosa, California

Appendix J SHPO Memorandum of Agreement

**MEMORANDUM OF AGREEMENT
BETWEEN THE
CALIFORNIA STATE HISTORIC PRESERVATION OFFICER AND THE
CALIFORNIA DEPARTMENT OF TRANSPORTATION
REGARDING THE STATE ROUTE 116 IMPROVEMENT PROJECT BETWEEN
COOPER ROAD IN SEBASTOPOL AND ALDER AVENUE IN COTATI,
SONOMA COUNTY, CALIFORNIA**

WHEREAS, the Federal Highway Administration (FHWA), has assigned and the California Department of Transportation (Caltrans) has assumed FHWA responsibility for environmental review, consultation, and coordination under the provisions of the *Memorandum of Understanding (MOU) between the Federal Highway Administration and the California Department of Transportation Concerning the State of California's participation in the Surface Transportation Project Delivery Pilot Program*, which became effective on July 1, 2007 and applies to the project; and

WHEREAS, Caltrans has determined that the State Route 116 Improvement Project between Cooper Road in Sebastopol and Alder Avenue in Cotati (Undertaking) will have an adverse effect on archaeological site CA-SON-1695, a property determined by consensus to be eligible for inclusion in the National Register of Historic Places (National Register), and therefore, a historic property as defined at 36 CFR § 800.16(l)(1), and may have an adverse effect on archaeological site CA-SON-159, a property determined by consensus to be eligible for inclusion in the National Register, and archaeological sites CA-SON-2360H, CA-SON-2358, CA-SON-921, CA-SON-2415, CA-SON-1807, and CA-SON-2359, which Caltrans is considering to be eligible for the National Register for the purposes of the Undertaking; and

WHEREAS, Caltrans has consulted with the SHPO in accordance with stipulations X.C and XI of the 1 January 2004 *Programmatic Agreement Among The Federal Highway Administration, The Advisory Council on Historic Preservation, The California State Historic Preservation Officer, and The California Department of Transportation Regarding Compliance With Section 106 Of The National Historic Preservation Act, As It Pertains To The Administration Of The Federal-Aid Highway Program In California* (PA), and, where the PA so directs, in accordance with 36 CFR Part 800, the regulation that implements Section 106 of the NHPA regarding the Undertaking's effect on the historic property, and has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect finding pursuant to 36 CFR § 800.6(a)(1); and

WHEREAS, Caltrans has thoroughly considered alternatives to the Undertaking, has determined that the statutory and regulatory constraints on the design of the Undertaking preclude the possibility of avoiding adverse effects to archaeological site CA-SON-1695 during the Undertaking's implementation, and has further determined that it will resolve the adverse effects of the Undertaking on the subject historic property through the execution and implementation of this Memorandum of Agreement (MOA); and

WHEREAS, Caltrans District 4 (District 4) has participated in the consultation process and has been invited to concur in this MOA; and

WHEREAS, Caltrans has initiated consultation with the Federated Indians of Graton Rancheria (Tribe) regarding the Undertaking and its adverse effect to CA-SON-1695 and has invited them to concur in this MOA; and

State Route 116 Cooper to Alder Improvement Project
PM 27.78/34.53, EA 04-131571

1.

WHEREAS, Caltrans, in consultation with the Tribe, pursuant to stipulations VIII.C.3 and X.B.2.a(ii) of the PA, finds that implementation and enforcement of the measures set forth in Stipulation II.B of this MOA will satisfactorily avoid potential adverse effects to CA-SON-159, CA-SON-2360H, CA-SON-2358, CA-SON-921, CA-SON-2415, CA-SON-1807, and CA-SON-2359; and

NOW, therefore, Caltrans and the SHPO agree that, upon Caltrans' decision to proceed with the Undertaking, Caltrans shall ensure the Undertaking is implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties, and further agree these stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

Stipulations

Caltrans shall ensure that the following stipulations are implemented:

I. AREA OF POTENTIAL EFFECT

- A. The Area of Potential Effects (APE) for the Undertaking is depicted in Map Sheets 1 through 22 of the *Historic Property Survey Report for the State Route 116 Improvement Project between Cooper Road in Sebastopol and Alder Avenue in Cotati* (September 2006). The APE was established to include all cultural resources that would be directly or indirectly affected by the Undertaking. The APE included the maximum existing or proposed right of way, project construction easements (temporary and permanent), staging areas, temporary or permanent changes in access (ingress or egress), and the area of direct impact (ADI). The APE was signed on 9/22/06 by Elizabeth McKee.
- B. If modifications to the Undertaking subsequent to the execution of this MOA necessitate the revision of either the APE or the ADI, Caltrans will consult with the SHPO to facilitate mutual agreement on the revisions. If Caltrans and the SHPO cannot reach agreement, then the parties will resolve the dispute in accordance with Stipulation VII.C below. If Caltrans and the SHPO reach mutual agreement on the proposed revisions, then Caltrans will submit a final map of the revisions, consistent with the requirements of stipulations VIII.A and XVI.A of the PA, no later than 30 days following such agreement.

II. TREATMENT OF HISTORIC PROPERTIES

- A. Caltrans has prepared a Treatment Plan that takes into account the adverse effect of the Undertaking on archaeological site CA-SON-1695 and addresses any discoveries or unanticipated effects that may result from the Undertaking's implementation. Caltrans shall ensure that the adverse effects of the Undertaking on archaeological site CA-SON-1695 are resolved by implementing and completing the April 2008 *Treatment Plan for Archaeological Site CA-SON-1695* that is attachment 1 to this MOA. Data recovery is prescribed for archaeological deposits contributing to the National Register eligibility of these historic properties that lie within the Undertaking's construction ADI.
- B. Caltrans shall ensure that the adverse effect of the Undertaking to archaeological sites CA-SON-159, CA-SON-2360H, CA-SON-2358, CA-SON-921, CA-SON-2415, CA-SON-1807, and CA-SON-2359 are avoided by establishing an Environmentally Sensitive Area (ESA). The ESA shall be thoroughly described on the final construction plans for the Undertaking. Any construction

2

activity within 25 feet of the ESA shall be monitored by an archaeologist meeting the Secretary of Interior's Standards in accordance with stipulation VII.A.2 below and a Native American monitor. Parties responsible for ensuring the placement of the ESA will be Caltrans' PQS, Caltrans' Project Manager, and Caltrans' Resident Engineer. ESA placement will occur prior to the onset of any activity in direct or indirect support of the Undertaking's implementation. No construction activity or related ground disturbance will take place within the ESA, nor will any part of this area be used for storing or staging of equipment or materials. An ESA action plan that details the implementation of this stipulation is appended to this MOA as attachment 2.

- C. Any party to this MOA may propose to amend the Treatment Plan. Such amendment will not require amendment of this MOA. Consultation on Treatment Plan amendments will be no longer than 30 days in duration.
- D. Caltrans has submitted a proposed scope of work for Phase III data recovery operations at CA-SO-1695 (Proposal) to the MOA parties. The Proposal contains a specific work plan tied to construction impacts. The MOA parties will be afforded 30 days following execution of the MOA to submit written comments to Caltrans. Failure of these parties to respond within this time frame shall not preclude Caltrans from authorizing revisions to the Proposal, as Caltrans may deem appropriate.
- E. Caltrans will not authorize the execution of any Undertaking activity that may affect historic properties in the Undertaking's APE prior to the completion of the fieldwork that the Treatment Plan prescribes.

III. REPORTING REQUIREMENTS AND RELATED REVIEWS

- A. Within 30 days after Caltrans has determined that all fieldwork required under stipulation II has been completed, Caltrans will ensure preparation, and concurrent distribution to the other MOA parties and the Tribe, for review and comment, a brief letter report that summarizes the field efforts and the preliminary findings that result from them.
- B. Within twelve (12) months after Caltrans has determined that all fieldwork required by stipulation II.A has been completed, Caltrans will ensure preparation, and concurrent distribution to the MOA parties and the Tribe for review and comment, a draft technical report that documents the results of implementing and completing the Treatment Plan. The other MOA parties and the Tribe will be afforded 30 days following receipt of the draft technical report to submit any written comments to Caltrans. Failure of these parties to respond within this time frame shall not preclude Caltrans from authorizing revisions to the draft technical report as Caltrans may deem appropriate. Caltrans will provide the other MOA parties and the Tribe with written documentation indicating whether and how the draft technical report will be modified in accordance with any comments received from the other MOA parties or the Tribe. Unless any MOA party or the Tribe objects to this documentation in writing to Caltrans within 30 days following receipt, Caltrans may modify the draft technical report as Caltrans may deem appropriate. Thereafter, Caltrans may issue the technical report in final form and distribute this document in accordance with paragraph D. of this stipulation.
- C. Copies of the final technical report documenting the results of Treatment Plan implementation will be distributed by Caltrans to the other MOA parties, to the Tribe, and to the California Information Center of the California Historical Resources Information System housed in Rohnert Park.

IV. NATIVE AMERICAN CONSULTATION

Caltrans has initiated consultation with the Tribe regarding the proposed Undertaking and its effect on historic properties, will continue to consult with the Tribe, and has invited them to concur in this MOA. Should the Tribe desire to participate as herein set forth, Caltrans shall consult with them to reach a consensus regarding the manner in which the Tribe may participate in the implementation of this MOA, and the Undertaking, and regarding any time frames or other matters that may govern the nature, scope, and frequency of such participation. This stipulation and the MOU notwithstanding, FHWA shall retain responsibility for conducting direct government-to-government consultation with federally recognized Indian tribes, should the Tribe so desire.

V. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

The MOA parties agree that human remains and related items discovered during implementation of the terms of the MOA and of the Undertaking will be treated in accordance with the requirements of § 7050.5(b) of the California Health and Safety Code. If, pursuant to § 7050.5(c) of the Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of § 5097.98(a)-(d) of the California Public Resources Code.

VI. DISCOVERIES AND UNANTICIPATED EFFECTS

If Caltrans determines, during implementation of the Treatment Plan, or after construction of the Undertaking has commenced, that either the implementation of the Treatment Plan or the Undertaking will affect a previously unknown property that may be eligible for inclusion in the National Register, or affect a known historic property in an unanticipated manner, Caltrans will address the discovery or unanticipated effects in accordance with 36 CFR § 800.13(b)(3). Caltrans, at its discretion, may hereunder and pursuant to 36 CFR § 800.13(c) assume any discovered property to be eligible for inclusion in the National Register.

VII. ADMINISTRATIVE STIPULATIONS

A. STANDARDS

1. **Definitions.** The definitions provided at 36 CFR § 800.16 are applicable throughout this MOA.
2. **Professional Qualifications.** Caltrans will ensure that only individuals meeting the Secretary of the Interior's Professional Qualification Standards (PQS) (48 FR 44738-39) in the relevant field of study carry out or review appropriateness and quality of the actions and products required by stipulations I.B, II, III, V, and VI in this MOA. However, nothing in this stipulation may be interpreted to preclude Caltrans or any agent or contractor thereof from using the properly supervised services of who do not meet the PQS.
3. **Documentation Standards.** Written documentation of activities prescribed by stipulations I.B, II, III, V, and VI of this MOA shall conform to *Secretary of the Interior's Standards and*

4

Guidelines for Archaeology and Historic Preservation (48 FR 44716-44740) as well as to applicable standards and guidelines established by the SHPO.

4. **Curation and Curation Standards.** Caltrans shall ensure that, to the extent permitted under § 5097.98 and § 5097.991 of the California Public Resources Code, the materials and records resulting from the activities prescribed by this MOA are curated in accordance with 36 CFR Part 79.

B. CONFIDENTIALITY

The MOA parties acknowledge that the historic property covered by this MOA is subject to the provisions of § 304 of the National Historic Preservation Act of 1966 and § 6254.10 of the California Government Code (Public Records Act), relating to the disclosure of archaeological site information and, having so acknowledged, will ensure that all actions and documentation prescribed by this MOA are consistent with said sections.

C. RESOLVING OBJECTIONS

1. Should any MOA party object at any time in writing to the manner in which the terms of this MOA are implemented, to any action carried out or proposed with respect to implementation of the MOA (other than the Undertaking itself), or to any documentation prepared in accordance with and subject to the terms of this MOA, Caltrans shall immediately notify the other MOA parties of the objection, request their comments on the objection within 15 days following the receipt of Caltrans' notification, and proceed to consult with the objecting party for no more than 30 days to resolve the objection. Caltrans will honor the request of the other parties to participate in the consultation and will take any comments provided by those parties into account.
2. If the objection is resolved during the 30-day consultation period, Caltrans may proceed with the disputed action in accordance with the terms of such resolution.
3. If at the end of the 30-day consultation period, Caltrans determines that the objection cannot be resolved through such consultation, then Caltrans shall forward all documentation relevant to the objection to the ACHP, including Caltrans' proposed response to the objection, with the expectation the ACHP will, within thirty (30) days after receipt of such documentation:
 - a. Advise Caltrans that the ACHP concurs with Caltrans' proposed response to the objection, whereupon Caltrans will respond to the objection accordingly. The objection shall thereby be resolved; or
 - b. Provide Caltrans with recommendations, which Caltrans will take into account in reaching a final decision regarding its response to the objection. The objection shall thereby resolved; or
 - c. Notify Caltrans that the objection will be referred for comment pursuant to 36 CFR § 800.7 (c) and proceed to refer the objection and comment. Caltrans shall take the resulting comments into account in accordance with 36 CFR § 800.7 (c)(4) and Section 110(1) of the NHPA. The objection shall thereby be resolved.
4. Should the ACHP not exercise on the above options within 30 days after receipt of all pertinent documentation, Caltrans may assume the ACHP's concurrence in its proposed

5

State Route 116 Cooper to Alder Improvement Project
PM 27.78/34.53, EA 04-131571

response to the objection and proceed to implement the response. The objection shall thereby be resolved.

5. Caltrans shall take into account any of the ACHP's recommendations or comments provided in accordance with this stipulation with reference only to the subject of the objection. Caltrans' responsibility to carry out all actions under this MOA that are not the subjects of the objection shall remain unchanged.
6. At any time during implementation of the measures stipulated in this MOA, should a member of the public raise an objection in writing pertaining to such implementation to any signatory party to this MOA, that signatory party shall immediately notify Caltrans. Caltrans shall immediately notify the other signatory parties in writing of the objection. Any signatory party to this MOA may choose to comment in writing on the objection to Caltrans. Caltrans shall establish a reasonable time frame for this comment period. Caltrans shall consider the objection, and in reaching its decision, Caltrans will take all comments from the other signatory parties into account. Within 15 days following the closure of the comment period, Caltrans will render a decision regarding the objection and respond to the objecting party. Caltrans will promptly notify the other signatory parties of its decision in writing, including a copy of the response to the objecting party. Caltrans' decision regarding resolution of the objection will be final. Following issuance of its final decision, Caltrans may authorize the action subject to dispute hereunder to proceed in accordance with the terms of the decision.
7. Caltrans shall provide all parties to this MOA, the ACHP, if the ACHP commented, and any parties that have objected pursuant to section C.6 of this stipulation, with a copy of its final written decision regarding any objection addressed pursuant to this stipulation.
8. Caltrans may authorize any action subject to objection under this stipulation to proceed after the objection has been resolved in accordance with this stipulation.

D. AMENDMENTS

Any signatory party to this MOA may propose that this MOA be amended, whereupon all signatory parties shall consult for no more than 30 days to consider such amendment. The amendment will be effective on the date a copy signed by all of the original signatories is filed with the ACHP. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with Stipulation VILE below.

E. TERMINATION

9. If this MOA is not amended as provided for in section D of this stipulation, or if either signatory party proposes termination of this MOA for other reasons, the signatory party proposing termination shall, in writing, notify the other MOA parties, explain the reasons for proposing termination, and consult with the other MOA parties for at least 30 days to seek alternatives to termination. Such consultation shall not be required if Caltrans proposes termination because the Undertaking no longer meets the definition set forth in 36 CFR § 800.16(y).
10. Should such consultation result in an agreement on an alternative to termination, the signatory parties shall proceed in accordance with the terms of that agreement.
11. Should such consultation fail, the signatory party proposing termination may terminate this

6

MOA by promptly notifying the other MOA parties in writing. Termination hereunder shall render this MOA without further force or effect.

12. If this MOA is terminated hereunder, and if Caltrans determines that the Undertaking will nonetheless proceed, then Caltrans shall comply with the requirements of 36 CFR § 800.3-800.6.

F. DURATION OF THE MOA

1. Unless terminated pursuant to section E of this stipulation, or unless it is superseded by an amended MOA, this MOA will be in effect following execution by the signatory parties until Caltrans, in consultation with the other signatory parties, determines that all of its stipulations have been satisfactorily fulfilled.
2. The terms of this MOA shall be satisfactorily fulfilled within 10 years following the date the construction contract is awarded. If Caltrans determines that this requirement cannot be met, the MOA parties will consult to reconsider its terms. Reconsideration may include continuation of the MOA as originally executed, amendment, or termination. In the event of termination, Caltrans will comply with section E.4 of this stipulation, if it determines that the Undertaking will proceed notwithstanding termination of this MOA.
3. If construction has not been initiated within 10 years following execution of this MOA by the signatory parties, this MOA shall automatically terminate and have no further force or effect. In such event, Caltrans shall notify the other signatory parties in writing and, if it chooses to continue with the Undertaking, shall reinstate review of the Undertaking in accordance with 36 CFR Part 800.

G. EFFECTIVE DATE

This MOA will take effect on the date that it has been executed by Caltrans and the SHPO.

EXECUTION of this MOA by Caltrans and the SHPO, its transmittal by Caltrans to the ACHP in accordance with 36 CFR § 800.6(b)(1)(iv), and subsequent implementation of its terms, shall evidence, pursuant to 36 CFR § 800.6(c), that this MOA is an agreement with the ACHP for purposes of Section 110(j) of the NHPA, and shall further evidence that Caltrans has afforded the ACHP an opportunity to comment on the Undertaking and its effect on historic properties, and that Caltrans has taken into account the effect of the Undertaking on historic properties.

7

State Route 116 Cooper to Alder Improvement Project
PM 27.78/34.53, EA 04-131571

SIGNATORY PARTIES:

California Department of Transportation
By [Signature] Date 8/15/08
Jay Norvick
Chief, Division of Environmental Analysis

California State Office of Historic Preservation
By [Signature] Date 19 AUG 2008
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

CONCURRING PARTIES:

California Department of Transportation

By Bijan Sartipi Date 8/29/08
Bijan Sartipi
Director, District 4, Oakland

Federated Indians of Graton Rancheria

By Greg Sarris Date October 24, 2008
Greg Sarris
Tribal Chairperson

Appendix I Biological Opinion



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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

In Reply Refer To:
81420-2008-F-1220-3

APR 16 2009

Mr. James Richards
California Department Transportation
111 Grand Avenue
Oakland, California 94612

Subject: Biological Opinion for the Sonoma State Route 116 Roadway Rehabilitation Project, Sonoma County, California (Caltrans EA 131571) on the Endangered California Freshwater Shrimp; Endangered Sonoma County Distinct Population Segment of the California Tiger Salamander; Endangered Sebastopol Meadowfoam, Endangered Sonoma Sunshine, and Endangered Burke's Goldfields

Dear Mr. Richards:

This is in response to your August 29, 2007, request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed State Route 116 Roadway Rehabilitation Project located between Cotati and Sebastopol, Sonoma County, California. Your request for formal consultation was received in our office on August 31, 2007, and additional information needed to complete consultation was received on November 19, 2008. The State Route 116 Roadway Rehabilitation Project currently lists this as number three on the Caltrans District 4 consultation priority list.

This document represents the Service's biological opinion on effects of the action on the endangered California freshwater shrimp (*Syncaris pacifica*), the endangered Sonoma County distinct population segment of the California tiger salamander (*Ambystoma californiense*), and three endangered plant species (the three listed plants): Sebastopol meadowfoam (*Limnanthes vincularis*), Sonoma sunshine (*Blennosperma bakeri*), and Burke's goldfield (*Lasthenia burkei*). This biological opinion is issued pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

TAKE PRIDE
IN AMERICA 

The proposed State Route 116 Roadway Rehabilitation Project is not likely to adversely affect the threatened California red-legged frog (*Rana aurora draytonii*) due to an apparent lack of occupied or potential habitat for this listed species in the action area. Critical habitat has been designated for the California red-legged frog however none is located in the action area for the proposed State Route 116 Roadway Rehabilitation Project.

This biological opinion is based on: (1) August 2007, Caltrans District 4 *Sonoma State Route 116 Roadway Rehabilitation Project Biological Assessment for California Freshwater Shrimp (Syncaris pacifica), California Tiger Salamander (Ambystoma californiense) and Endangered Plants* (Caltrans 2007); (2) additional information provided to the Service by Caltrans on November 19, 2008; (3) Caltrans' requested edits to the February 2009 draft biological opinion received on March 27, 2009; (4) miscellaneous correspondence and electronic mail concerning the proposed action between the Service and Caltrans between October 2006 and March 2009, and (4) other information available to the Service.

Consultation History

- November 2, 2006 Caltrans met with the Service for pre-consultation and project guidance. Caltrans provided the Service with draft copies of their *Special-Status Plant Survey Report* and a *Site Assessment for the California Tiger Salamander*.
- August 31, 2007 The Service received a letter dated August 29, 2007, from Caltrans requesting formal consultation for the proposed State Route 116 Rehabilitation Project. The request was accompanied by a Biological Assessment dated August 2007. In the Biological Assessment, Caltrans determined that the proposed project was likely to adversely affect the endangered California freshwater shrimp and the endangered California tiger salamander but was not likely to adversely affect the three endangered plants (Sebastopol meadowfoam, Sonoma sunshine, and Burke's goldfields).
- March 31, 2008 The Service issued Caltrans a request for additional information (Service File #: 81420-2008-I-1220-1) needed to adequately review the determination of the effects of the project on listed species.
- November 19, 2008 The Service received the Caltrans response to the March 31, 2008, information request. The Caltrans response was dated November 17, 2008. The cover letter for the response stated that approximately 0.007 acres of potential habitat for the three listed plants within the proposed action area had been cleared by another party due to private development since the August 31, 2007, request for formal consultation. According to the November 17, 2008, Caltrans letter this disturbance reduced the

original estimate of 0.049 acres of effected habitat for the three listed plants to 0.042 acres. Caltrans also proposed permanent installation of sheet piles in Blucher Creek to sustain California fresh water shrimp habitat upstream of the bridge.

- December 10, 2008 The Service received an electronic mail message from Caltrans describing the project phasing schedule.
- December 15, 2008 The Service received an electronic mail message from Caltrans concurring with the Service's suggestion that the biological opinion first be issued as a draft for Caltrans' review.
- December 31, 2008 The Service received an electronic mail message from Caltrans stating that they expected the draft biological opinion on December 31, 2008. The Service responded in a voice message to Sarah Willbrand of Caltrans that the Service was still reviewing the adequacy of the additional information provided by Caltrans' on November 19, 2008. The Service stated that completion of the draft biological opinion would likely take up to three additional weeks. In the December 31, 2008, electronic mail message Caltrans stated that they were unable to provide an endorsement of their proposed sheet pile design to preserve the function of California freshwater shrimp habitat in Blucher Creek by a California freshwater shrimp biologist.
- January 16, 2009 The Service received an electronic mail message from Caltrans stating that they did not intend to provide additional information regarding the viability of the proposed sheet pile installation at Blucher Creek to avoid or minimize effects to the California freshwater shrimp. Caltrans stated that they believed they were not required to provide additional information if it was not essential to a jeopardy analysis.
- February 27, 2009 The Service issued a draft biological opinion (Service file # 81420-2008-F-1220-2) to Caltrans.
- March 17, 2009 The Service met with Caltrans and the California Department of Fish and Game to discuss the draft biological opinion issued on February 27, 2009. The California Department of Fish and Game may need to propose changes to the conservation measures and terms and conditions in the biological opinion in order to issue a consistency determination for the California freshwater shrimp. The California Department of Fish and Game may also recommend changes to the project description for the removal and replacement of the Blucher Creek crossing structure after they have analyzed the proposed design. Due to Caltrans scheduling

constraints it was agreed that the Service would issue the biological opinion with the current proposed project description and Caltrans would reinitiate if changes result due to informal and/or formal consultation with the California Department of Fish and Game.

March 27, 2009 The Service received comments and requested editorial changes from Caltrans in regards to the February 27, 2009, draft biological opinion.

BIOLOGICAL OPINION

Description of Proposed Action

State Route 116 in Sonoma County is a rural highway that provides an east-west connection between the Pacific Coast and the Napa Valley in Sonoma County. According to Caltrans, the proposed project includes a 6.6-mile portion of State Route 116 between the City of Sebastopol and State Highway 101 in the City of Cotati. Caltrans describes this portion of roadway as having a deteriorated road surface, non-standard intersections, sub-standard shoulder and roadway dimensions, and a lack of left turn lanes. Caltrans is proposing a rehabilitation project intended to restore the roadway and add operational improvements that will bring the roadway configuration into compliance with current engineering standards where feasible and beneficial to do so. Their proposed project is further intended to increase State Route 116 mobility in a manner that is compatible with, or enhances, adjacent community values and regional plans. According to Caltrans, increasing the capacity of State Route 116 is not the intent of the proposed rehabilitation project.

Scheduling

Caltrans plans to divide the project construction in to four phases:

Phase 1. Post Mile 27.89/28.78 from Cooper Road in the City of Sebastopol to Cooper Road in Sonoma County.

Phase 2. Post Mile 28.78/31.21 from Cooper Road to Llano Road.

Phase 3. PM 31.21/33.29 from Llano Road to west of Stony Point Road.

Phase 4. PM 33.29/34.61 from Stony Point Road to Alder Avenue in the City of Cotati.

According to the November 17, 2008, response to Service comments, the project schedule is yet to be determined, but the first phase is expected to be completed by August 2016, and the second phase is expected to be completed by December 2017. The scheduling for the remaining two phases/segments will be determined by funding availability. Caltrans will restrict work in the

aquatic and riparian zones of Blucher Creek between June 15 and October 15. Activities in the other creeks will be restricted between June 1 and October 31. Some night work may occur during each of the phases.

Project Components

According to the 2007 Biological Assessment, the proposed Sonoma State Route 116 Roadway Rehabilitation Project will include: overlaying the existing roadway with asphalt concrete; standardizing lane and shoulder widths; re-striping the roadway; standardizing intersection connections with adjacent roadways where feasible; establishing bus pads for mass transit; and modifying some of the existing cross culverts and creek crossing structures.

Roadway Surfacing and Striping

Roadway surfacing/paving will require milling down and cold-planing the existing roadway surface with a grinder. The removed asphalt will be hauled away to an approved landfill. The residue will not be used as shoulder backing but may be used for an aggregate sub-base. The milled roadbed is then covered with binding material before being re-surfaced with asphalt concrete laid down by paving and rolling equipment. The surface is then striped and otherwise marked.

Provide Standard Shoulder Widths

To provide required 8 foot shoulder widths existing shoulders must first be removed with jackhammer and other pavement removal equipment down to the required soil level. A bulldozer and other earthmoving equipment are then used to excavate the existing soil to a depth of a few feet. This soil will be removed and stockpiled or transported offsite. A vibratory roller-compactor or pneumatic compactor will then be used to compact the layers of soil fill.

Dump trucks will transport burrow and aggregate material, which will be deposited to create a sub-base for the roadway shoulder. Asphalt concrete (most likely AC Type A or Open Graded), aggregate base, and aggregate sub-base are the most likely materials to create the structural base of the roadway and shoulders. The sub-base material will also be compacted and leveled using vibratory rollers and compacting equipment. Asphalt concrete material will be hauled onto the site in trucks and placed into the excavated areas for construction of the additional paved shoulder width. The asphalt will then be compacted and rolled. Shoulder backing will be prepared to protect the external edge of the new shoulder.

Right- and Left-Turn Lanes

New turn lanes will be established at the intersection for New Todd Road, Lone Pine/Mount Vernon Road, Mount Vernon Road/Hessel Road, Llano Road, Blank Road, and Madrone Avenue. According to Caltrans, construction of these turn lanes will be similar to the methods described above for standard shoulder construction.

Standardization of Intersections

Intersections with skewed or non-standard angles will be realigned. The level of work needed at each intersection depends on the current alignment. Caltrans characterizes the changes required to bring the connections with State Route 116 into conformity with the dimensions of the rehabilitated roadway to be minor at Elphick Road, Lone Pine Road/Mount Vernon Road, Mount Vernon Road/Hessel Road, Llano road, Gilchrest Road, Derby Lane/Madrone Avenue, and Locust Avenue. At the intersection of State Route 116 with Hessel Road and Blank Road, Hessel Road will be realigned to be perpendicular with State Route 116, and Blank Road will be realigned to intersect with Hessel Road rather than State Route 116. Todd Road will be extended to create new highway access with a T-intersection to replace the existing skewed intersection at the current Old Gravenstein access, while the Old Gravenstein connector to State Route 116 will be made into a cul-de-sac. Caltrans describes the construction methods and equipment necessary for intersection re-alignment to be similar to that described for the roadway surfacing and shoulder work.

Signalization

Caltrans plans to install traffic signals at the Lone Pine Road/Mount Vernon Road and the Hessel Road/Mount Vernon Road intersections. A concrete saw and jackhammer will be used to expose areas for excavation for the placement of conduit to extend power to the signal. A backhoe or excavator will be used to dig trenches and repaving will be similar to that described for roadway rehabilitation.

Bus Pads

Caltrans plans to install bus pads at the following eleven locations:

- Station 454+80 (westbound side [north of Industrial/116 Intersections/MS 2/PM 28.2])
- Station 460+40 (eastbound side [east side of Bloomfield intersection/MS 2/PM 28])
- Station 460+60 (westbound side; across street from above [MS 3/ PM 28.5])
- Station 475+60 (westbound side west of Fredricks Road [MS 5/ PM 29.5])
- Station 475+40 (eastbound side west of Fredricks Road [MS 5/PM 29.5])
- Station 496+20 (eastbound side east of Hessel/Mount Vernon Road [MS 9/PM 30.8])
- Station 496+80 (westbound side east of Hessel/Mount Vernon Road [MS 9/ PM 30.8])
- Station 500+40 (eastbound side west of Daywalt Road [MS 10/PM 31])
- Station 500+80 (westbound side west of Daywalt Road [Ms 10/PM 31])
- Station 514+10 9 (east and westbound sides; just east of Woodworth Road [MS 12/PM 31.9])
- Station 521+40 (east and westbound sides; west of Gilchrist Road intersection [MS 14/PM 32.3])

The bus pad will be constructed concurrent with the previously described shoulder widening. The bus pads will be a cement surface rather than asphalt.

Box Culvert Improvement

Caltrans plans to replace existing concrete box culverts at four creek locations. These four creeks drain eastward into the Laguna de Santa Rosa, which is part of the Russian River watershed. According to Caltrans the existing structures do not meet current standards for fish passage and may have flooding issues due to inadequate size. The new drainage crossing structures are also intended to enhance fish and other aquatic wildlife species passage under State Route 116. According to Caltrans, the proposed Blucher Creek crossing also will include some upland passage under the new bridge structure. The width and height of the proposed four creek crossing structures are likely to provide enhanced passage for a variety of wildlife that are not adverse to moving through water or moving through the crossings during times of diminished inundation and flow.

Box culvert replacement will require accessing the creeks and a temporary partial or full water diversion will be required at each of the four locations to allow access. Water diversion will be accomplished through either piping the water around the work site or through blocking one portion of the channel at a time.

Caltrans plans to keep State Route 116 open during construction, therefore, bridge/culvert replacement likely will include working on one half of the crossing at a time in order to maintain one lane of traffic at all times. Some areas, such as Blucher Creek, include an adjacent frontage road that may serve as a detour route during construction to allow full road closure at select locations.

To remove the existing box culverts, a pavement saw and jack hammer will be used to break up the roadway. A crane will then work from the roadway to lift the existing culvert from the creek. Dumptrucks will be used to transport material to and from the site.

Tree removal associated with the crossing replacements will be done with chainsaws.

Structures and debris will be removed from the stream channel and new crossings will be installed at the following locations:

1. Jersey Creek. The existing 10 x 6 foot box culvert will be replaced with a double 10 x 6 foot box culvert. The existing 49 foot-long culvert crossing would be lengthened to 60 feet. The up and downstream ends of the culvert will have straight wingwalls that parallel the roadway. The channel will be re-graded to match the existing channel configuration to approximately 25 feet downstream. The new box culverts will be installed two feet below the stream grade, allowing them to eventually achieve stream grade with fill of natural material. Caltrans expects the wider waterway crossing and natural stream bottom to result in reduced stream velocity and enhanced fish passage. Caltrans also plans to remove an abandoned railway trestle in the creek downstream of the crossing and widen the channel to the west to the original 25 foot opening to help reduce localized

flooding and reduce the amount of fill in the channel. The proposed downstream grading would not extend beyond the trestle abutment on the east side of the creek bank. The grading along the west bank will extend approximately 30 feet beyond the railroad trestle before it conforms to the existing channel. Caltrans plans to stabilize the disturbed stream banks with bio-engineering such as willow cuttings.

2. Blucher Creek. The existing triple 10 x 7 foot box culvert will be replaced with a 40 foot-long clear-span bridge. The new bridge will be 60 feet wide to accommodate the shoulder widening. The bridge design will include scour protection and Caltrans believes the design will result in a decrease of accumulated fill. Caltrans expects the new creek crossing to re-establish a natural creek bottom that will likely enhance fish passage, sediment transport, and flood conveyance. The clear-span bridge will likely use pre-cast or steel beam girders to avoid placing false work in the existing creek, though it is possible a "cast-in-place" method may be used. To minimize effects to the creek and California freshwater shrimp habitat, Caltrans plans to limit the bridge structure to the existing culvert footprint. Abutment walls parallel to the State Route 116 will be provided to hold back the roadway fill at the bridge. The abutment wall will extend far enough westerly to protect the highway should further erosion occur along the creek bank. Any effort to repair the eroded creek bank will be avoided to minimize effects to the listed freshwater shrimp.

Caltrans will install environmentally sensitive area fencing approximately 10 feet upstream of the proposed bridge (Caltrans 2008). Within this 10-foot setback they plan to install interlocking sheet piles across the channel matching existing elevations. The purpose of the sheet piles would be to eliminate dewatering of the upstream California freshwater shrimp pool during the excavation and to stabilize the creek bottom upstream of the piling. The sheet piles will prevent groundwater from migrating downstream toward the bridge excavation site and prevent temporary changes to the creek bottom within the work area from migration upstream to the pool. Once the bridge is built, the sheet piles will either be removed, pushed further below the channel bed, or left as is to maintain the upstream California freshwater shrimp pool. The water that flows naturally from the upstream pool, through the fencing, and over the sheet piling would be collected in a diversion system within the bridge construction area and passed downstream.

Moderate gradient and a clear waterway underneath the new Blucher Creek Bridge will allow placement of typical boulder clusters which will generate additional pools along the creek. This improvement should lower the Energy Dissipation Factor by reducing hydraulic drop and increasing existing pool volumes.

- a. Bridge construction will likely include a prefabricated concrete arch, a steel multi-plate super span, or a conventional clear span bridge. The final design will be selected by Caltrans' Division of Structures. The bridge construction will likely be sequenced as follows:
- b. Place sand bag barriers upstream and downstream to completely isolate the two easterly box cells and guide creek flow to pass through the remaining westerly cell.
- c. Demolish and remove the two easterly box culverts.
- d. Install the prefabricated concrete foundations for the arch bridge along the easterly abutment.
- e. Backfill the native bed material and create a portion of the simulated creek as proposed.
- f. Place sandbag barrier to isolate the new bridge foundation and remove the remaining sandbag barrier to allow the flow to pass through simulated creek.
- g. Place sand bag barriers upstream and downstream to isolate the remaining westerly cell.
- h. Start demolishing and removing the left box culvert.
- i. Install prefabricated concrete foundation of arch bridge along westerly abutment.
- j. Arrange the sandbags to seal the foundation area on both banks.
- k. Install prefabricated concrete arch bridge sections.
- l. Complete embankment work, backfill of native bed material within the creek, construct all four abutment walls and place barriers at edge of roadway.
- m. Remove sandbag barriers. Blucher Creek now passes beneath State Route 116 in a bridge with a natural bottom.
- n. Complete roadway and place barriers.

3. Un-named creek near Llano Road. The existing double 6 x 6 foot box culvert will be replaced with a prefabricated 24 foot long, 6 foot high, concrete arch bridge or an equivalent steel multi-plate super span or conventional clear span bridge. The new bridge will be approximately 60 feet wide to accommodate the shoulder widening.

Re-establishing a natural creek bed through a wider crossing structure will likely benefit fish passage, sediment transport, and flood conveyance. Caltrans also expects the new crossing design to enhance the connectivity between the adjacent upstream and downstream pools.

In-stream work will include upstream and downstream grading with a bankfull width of 12 feet and depth of 2.5 feet, 1:1 side slopes, and a low flow terrace gently sloping towards the creek. Native bed materials will be placed in the streambed to mimic typical boulder clusters along the creek. The existing broken concrete at the outlet of the box culvert will be removed and the new crossing will not require energy dissipation since the Energy Dissipation Factors of the adjacent pools would be lowered by reduction of hydraulic drops through the new crossing.

The bridge construction will likely be sequenced as follows:

- a. Place sand bag barriers upstream and downstream to completely isolate the two easterly box cells and guide creek flow to pass through the remaining westerly cell.
- b. Demolish and remove the two easterly box culverts.
- c. Install the prefabricated concrete foundations for the arch bridge along the easterly abutment.
- d. Backfill the native bed material and create a portion of the simulated creek as proposed.
- e. Place sandbag barrier to isolate the new bridge foundation and remove the remaining sandbag barrier to allow the flow to pass through the simulated creek.
- f. Place sand bag barriers upstream and downstream to isolate the remaining westerly cell.
- g. Remove the remaining westerly cell of the original box culvert.

- h. Install prefabricated concrete foundation of arch bridge along westerly abutment.
 - i. Arrange the sandbags to seal the foundation area on both banks.
 - j. Install prefabricated concrete arch bridge sections.
 - k. Complete embankment work, backfill of native bed material to complete the proposed channel simulation.
 - l. Remove sandbag barriers and complete work at crossing is classified as stream simulation.
 - m. Complete roadway pavement and barrier along edge of shoulder.
4. Washoe Creek. The existing double 8 x 7 foot box culvert and endwall will be replaced with 24 foot long, 7 foot high, concrete arch bridge or an equivalent steel multi-plate super span or conventional clear span bridge. The new bridge will be widened from the current 40 foot width to approximately 60 feet wide to accommodate the shoulder widening. The new structure will be symmetrical with the centerline of the existing culvert and will re-establish a natural creek channel bottom. A wing wall will be constructed on the westerly bank upstream of the bridge entrance to contend with the existing scour. In addition, concrete barriers will be constructed on the edge of the State Route 116 shoulders across the width of the bridge to prevent vehicles from entering the creek.

The bridge construction will likely be sequenced as follows:

- a. Construction of a sandbag barrier upstream of the construction area.
- b. Demolish the existing culvert.
- c. Excavate the foundation for the footings.
- d. Installation of the prefabricated footings.
- e. Installation of the prefabricated culvert units, wing-wall, and headwalls.
- f. Backfill of the roadway embankment and construction of the roadway.

The proposed activities associated with the State Route 116 Rehabilitation Project will not include any of the actions proposed for the Washoe Creek Bank Stabilization Project (Caltrans EA 5C3000) although the action areas for the two

projects have some overlap (John Cleckler/Service personal communication with Caltrans on January 21, 2009).

5. Gossage Creek. The project does not include any modifications to the Gossage Creek crossing.

Cross Culverts and Ditches

Caltrans needs to replace some of the corrugated metal pipe culverts within the roadway segment because they no longer function properly or will be of insufficient length to accommodate the rehabilitated roadway width. Caltrans has yet to determine the locations of all of the culverts that will be replaced but the work required to replace the culverts will be contained within the currently described action area. Road widening and culvert replacement will also involve work within and realignment of existing roadside ditches within the action area. Caltrans has designated the ditch realignment areas within the permanent effects area of the action area. Caltrans will inform the Service if further analysis suggests that the proposed action will alter hydrology that may affect creeks or other listed species habitat. The project also includes the construction of bio-filtration strips and swales to receive stormwater drainage from the highway or other associated impervious surfaces. Biofiltration features are not designed to hold water for a period that would allow sufficient inundation to create a viable California tiger salamander breeding pond. However, the biofiltration swales do concentrate runoff and may have the potential to attract salamanders. The design and location of these features will be negotiated with the appropriate agencies. The project will also likely include offsite stormwater treatment. Offsite stormwater treatment was not identified during formal consultation and therefore the associated activities would not be covered under this opinion, as described in Term and Condition 3b.

Although Caltrans has not determined the locations of all of their stormwater treatment sites, they have identified bio-filtration at the following sites:

1. Bio-filtration strip: east of Elphick Road between a ditch and the roadway, on the south side of the roadway, Station 451+60 to 452+80.
2. Bio-filtration swale: west of Jersey Creek, on the north side of the roadway, Station 455+40 to 457+ 10.

In order to remove the corrugated metal pipe cross culverts from under State Route 116 Caltrans will use a pavement saw and jack hammer to break through the existing roadway overhead. Backhoe and excavation equipment will be used to extract the existing culvert and create an open trench. Removed soil will be stockpiled or hauled offsite (Refer to Term and Condition 3b). Dump trucks will be used to transport material to and from the site. Caltrans will require shoring to stabilize the excavation if open trenches exceed a 5 foot depth. Caltrans may conduct some or all of the culvert removal and replacement activities at night in order to limit traffic disruption from needed lane closures. Open trenches will be covered with steel plates when needed to allow

traffic to pass. Repaving over the replaced culverts will be similar to the method described for roadway rehabilitation.

Access and Staging

Staging areas will be located on pavement (including the shoulders) to the extent possible. Some staging will be beyond the cut and fill line, but within the proposed action area. All proposed staging in areas of upland California tiger salamander habitat are considered to be temporary in duration because they expect the disturbance to only last one season and anticipate successful restoration to baseline or better habitat value. Access to the project will be limited to State Route 116. Contractors may independently seek off-site staging locations. Off-site staging locations will be subject to the requirements of resource agencies and permits will be the responsibility of the contractor.

California Tiger Salamander-Specific Barrier within the Northwest Cotati Conservation Area. Caltrans has committed to installing a California tiger salamander barrier to deter salamanders from venturing onto State Route 116 within the Northwest Cotati Conservation Area. The location and design of the barrier will be provided to the Service at a future date.

Restoration and Erosion Control

Areas of temporary disturbance will be restored concurrently with project construction. The goal will be to reestablish contours and vegetation cover to pre-construction conditions in accordance with Caltrans requirements. All construction spoils and debris will be removed and disposed of at a permitted disposal site.

All disturbed soil areas from construction activities will receive permanent erosion control treatments sufficient to address the erosion potential of that soil area/slope. Permanent erosion control will be used to both address site soil stabilization post construction and reduce deposition of sediments into adjacent surface waters.

Typical erosion control measures that would be utilized include the application of 'Type D' hydroseeding, installation of coir netting rolled erosion control products, and slope interrupters such as straw wattles (fiber rolls). Additional hard surface slope protection such as slope paving or Rock Slope Protection (RSP) with or without soil and seed cover might be considered for difficult areas where vegetation will either not be sufficient erosion control or is not a viable/practical option. Storm drain system outlet protection/velocity dissipation devices (flared-end sections for culverts, RSP, ect.) will also be considered as part of drainage improvements.

In general as an erosion control/water quality concept, to the maximum extent practicable, existing vegetation (including but not limited to "specimen trees" and oak (*Quercus* species) trees) will be preserved and protected, efforts will be made to schedule earthwork outside the rainy season and grading practices (slope roughening, rounding, terracing, ect.) will be utilized.

The planting of the four drainage areas (Jersey Creek, Blucher Creek, an un-named creek at Llano Road and State Route 116, and Washoe Creek) will be done to the maximum extent practical above ordinary high water where soil is disturbed from construction activities, and in accordance with Caltrans plant setbacks to enhance aquatic/riparian habitats.

Caltrans will do replacement shrub planting in the State right-of-way (ROW). Where the ROW is expanded into adjoining properties and cleared (of vegetation and/or fencing) in order to accommodate a standard Clear Recovery zone (CRZ), Caltrans would plant replacement shrub screening where the constraints of the Caltrans' ROW boundaries, CRZ standards, and biological constraints allow. In frontages with exposed cable lines due to the project, Caltrans will, where feasible and safe, plant native willow (*Salix* species) and or other allowable native or non-invasive non-native plants in the ROW, of sufficient stature to conceal lower fiber optic cables (approximately 12 feet in height) in the long term ROW plantings will employ California native species where feasible, as determined by Caltrans Landscape Architecture.

Caltrans will need to remove and/or trim trees to accommodate their proposed State Route 116 improvements. Native oaks (valley oak (*Quercus lobata*), coast live oak (*Q. agrifolia*), and black oaks (*Q. velutina*)) will be used to extent practicable in replacement planting of trees removed, although the space available for tree planting is expected to be limited. Trees trimmed near construction activities that are accidentally killed will be replaced, as setback requirements allow.

While exclusionary fencing will be used to keep construction activities away from Gossage Creek, temporary and permanent effects to wetlands and waters of the U.S. are anticipated. Caltrans will compensate for effects to wetlands and waters of the U.S. by a combination of on-site restoration/creation, off-site restoration, and purchase of wetland-restoration credits from an approved conservation bank.

Operation and Maintenance

Post-construction operation of the 6.6-mile portion of State Route 116 between the City of Sebastopol and State Highway 101 in the City of Cotati will include general maintenance activities such as repair and replacement of guard rails; shoulder grading; resurfacing and repaving; repair of damaged roadway, cleaning and maintenance of drainage ditches; culvert replacement; vegetation management by mowing and the limited use of herbicides, and response to emergency situations, like chemical spills, traffic accidents, fires, and or weather related problems.

Conservation Measures

Caltrans proposes to avoid, minimize, and compensate for effects to the California freshwater shrimp, California tiger salamander, and the three listed plants through the following measures:

General Measures

1. Erosion and Sediment Control Plan. Caltrans will prepare and implement an erosion control and restoration plan to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities. The plan will include all the necessary local jurisdiction requirements regarding erosion control and will implement best management practices (BMP's) for erosion and sediment control as required. Only appropriate native plant material will be used for erosion control and restoration. Erosion control will be placed on all disturbed slopes and material disposal sites as directed by the Caltrans Erosion Control Branch.

2. Storm Water Pollution Prevention Plan (SWPPP). Caltrans will submit to the Regional Water Quality Control Board (RWQCB) a notice of intent to discharge stormwater before construction and/or operation activities begin and will develop and implement a SWPPP as required by the conditions of a National Pollutant Discharge Elimination System (NPDES) permit. Caltrans will prepare a SWPPP that identifies BMP's for discharges and groundwater disposal from dewatering operations associated with road construction and interchange improvements. The SWPPP will identify how and where these discharges would be disposed of during construction and operations. The SWPPP will include provisions for the following:
 - a. Construction activities will be limited, such as to minimize the area of ground disturbance. No disturbance will be allowed outside the limits of applicable permits. Preservation of existing vegetation will be provided to the maximum extent possible. To minimize effects to California tiger salamander habitat, all required BMP's will be in place during the construction of each phase of each project. Sensitive areas will be marked with high visibility fencing to clearly identify the construction area relative to sensitive areas.

 - b. Installation of temporary erosion control devices will be an integral part of construction. Sedimentation fences will be used to contain polluted or turbid run-off from the work site. Other methods of temporary erosion control, including but not limited to hay bail check dams, will be employed to protect riparian areas, streams and water courses, and all other areas susceptible to damage from run-off. Erosion control devices will be installed concurrently with construction earthwork.

- c. A stabilized construction entrance/exit will be constructed for any access point within 200 feet of a body of water to reduce the tracking of mud and dirt.
- d. Clear water diversion will only be used when necessary to isolate construction activities occurring within or near a water body, such as stream bank stabilization, or culvert, bridge, pier or abutment installation. Clear water diversion will only be implemented where allowed by appropriate regulatory permits. De-watering or return water diversion flows will be controlled by piping channel lining, non-erosive grades, or other means to reduce erosion and water turbidity of streams. At the completion of the construction activity requiring de-watering or diversion, stream or gully banks will be immediately restored to allow water to follow along its original course.
- e. Material from excavation and grading activities will be used in the construction of engineered embankments, wherever possible. Excess materials from excavation activities will be hauled and disposed of at a permitted site. The disturbed right-of-way will be reseeded with the appropriate seed mixture. Spoils materials will not be placed in sensitive habitat areas, such as wetlands, or in Federal Emergency Management Agency (FEMA)-identified floodplains.
- f. Dedicated fueling areas and refueling practices shall be designated. If possible, dedicated refueling areas will be located at least 200-feet from a body of water. Dedicated fueling areas shall be protected from storm water run-on and run-off, and shall be located at least 50 feet from downstream drainage facilities. Fueling must be performed on level-grade areas. On site fueling shall only be used where it is impractical to send vehicles and equipment off site for fueling. When it is necessary to conduct fueling onsite, the contractor will designate an area to be used subject to approval of the Caltrans Resident Engineer. Drip pans or absorbent pads will be used during on-site vehicle and equipment fueling.
- g. Spill control BMP's will be implemented anytime chemicals and/or hazardous substances are stored or used on the projects. Employees shall be educated in proper material handling, spill prevention, and clean-up. Clean-up materials shall be on-site and located near material storage and use.
- h. The temporary stockpiling of all materials will be located a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets. Stockpiles of "cold mix" asphalt materials will be placed on and covered with plastic or comparable material prior to the onset of precipitation. All other stockpiles will be covered, protected with soil stabilization measures, and a temporary perimeter sediment barrier, prior to the onset of precipitation.

- i. Erosion control devices will be monitored on a regular basis and augmented as necessary. In the event of pending storms, and in compliance with the SWPPP, erosion control devices will be inspected to ensure that such devices are in place and are functional. Monitoring and maintenance of erosion control devices and adjacent disturbed areas will continue during and immediately after significant storm events.
3. Access Points and Staging Areas. If possible, construction access points and staging areas for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants will be on-site and within the construction right-of-way. If on-site staging is not sufficient for construction operations, off-site staging may be considered. A qualified biologist will survey any proposed off-site staging area to determine if sensitive resources are located on the site that would be disturbed by staging activities. If sensitive resources are found, an appropriate buffer zone will be staked and flagged as necessary to avoid effects. If sensitive resources cannot be avoided, the site will not be used. Caltrans will either obtain or ensure that its contractor obtains all required regulatory permits, including approval of the Service, for off-site construction access points and staging areas. All required BMP's for Storm Water Pollution Prevention (Avoidance and Conservation Measure #2) will be implemented in staging areas.
4. Construction Windows: Other than Blucher Creek where activities will be restricted to between June 15 and October 15, construction will be limited to the dry season (June 1st-October 31) in aquatic habitat when drainages and wetlands would be either dry or at their lowest water level to minimize effects to aquatic resources including the potential for take of breeding/migrating California tiger salamanders. Vegetation clearing will be confined to the minimal area necessary to facilitate construction activities. California tiger salamander habitat that can be avoided during construction will be flagged and designated as an Environmentally Sensitive Area. All construction personnel will avoid these areas.
5. Biological Monitoring and Environmental Training. Caltrans will provide appropriate biological monitoring staff (biological monitor) to meet the requirements established in the National Environmental Policy Act (NEPA) and Endangered Species Act processes including the conservation measures and terms and conditions described in this biological opinion. At least 30 days prior to the onset of construction activities Caltrans will submit the names(s) and credentials of biologists who will conduct activities specified in the following measures. The main responsibility of the biological monitor will be to minimize the potential incidental take of listed species and disturbance of sensitive environmental resources during construction activities. This will be accomplished through implementation of the projects' environmental commitments, conservation and avoidance measures to achieve environmental compliance with all the permit conditions. Specific tasks to be carried out by the biological monitor include the following:

- a. The designated biologist will inform field management and construction personnel of the need to avoid and protect resources. A worker environmental awareness program will be prepared and delivered to construction personnel. The program will provide workers with information on their responsibilities with regard to the California freshwater shrimp, California tiger salamander, and the three listed plants. Construction personnel will be educated on the types of sensitive resources located in the project area and the measures required to avoid effects on these resources. Personnel will attend an environmental training program before groundbreaking activities for each individual construction contract. Materials covered in the training program will include environmental rules and regulations for the projects and requirements for limiting activities to the construction right-of-way and avoiding demarcated sensitive resources areas. Training will educate construction supervisors and managers on: the need for resource avoidance and protection; construction drawing format and interpretation; staking methods to protect resources; the construction process; roles and responsibilities; project management structure and contacts; environmental commitments; and emergency procedures.
- b. Prior to the start of construction, the designated biologist will identify and mark sensitive and riparian areas. The contractor will not disturb riparian or wetland areas, marked or otherwise, unless indicated on construction plans. Temporary siltation fencing will be installed in advance of construction activity as indicated on the construction plans. Physical protective measures will remain on site and in good repair until all construction activities in that zone are complete. Protective measures will be removed in consultation with the biologist and/or environmental compliance monitors.
- c. The designated biologist will be active on the project, until such time as all environmental training, surveys, construction at Blucher Creek, relocation of California tiger salamander, and marking of sensitive and riparian areas is complete. After this time, the contractor or permittee will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist shall ensure that this individual receives the training outlined in Measure 5a and in the identification of California tiger salamanders. The monitor and the Service-approved biologist will have the authority to suspend any action that might result in effects that exceed the levels anticipated by Caltrans and the Service during review of the proposed action.
- d. The designated biologist will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project areas will be removed.

6. Restoration. The contractor will restore all temporarily disturbed areas to conditions that are equal to or better than the original conditions in accordance with Caltrans requirements. Site restoration will be completed concurrently with project construction. All debris, construction spoils, remaining installation materials, and miscellaneous litter will be removed for proper off-site disposal. Stream bank contours will be reestablished following construction and permanent erosion control will be installed if necessary. Drainage banks will be stabilized using certified weed-free straw bales, biodegradable jute, or other appropriate methods (e.g., sediment lots). More aggressive erosion control treatments will be implemented as needed. Where appropriate, discarded soil will be left in a roughened condition to reduce erosion and promote re-vegetation. Permanent erosion control measures will be implemented following completion of construction on an as-needed basis.

California Freshwater Shrimp

7. Caltrans will replace the existing box culvert at Blucher Creek with a clear-span bridge. This action will confine the bridge footings to the anchor points at the top of the creek banks and remove bridge features from the creek channel. This design feature will likely remove the existing influence of the bridge structure on local hydrology and preservation of existing habitat for the California freshwater shrimp habitat within Blucher Creek. Caltrans proposed installation of upstream sheet piling to minimize dewatering of upstream shrimp habitat during bridge construction and to maintain the shrimp habitat following construction as a permanent in-stream feature.
8. Work on the bridges/culverts in the aquatic and riparian zones of Blucher Creek will be conducted between June 15 and October 15 to minimize work in ponded areas that may provide habitat for California freshwater shrimp.
9. Before any construction activities begin in Blucher Creek, a Service-approved biologist will conduct an education program for all construction personnel. At a minimum, the training will include a description of the California freshwater shrimp and its habitat, a report of the importance of the California freshwater shrimp and its habitat, a report of the occurrence of California freshwater shrimp in the project area, an explanation of the status of this species and its protection under the Act, the measures that are being implemented to avoid and minimize effects and conserve the California freshwater shrimp as they relate to the work site, and the work site boundaries within which construction may occur. A fact sheet conveying this information will be prepared for distribution to the above-mentioned personnel and other project-related staff who may enter the project site. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures.

10. A Service-approved biologist will survey for California freshwater shrimp in Blucher Creek within two weeks before the onset of construction activities in that location, including any temporary dewatering and/or confer dam installation. The survey will include investigation of likely habitat 100 feet up and 200 feet downstream of the bridge. If individuals of the species are found, the approved biologist will capture and relocate them to suitable habitat in the same drainage. Only Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California freshwater shrimp.
11. If California freshwater shrimp are relocated from the project limits, the following procedures will be used:
 - a. California freshwater shrimp will be moved while in the net, or placed in buckets containing stream water and then moved directly to the nearest suitable habitat in the same branch of the creek. Suitable habitat is defined as creek sections that will remain wet over the summer and where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris, or overhanging vegetation. Suitable habitat will be indentified prior to capturing California freshwater shrimp to minimize holding time.
 - b. Only Service-approved biologist will participate in the capture, handling, and monitoring of California freshwater shrimp. Caltrans will report the number of captures, releases, injured, and mortalities.
12. Environmentally Sensitive Area fencing will be installed that will delineate the construction area and prevent encroachment upon adjacent riparian or other areas. This fencing will be delineated on the final plans, and the fence will remain onsite until job completion.
13. Erosion control measures such as silt fences or coir rolls will be installed on the slopes adjacent to the work area to prevent silt from entering Blucher Creek.
14. A gravity flow system and the appropriate temporary cofferdams will be used to dewater the construction site and divert water through the project limits during the construction period to prevent impeding creek flow, if there is water flow through the culverts. If dewatering or piping water around the site is required, a biologist will be present to ensure implementation of avoidance and minimization measures such as screening pump intakes. Caltrans will submit the dewatering plans to the appropriate resources agencies once the plans are finalized.
15. An erosion and sediment control plan will be implemented as part of standard Caltrans BMPs to avoid negative effects of construction on habitat outside the work areas.

16. At the completion of the project, all materials that were used to maintain flow and divert water from the construction area during construction will be removed from the streambed, including cofferdams, pipe, filter fabric, and gravel.
17. All equipment will be stored outside of Blucher Creek. Fueling, maintenance, and lay-down areas will be located at least 66 feet from any riparian habitat, and at least 200 feet from any aquatic habitat as described in the California tiger salamander section. Caltrans will ensure that fueling, maintenance, and staging do not contaminate Blucher Creek. Prior to the onset of work, a plan will be implemented that ensures a prompt and effective response to any accidental spills. All workers will be informed to the importance of preventing spills and appropriate measures to take should a spill occur.

California Tiger Salamander

18. A qualified biological monitor will be onsite during construction on:
 - a. A day when rain (0.25 inches or more) has fallen;
 - b. The day following a day of rainfall of 0.25 inches or more (in the event California tiger salamanders moved on the intervening night);
 - c. Any day when there is a 70 percent or greater chance of rain;
 - d. And during initial site grading of construction sites where California tiger salamander presence is inferred.
19. Grading and clearing will typically be conducted between April 15 and October 15 of any given year, depending on the level of rainfall and/or site conditions, as listed in measure 18.
20. The biological monitor will conduct a training session for all construction workers before work is started on the project. At a minimum, the training will include a description of the California tiger salamander and its habitat; a report of the importance of the California tiger salamander and its habitat, and of the occurrence of California tiger salamanders in the project area; an explanation of the status of this species and its protection under the Act; the measures that are being implemented to conserve the California tiger salamander as they relate to the work site; and the work site boundaries within which construction may occur. A fact sheet conveying this information will be prepared for distribution to the above-mentioned personnel and other project personnel who may enter the construction site. Upon completion of the program, personnel will sign a form stating that they have attended the program and understand all the avoidance and minimization measures.

21. On days where a monitor is required as outlined above, the biological monitor will check for animals under any equipment such as vehicles and stored pipes before the start of work each morning. The biological monitor will check all excavated steep-walled holes or trenches greater than 1 foot deep for any California tiger salamanders. California tiger salamanders will be removed by a permitted individual and translocated to receptor sites (which will be identified before work is started) that are within the same conservation area. Translocation will use the guidelines outlined in Section 4.7.2 of the Conservation Strategy or other guidelines as recommended by the Service.
22. Prior to the start of construction activities, the biologist will survey each project area for California tiger salamander. If a California tiger salamander is found, the designated biologist shall contact the Service to determine if moving the salamander is appropriate. If the Service approves moving animals, the biologist shall be allowed sufficient time to move the salamander from the work site before construction activities begin. Only designated biologist(s) shall participate in activities associated with the capture, handling, and monitoring of California tiger salamanders.
23. An erosion and sediment control plan will be implemented as part of standard Caltrans BMPs to prevent effects of construction on habitat outside the work areas.
24. Access routes and number and sizes of staging and work areas will be limited to the minimum necessary. Routes and boundaries of the roadwork will be clearly marked prior to initiating construction/grading.
25. All foods and food-related trash items will be enclosed in sealed trash containers at the end of each day, and removed completely from the site at least once every 3 days.
26. No pets will be allowed anywhere in the project site during construction.
27. A speed limit of 15 miles per hour on unpaved roads will be maintained.
28. All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents, and a Spill Response Plan will be prepared.
29. Hazardous materials such as fuels, oils, solvents, ect., will be stored in sealable containers in a designated location that is at least 200 feet from aquatic habitats. All fueling and maintenance of vehicles and other equipment and laydown areas/storage yards will occur at least 200 feet from any aquatic habitat unless separated by a topographic or drainage barrier, or unless the site is an already existing fueling or equipment area (such as an existing gas station). Staging areas may occur closer to the project activities when required (e.g., culvert replacement staging areas will be located with areas designated as temporary or permanent effect areas to replace the culverts).

30. Areas temporarily disturbed by construction activities will be re-vegetated using native species (except in areas such as temporarily disturbed landscaping or cultivated areas).
31. A fence will be installed that will delineate the construction work area and prevent encroachment upon sites outside construction areas where California tiger salamander presence is inferred. The Environmentally Sensitive Area fencing will be delineated on the final plans, and the fence will remain onsite until job completion or completion of that portion of the work (e.g., culvert replacements).
32. A speed limit of 15 miles per hour in unpaved areas within the construction area will be enforced.
33. Caltrans will compensate for the loss of 6.185 acres of California tiger salamander habitat with the acquisition and preservation of 8.528 acres of habitat for the Sonoma County distinct population segment of the California tiger salamander. Compensation will be achieved by purchase of credits at a conservation bank approved by the Service to sell California tiger salamander credits in Sonoma County.

The calculations used to determine the values in the following Table 1 are as defined by the interim guidance for the Conservation Strategy (Conservation Strategy Team 2006). Adjustments to areas of effects and corresponding compensations will be based upon the final design of the project within the action area prior to construction with written concurrence from the Service. Caltrans may acquire shared credits for the California tiger salamander and the three listed plants should they purchase such at a Service-approved bank or other Service-approved alternative consistent with the methodology described in the Santa Rosa Plain Conservation Strategy (Conservation Strategy Team 2005).

Table 1. Compensation for loss of California tiger salamander habitat by project.

Designation	Affected Area (acres)	Compensation (acres)
Within 500 feet of a known breeding site at 3:1	0.299	0.897
Beyond 2200 feet of a known breeding site but within 500 feet of an individual California tiger salamander at 2:1	0	0
Greater than 500 feet but less than 2200 feet of a known California tiger salamander breeding site at 2:1	1.940	3.88
Greater than 2200 feet but within 1.3 miles of a known California tiger salamander breeding site at 1:1	3.702	3.702
Areas defined in the Conservation Strategy as "Potential for Presence of CTS" or "Potential for Presence of CTS and Listed Plants" at 0.2:1	0.244	0.0488
Total for California Tiger Salamander	6.185	8.528

Listed Plants

34. To the extent possible, restorable or currently suitable habitat will be fenced off and clearly marked at the right-of-way to prevent inadvertent encroachment of personnel or equipment beyond the designated work area.
35. Construction access, staging, storage, and parking areas will be located on ruderal or developed lands to the extent possible and will not occur on currently suitable or restorable habitat for listed plants.
36. Erosion controls such as silt fencing or coir rolls will be installed along the perimeter of the proposed right-of-way to prevent stormwater runoff or other construction debris from entering suitable or restorable habitat for listed plants. Similar measures will be installed in any project location that occurs within 250 feet up-gradient of currently suitable or restorable habitat.
37. At the close of construction, re-vegetation with a native plant mix will occur in areas of suitable habitat that have been damaged, filled, or excavated.
38. Erosion control and buffers will also be implemented during establishment of these re-vegetated areas.
39. Caltrans will compensate for the loss of 0.0492 acres of suitable listed plant habitat with both the acquisition of occupied and established habitat. Since the action area is located south of Santa Rosa Creek, appropriate compensation would include of 0.0492 acres of occupied or established habitat and 0.0246 acres of established habitat for Burke's

goldfields, Sonoma sunshine, and/or Sebastopol meadowfoam. Compensation for the three listed plants will be accomplished according to a Service-approved conservation and management plan. The calculations used to determine the values in the following Table 2 are as defined by the 2007 *Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species of the Santa Rosa Plain, California* (Service File Number 81420-2008-F-0261).

Table 2. Compensation for loss of listed plant habitat by project.

Designation	Affected Area (acres)	Compensation (acres)
Three listed plants at 1:1 occupied or established and 0.5:1 established for the potential presence of seed bank in suitable plant habitat	0.0492	0.0492 occupied or established and 0.0246 established for any of the three listed plants
Three listed plants at 3:1 for presence	0	0
TOTAL	0.0492	0.0492 occupied or established and 0.0246 established for any of the three listed plants

40. If any listed plants are found in the action area prior to construction, Caltrans will reinitiate consultation since this opinion is based on the presence of suitable habitat with a potential seed bank rather than the observed presence of any of the three listed plants. As a result of re-initiation, Caltrans will expect to translocate any listed plants, including their seeds and/or soils containing seeds, within the action area under the authorization and direction of the Service and as outlined in the Conservation Strategy.

Upon completion of the proposed action, all suitable listed plant habitat subject to temporary ground disturbances, including storage and staging areas, temporary roads, etc. will be re-contoured, if appropriate, and revegetated with seeds and/or cuttings of appropriate plant species to promote restoration of the area to pre-project conditions. Restoration of suitable listed plant habitat will be included in the restoration and revegetation plan that Caltrans will submit in regards to temporary actions in California tiger salamander habitat within the action area.

This action covers construction of all project phases that commence within 10-years of the date of this action. This action covers all maintenance activities of the Highway 116 corridor, within the limits of this project.

Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the proposed action, the action area includes all lands associated with the 130 acre project footprint and roads (except for County roads, and State and Federal highways) and other areas accessed by project vehicles.

Environmental Baseline of the Santa Rosa Plain

Prior to human settlement, it is believed the Santa Rosa Plain supported a vast network of seasonally wet swales and scattered pools within a matrix of grassland and oak savanna. The low-gradient terrain with underlying dense clay soil horizons and high clay soil surfaces, ample winter precipitation, and dry summer climate on the Santa Rosa Plain predisposed this area to the development of seasonal wetlands. The natural landscape historically consisted of numerous shallow depressions that would pond water during the rainy season (vernal pools), often connected by narrow swales. Much of the vernal pool ecosystem has since been lost or degraded through agricultural activities and development projects (Patterson *et al.* 1994; CH2M Hill 1995).

The Santa Rosa Plain is believed to have historically supported approximately 7,000 acres of seasonal wetlands, an estimated 84 percent of which had been lost due to land conversion as of 1994. The approximately 1,000 acres of seasonal wetlands that remained on the Santa Rosa Plain in 1994 were composed of both vernal pools (ponded) and swales (non-ponded) in roughly equal proportions, and the swales had largely been invaded by exotic species, therefore it is believed the actual amount of vernal pool acreage had been reduced to less than a few hundred acres (Patterson *et al.* 1994). Because the vernal pool ecosystem was once extensive over the Santa Rosa Plain, it is not difficult to find parcels on which vernal pools have been “smeared” into the landscape, resulting in degraded seasonal wetlands that may still retain the necessary qualities for supporting one or more of the listed plant species but may require considerable restoration to ensure long-term species viability (Patterson *et al.* 1994; CH2M Hill 1995).

The loss of seasonal wetland habitat on the Santa Rosa Plain has largely resulted from urban and agricultural conversion (Patterson *et al.* 1994; CH2M Hill 1995; CNDDDB 1998). Of 28,000 acres of the Santa Rosa Plain studied by Waaland *et al.* (1990 as cited in Patterson *et al.* 1994), 12,000 acres had been converted to urban, cropland, orchard or vineyard uses. The conversion most severely affected oak woodland/savanna-vernal pool habitat.

In addition, seasonal wetlands on the Santa Rosa Plain have been heavily affected through stream channelization, filling and draining of wetlands, livestock grazing, and irrigation (Patterson *et al.* 1994; CH2M Hill 1995; Keeler-Wolf *et al.* 1997; CNDDDB 1998). Each of these effects is discussed briefly below.

Stream channelization for flood control, such as of Roseland and Colgan Creeks, has involved excavation through vernal pool terrain causing interruption of hydrological connections and

filling of wetlands with dredge spoils. Pools have also been filled and drained for mosquito abatement and to create dry ground for livestock. Air photo analyses and reconnaissance surveys have revealed incidences of unauthorized low level backyard filling throughout the Santa Rosa Plain (Patterson *et al.* 1994).

Livestock grazing is another factor with historic and ongoing effects on the listed plant species of the Santa Rosa Plain. While light grazing may benefit habitat by reducing thatch and minimizing competitive grasses (this has been demonstrated to be an effective strategy for Burke's goldfields), heavier grazing can result in injurious trampling, direct plant consumption, local soil compaction, and detrimental effects resulting from the excessive contribution of manure (Patterson *et al.* 1994; 56 FR 61173).

Wastewater irrigation is a recently established factor affecting vernal pools on the Santa Rosa Plain. This practice began in the 1970s and has continued which has resulted in changing seasonal wetland plant composition. While the native seasonal wetland species are adapted to a summer-dry Mediterranean climate, summer irrigation results in perennial wetland conditions that are intolerable by native seasonal wetland species (Patterson *et al.* 1994). A 1996 draft Environmental Impact Report (EIR) addressed a proposed long-term wastewater project that would dispose of wastewater from the Laguna Wastewater Treatment Plant by irrigating fields on the Santa Rosa Plain. The draft EIR stated that wastewater irrigation would avoid adverse effects to sensitive biological resources (City of Santa Rosa and U.S. Army Corps of Engineers 1996). However, in February of 1998, the site supporting many-flowered navarretia had a sign stating wastewater was being used for irrigation on-site (Ellen Berryman, 1998 personal observation). Patterson *et al.* (1994) state, "the ongoing need to expand effluent irrigation acreage to keep pace with population growth will continue to jeopardize the existence of oak woodlands and vernal pools on the Santa Rosa Plain unless other, less sensitive lands are found for irrigation or other means of disposal are found". The City has recently developed an EIR to look at additional wastewater storage and irrigation in the Santa Rosa Plain. The City of Santa Rosa is pursuing agreements with other wastewater facilities (Sonoma County Water Agency and Town of Windsor) to share irrigation and storage. The City of Santa Rosa is permitted to apply wastewater biosolids to lands within the Santa Rosa Plains. The RWQCB recently issued a renewed permit to Santa Rosa for wastewater discharges. The permit requires the City of Santa Rosa to study wastewater land application rates to ensure they are not over-irrigating. The permit recognized specific pollutants (including toxic pollutants) in the treated wastewater. The permit sets time schedules for these pollutants to be addressed prior to discharge to surface waters. Technically, the RWQCB regulations (Water Quality Control Plan for the North Coast Region) prohibit wastewater discharge to surface waters during the summer. The regulations however do not contemplate that wastewater would be used to irrigate vernal pools and other types of seasonal wetlands (J. Short, 2007 personal communication with the Service).

Status of the Species and Environmental Baseline

California Freshwater Shrimp

The California freshwater shrimp was listed as an endangered species on October 31, 1988 (Service 1988). A detailed account of this species' taxonomy, biology, and ecology is presented in the *Recovery Plan for the California Freshwater Shrimp* (Service 1998).

The California freshwater shrimp is a decapod crustacean of the family Atyidae. The Atyidae includes four species in the United States including *Syncaris pasadenae*, which inhabited streams of southern California, is presumed extinct, and *Syncaris pacifica* (California freshwater shrimp), the only representative of this genus in the United States. According to Eng (1981), California freshwater shrimp adults are generally less than 2 inches in postorbital length (from eye orbit to tip of tail). Based on shrimp collected in October, Eng (1981) described females ranging between 1.26-1.77 inches in length and males from 1.14-1.52 inches in length. This freshwater shrimp's coloration is variable. Juvenile and adult male of this species are translucent to nearly transparent (Martin and Wicksten 2004) with small surface and internal color-producing cells (chromatophores) clustered in patterns to disrupt their body outlines. Females are similar in coloration, but have been known to be brown or purple (Eng 1981; Martin and Wicksten 2004). Both sexes can darken or lighten their color, but females have this ability to a larger degree (Service 1998). Undisturbed shrimp move slowly and are virtually invisible on submerged leaf and twig substrates and among fine, exposed, live tree roots along undercut stream banks.

This listed shrimp feed upon fine particulate organic matter (Anderson and Cummins 1979; Eng 1981; Goldman and Home 1983). They reach sexual maturity at the end of their second summer, and reproduction appears to occur once a year. Based upon the reproductive physiology and behavior of other marine and freshwater shrimp, the male probably transfers and fixes a sperm sac to the female after her last molt, before autumn. Serpa (1991) noticed that most adult females in Huichica Creek were bearing eggs by November. Females produce relatively few eggs, generally, 50 to 120 (Hedgpeth 1968; Eng 1981). No information is available on the percentage of larvae that reach reproductive maturity.

The California freshwater shrimp has only been found in low elevation (less than 380 feet) and low gradient (generally less than 1 percent) streams (Service 1998). It is generally found in stream reaches where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris, or overhanging vegetation (Eng 1981; Serpa 1986 and 1991). Excellent habitat conditions for this animal involve streams 12 to 36 inches in depth with live roots along undercut banks (greater than 6 inches) with overhanging stream vegetation and vines (Serpa 1991). Such microhabitats may provide protection from high velocities and sediment loads associated with high stream flows. Where this species is present in two connecting watercourses, smaller tributaries generally support greater numbers of shrimp than their larger receiving streams. With the exception of Yulupa Creek, California freshwater shrimp have not been found in stream reaches with boulder and bedrock bottoms. High velocities and

turbulent flows in such reaches may hinder the animal's upstream movement. An ongoing study by the U.S. National Park Service (NPS) and the US Geological Survey (USGS) is examining the habitat requirements of *Syncaris pacifica* in Lagunitas and Olema creeks (D. Fong, Biologist, NPS, per comm. with Michael Thomas, Service, 2006). Preliminary results from this study indicated that shrimp were primarily located in glides characterized with overhanging vegetation, submerged root wads, sandy substrates, and low velocities (Saiki 2006).

Habitat preferences apparently change during late spring and summer months. Eng (1981) rarely found California freshwater shrimp beneath undercut banks in summer; submerged leafy branches were the preferred summer habitat. In Lagunitas Creek, Marin County, the California freshwater shrimp was found in a wide variety of trailing, submerged vegetation (Li 1981). Highest concentrations of this species were in reaches with adjacent vegetation comprised of stinging nettles (*Urtica* species), grasses, blackberry (*Rubus* species), and mint (*Mentha* species). None were caught from cattails (*Typha* species), cottonwood (*Populus fremontii*), or California laurel (*Umbellularia californica*). Serpa (personal communication with the Service, 1994 cited in Service 1998) noted that populations were proportionally correlated with the quality of summer habitat provided by trailing terrestrial vegetation. However, during summer low flows, California freshwater shrimp have been found in apparently poor habitat such as isolated pools with minimal cover. In such streams, opaque waters may allow the animal to escape predation and persist in open pools (Serpa 1991). Further research is needed to determine if both winter and summer habitat needs to be provided within the same location or if California freshwater shrimp can move between areas containing either winter or summer habitat (Service 1998).

The shrimp has evolved to survive a range of stream and water temperature conditions characteristic of small, perennial coastal streams. However, no data are available for defining the optimum temperature and stream flow regime for the California freshwater shrimp or the limits it can tolerate. The shrimp appears to be able to tolerate warm water temperatures (greater than 73° Fahrenheit) and low flow conditions that are detrimental or fatal to native salmonids. Although largely absent from existing streams, large, complex organic debris dams may have been prevalent in streams supporting California freshwater shrimp populations. These structures may have been important feeding and refugial (resting) sites for the California freshwater shrimp. Such structures are known to collect detritus (debris formed by the decomposition of plants and animals (i.e., food)) as well as leaf litter, which can be later broken down by microbial activity and invertebrates into fine particulate matter (Triska *et al.* 1982). In addition, debris dams may offer shelter during high flow events and reduce displacement of invertebrates (Covich *et al.* 1991). Some debris dams may break apart during high flow events and allow California freshwater shrimp to disperse periodically and maintain genetic connections among populations.

The California freshwater shrimp is assumed to have been common historically in perennial freshwater streams within Marin, Sonoma, and Napa counties. The species has been observed in 22 streams within these counties and can be separated into four general geographic regions: (1) tributary streams in the lower Russian River drainage, (2) coastal streams flowing to the Pacific Ocean, (3) streams draining into Tomales Bay, and (4) streams flowing southward to San Pablo

Bay. Many of these streams contain shrimp populations that are now isolated from each other. Huichica Creek is located in the geographic region in which streams flow southward to San Pablo Bay and its habitat value was qualitatively rated as excellent in the 1980's (Serpa 1986). Shrimp populations in Salmon and Lagunitas Creeks were rated good to excellent due to the relatively high numbers of sampled shrimp over a relatively long distance. Populations on Stemple, Green Valley, Austin, Walker, and Yulupa Creeks and Napa River were rated extremely poor to fair poor due to limited distribution and low numbers of sampled shrimp. No ratings are available for Atascadero Creek, Redwood Creek, Olema Creek, and Laguna de Santa Rosa due to insufficient information. In addition to the 17 streams noted in the recovery plan (Service 1998), the species is now known from "Bud Creek" (Sonoma County) (L. Serpa, The Nature Conservancy, personal communication with the Service, 2006), Fallon Creek (Marin County), Franz Creek (Sonoma County) (Martin and Wicksten 2004; Serpa 2002), Ebabias Creek (Sonoma County) (B. Cox, California Department of Fish and Game, personal communication with the Service, 2006), Cheda Creek (Marin County) (Fong 2004), an unnamed tributary of Huichica Creek (Napa County) (L. Serpa, The Nature Conservancy, personal communication with the Service, 2006), and an additional unconfirmed record in the Napa River near the confluence of Sulphur Creek, approximately 8.5 miles south of the existing record at the confluence of the Napa River with Garnett Creek (Natural Resources Management 2006).

Distribution of California freshwater shrimp populations within streams is not expected to be static because of habitat changes from natural or manmade forces. Distribution may expand or contract depending upon conditions within streams. For example, long-term drought conditions may have resulted in more discontinuous California freshwater shrimp populations in Huichica Creek (Serpa 1991). A recovery objective for the California freshwater shrimp is the gradual removal of unnatural barriers to California freshwater shrimp dispersal and restoration of natural habitat conditions (Service 1998). These measures are expected to expand California freshwater shrimp distribution beyond its existing range. Existing California freshwater shrimp distribution in streams is not continuous, and the species often occupies only short reaches of the stream (Service 1998). However, entire streams are considered California freshwater shrimp habitat, because the California freshwater shrimp disperses between areas of good habitat.

Threats to the California freshwater shrimp include viticulture operations, irrigation diversions, sewage, bank protection measures, migration barriers (e.g., culverts, bridge footings/sills, and grade control structures), urban residential/commercial development, and introduced predators (Service 1998). Introduced fish may decrease shrimp distribution significantly through predation. Common carp (*Cyprinus carpio*) occur in Stemple Creek (Serpa 1986), which dislodge and consume invertebrates from plants and silty bottoms through their rooting activities (Moyle 1976). Introduced sunfish (*Lepomis cyanellus*) and mosquitofish (*Gambusia affinis*) are likely California freshwater shrimp predators (Service 1998). Williams (1977) found no coexistence between mosquitofish and atyids in Hawaiian streams. Because of the relatively recent introduction of these fish, the California freshwater shrimp main defensive characteristic (cryptic coloration) may not be sufficient to reduce their risk of predation. Like the California freshwater shrimp, many introduced fish can persist under relatively poor water quality

conditions in the absence of natural predators such as juvenile steelhead (*Oncorhynchus mykiss*). Additionally, several native fish species also prey on the shrimp. Results from stomach content analysis from a study on habitat requirements of the shrimp in Lagunitas and Olema creeks found that prickly sculpin (*Cottus asper*) and riffle sculpin (*Cottus gulosus*) prey on the shrimp (Saiki 2006).

The shrimp has a relatively low fecundity, is believed to reproduce only once a year, and requires over one year to reach sexual maturity (Service 1998). The shrimp has no known resistant or dormant life stage that would allow it to survive a toxic event such as a chemical spill.

Objectives in the California freshwater shrimp's recovery plan include protection of existing populations, removal of threats to these populations, and enhancement of habitat for native aquatic species within the California freshwater shrimp's historic range, and the development and implementation of watershed plans. The Napa River is one of several watersheds in California known to support the shrimp, which has been found in main branch of the river as well as portions of Garnet Creek, a tributary to the Napa River. A biological assessment prepared for a flood protection project in St. Helena, California, noted that four adult shrimp were observed in the Napa River near the town of St. Helena at the Pope Street Bridge, approximately 6 miles upstream of the proposed bridge replacement (Jones and Stokes 2006). According to the biological assessment for the proposed project, breeding shrimp were observed at the same location in riprapped areas upstream and downstream of Pope Street Bridge (Jones and Stokes 2007). The next closest record is also from the Napa River, approximately 14 miles upstream near the Town of Calistoga, California. The Natural Resource Protection and Enhancement Plan (Napa County RCD 1993) developed for the watershed recommends use of cover crops to minimize soil erosion and water conservation measures.

Several watershed management and/or enhancement plans have been developed, primarily by local Resource Conservation Districts (RCD). Watershed plans exist for the Tomales Bay Watershed (including Lagunitas Creek, Olema Creek, Walker Creek, Keys Creek, and Stemple Creek) (Tomales Bay Watershed Council 2003), Laguna de Santa Rosa (including Santa Rosa and Blucher Creeks) (Honton and Sears 2006), Sonoma Creek (including Yulupa Creek) (Southern Sonoma County RCD 2004), the northern Napa River (including Garnett Creek) (Koehler 2002), and Huichica Creek (L. Sharp, Napa County RCD, personal communication with the Service, 2006). The watershed plan for the northern Napa River (which includes the site of the proposed bridge replacement) was primarily developed for the protection and enhancement of Steelhead and Chinook (*Oncorhynchus tshawytscha*) populations; however it is expected some of the measures would also benefit the shrimp, such as restoring riparian habitat and improving water quality.

A number of restoration projects undertaken by the Bay Institute, through the Students and Teachers Restoring a Watershed (STRAW) program, have been implemented to improve habitat for the shrimp since 1993; these projects have focused on removing exotic vegetation, planting native species, erecting livestock exclusion fencing, and installing cattle bridges (L. Rogers, The

Bay Institute, personal communication with the Service, 2006). To date, the STRAW project has completed approximately 185 projects restoring over 50,000 linear feet of stream bank. The Service's Partners for Fish and Wildlife program has provided some funding for these restoration efforts; in these instances contracts for the continued management of the properties for the benefit of wildlife are in place, but the contracts will eventually expire and do not represent long term protection (D. Strait, Fish and Wildlife biologist, Service, personal communication 2006).

To date, Lagunitas Creek is the only shrimp stream with long term population data. According to information from Serpa (2002) shrimp populations in Lagunitas Creek increased from 1994 through 2000 from approximately 1,465 individuals to 4,407 respectively. The increase followed an increase in linear feet of pool habitat within the creek. However, an unpublished paper from Quinlan (2006) reports additional shrimp population data in Lagunitas Creek from 2000-2004, in which the number of individuals decreased from approximately 4,400 to 2,100 respectively, which was inversely related to an increase in mean stream width.

According to the 2007 Biological Assessment (Caltrans 2007), California freshwater shrimp specialist, Larry Serpa, conducted surveys for the listed freshwater shrimp in Jersey Creek, Blucher Creek, an unnamed tributary to Laguna de Santa Rosa, Gossage Creek, and Washoe Creek. Serpa surveyed for suitable shrimp habitat and shrimp presence within 100 feet upstream and 200 feet downstream of these five existing bridge crossings. Serpa described the California freshwater shrimp habitat in Gossage Creek, Washoe Creek, and the unnamed tributary as "poor" to "fair". Serpa did characterize bank habitat on the north side of Jersey Creek as "excellent" due to aquatic tree roots. However, Gossage, Washoe, the unnamed tributary, and Jersey Creek lacked aquatic root development from blackberry vegetation. Serpa found no shrimp in these four drainages during his October 14 and 22, 2005 aquatic surveys. Although he characterized the habitat in Jersey Creek as "excellent", Serpa does not believe there is further potential for this crossing to be occupied by shrimp during project construction (John Cleckler/Service personal communication with L. Serpa on January 20, 2009). California freshwater shrimp were previously recorded approximately 1.5 miles upstream of the action area in Blucher Creek (CNDDDB 2009) and Serpa described the available habitat 100 feet up and 200 feet downstream of the Blucher Creek Bridge as "good" to "excellent" with well developed blackberry roots that could provide habitat for the California freshwater shrimp. Serpa then found eight juvenile California freshwater shrimp approximately 40 feet upstream of the Blucher Creek Bridge during the October 2005 surveys.

Therefore, the Service has determined it is reasonable to conclude the California freshwater shrimp inhabits and has the potential to be encountered within the action area up and downstream of the Blucher Creek Bridge action area, based on the shrimp observations, biology and ecology of the species, and the presence of suitable and occupied habitat.

California Tiger Salamander

The distribution of the California tiger salamander has been divided into three distinct population segments (DPS) defined as the Sonoma County DPS, Santa Barbara DPS, and the Central Valley (or Main) DPS. The Sonoma County DPS of the California tiger salamander was emergency listed as endangered on July 22, 2002 (67 FR 47726). The Sonoma County DPS was listed as endangered on March 19, 2003 (68 FR 13497). The Central Valley DPS was listed as threatened on August 4, 2004 (69 FR 47212). This latter listing also changed the status of the Santa Barbara and Sonoma County DPSs from endangered to threatened. On August 10, 2004, the Service proposed 47 critical habitat units in 20 counties. No critical habitat was proposed for Sonoma County. On October 13, 2004, a complaint was filed in the U.S. District Court for the Northern District of California (Center for Biological Diversity and Environmental Defense Council v. U.S. Fish and Wildlife Service *et al.*). On February 3, 2005, the District Court required the Service to submit for publication in the **Federal Register**, a final determination on the proposed critical habitat designation on or before December 1, 2005. On August 2, 2005, the Service noticed in the **Federal Register** a proposed critical habitat designation (70 FR 44301). On August 19, 2005, a court order was filed on the above complaint, which upheld the section 4(d) rule exempting grazing from Section 9 prohibitions, but vacated the downlisting of the Santa Barbara and Sonoma populations and reinstated their endangered distinct population segment status. On December 14, 2005, (70 FR 74138), we made a final determination to designate and exclude approximately 17,418 acres of critical habitat for the Sonoma population. All of critical habitat was excluded based on interim conservation strategies and measures being implemented by those local governing agencies with land use authority over the area and also as a result of economic exclusions authorized under section 4(b)(2) of the Act. Therefore, no critical habitat was designated for the Sonoma County DPS of the California tiger salamander in Sonoma County, California.

The Sonoma County DPS is widely separated geographically from the closest Central Valley DPS populations, which are located in Contra Costa, Yolo, and Solano counties. These Central Valley populations are separated from the Sonoma County population by the Coast Range, Napa River, and the Carquinez Straits, at a minimum distance of approximately 45 miles. There are no known records of the California tiger salamander in the intervening areas (D. Warenycia, California Department of Fish and Game, personal communication with the Service, 2002). We have no evidence of natural interchange of individuals between the Sonoma County population and other California tiger salamander populations.

Sonoma County DPS of the California tiger salamander inhabits low-elevation (below 500 feet) vernal pools and seasonal ponds, associated grassland, and oak savannah plant communities. The historic range of the Sonoma County population also may have included the Petaluma River watershed, as there is one historic record of a specimen from the vicinity of Petaluma from the mid-1800s (Borland 1856, as cited in Storer 1925).

Although genetically and geographically distinct, the three population segments share the following life history information.

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 (Petranka 1998). Tiger salamanders exhibit sexual dimorphism; males tend to be larger than females. The coloration of the California tiger salamander is white or yellowish markings against black. As adults, California tiger salamanders tend to have the creamy yellow to white spotting on the sides with much less on the dorsal surface of the animal, whereas other tiger salamander species have brighter yellow spotting that is heaviest on the dorsal surface. The larvae have yellowish gray bodies, broad flat heads, large feathery external gills, and broad dorsal fins extending well up their back and range in length from approximately 0.45 to 0.56 inches (Petranka 1998).

The California tiger salamander has an obligate biphasic life cycle (Shaffer *et al.* 2004). Although the larvae salamanders develop in the vernal pools and ponds in which they were born, they are otherwise terrestrial salamanders and spend most of their postmetamorphic lives in widely dispersed underground retreats (Shaffer *et al.* 2004; Trenham *et al.* 2001). Subadult and adult California tiger salamanders spend the dry summer and fall months of the year in the burrows of small mammals, such as California ground squirrels (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and California voles (*Microtus californicus*) (Storer 1925; Loredó and Van Vuren 1996; Petranka 1998; Trenham 1998a; Bobzien and DiDonato 2007). Because they spend most of their lives underground, California tiger salamanders are rarely encountered, even in areas where they are abundant.

California tiger salamanders may also use landscape features such as leaf litter or desiccation cracks in the soil for upland refugia. Burrows often harbor camel crickets (*Ceuthophilus* spp.) and other invertebrates that provide likely prey for California tiger salamanders. Underground refugia also provides protection from the sun and wind associated with the dry California climate that can cause excessive drying of amphibian skin. Although California tiger salamanders are members of a family of "burrowing" salamanders, they are not known to create their own burrows. This may be due to the hardness of soils in the California ecosystems in which they are found. Tiger salamanders typically use the burrows of ground squirrels and gophers (Loredó *et al.* 1996; Trenham 1998a). However, Dave Cook (Sonoma County Water Agency, personal communication with the Service, 2001) found that pocket gopher burrows are most often used by California tiger salamanders in Sonoma County. California tiger salamanders depend on persistent small mammal activity to create, maintain, and sustain sufficient underground refugia. Burrows are short lived without continued small mammal activity and typically collapse within approximately 18 months (Loredó *et al.* 1996).

Upland burrows inhabited by California tiger salamanders have often been referred to as "estivation" sites. However, "estivation" implies a state of inactivity, while most evidence suggests that California tiger salamanders remain active in their underground dwellings. A recent study has found that California tiger salamanders move, feed, and remain active in their

burrows (Van Hatterm 2004). Because California tiger salamanders arrive at breeding ponds in good condition and are heavier when entering the pond than when leaving, researchers have long inferred that California tiger salamanders are feeding while underground. Recent direct observations have confirmed this (Trenham 2001; Van Hatterm 2004). Thus, “upland habitat” is a more accurate description of the terrestrial areas used by California tiger salamanders.

Once fall or winter rains begin, the salamanders emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds (Stebbins 1985, 1989; Shaffer *et al.* 1993). Adult salamanders mate in the breeding ponds, after which the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998). Historically, the California tiger salamander utilized vernal pools, but the animals also currently breed in livestock stockponds. Females attach their eggs singly, or in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925; Twitty 1941). In ponds with no or limited vegetation, they may be attached to objects, such as rocks and boards on the bottom (Jennings and Hayes 1994). After breeding, adults leave the pool and return to the small mammal burrows (Loredo *et al.* 1996; Trenham 1998a), although they may continue to come out nightly for approximately the next two weeks to feed (Shaffer *et al.* 1993). In drought years, the seasonal pools may not form and the adults can not breed (Barry and Shaffer 1994).

California tiger salamander larvae typically hatch within 10 to 24 days after eggs are laid (Storer 1925). The peak emergence of these metamorphs is typically between mid-June to mid-July (Loredo and Van Vuren 1996; Trenham *et al.* 2000) but in some areas as early as late February or early March. The larvae are totally aquatic. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about six weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been known to consume the tadpoles of Pacific treefrogs (*Pseudacris regilla*), Western spadefoot toads (*Spea hammondi*), and California red-legged frogs (*Rana aurora draytonii*) (J. Anderson 1968; P. Anderson 1968). California tiger salamander larvae are among the top aquatic predators in seasonal pool ecosystems. When not feeding, they often rest on the bottom in shallow water but are also found throughout the water column in deeper water. Young salamanders are wary and typically escape into vegetation at the bottom of the pool when approached by potential predators (Storer 1925).

The larval stage of the California tiger salamander usually last three to six months, as most seasonal ponds and pools dry up during the summer (Petranka 1998). Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Individuals collected near Stockton in the Central Valley during April varied from 1.88 to 2.32 inches in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left the breeding pools 60 to 94 days after the eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. The longer the ponding duration, the larger the larvae and metamorphosed juveniles are able to grow, and the more likely they are to survive and reproduce (Pechmann *et al.* 1989; Semlitsch *et al.* 1988; Morey 1998; Trenham 1998b). The larvae will perish if a site dries before metamorphosis is complete (P. Anderson 1968; Feaver 1971). Pechmann *et al.* (1989) found a

strong positive correlation with ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 pools sampled supported larval California tiger salamanders, and 5 of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only six (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998). In the late spring or early summer, before the ponds dry completely, metamorphosed juveniles leave them and enter upland habitat. This emigration occurs in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo *et al.* 1996). Unlike during their winter migration, the wet conditions that California tiger salamanders prefer do not generally occur during the months when their breeding ponds begin to dry. As a result, juveniles may be forced to leave their ponds on rainless nights. Under these conditions, they may move only short distances to find temporary upland sites for the dry summer months, waiting until the next winter's rains to move further into suitable upland refugia. Once juvenile California tiger salamanders leave their birth ponds for upland refugia, they typically do not return to ponds to breed for an average of 4 to 5 years. However, they remain active in the uplands, coming to the surface during rainfall events to disperse or forage (Trenham and Shaffer 2005).

Lifetime reproductive success for California and other tiger salamanders is low. Trenham *et al.* (2000) found the average female bred 1.4 times and produced 8.5 young that survived to metamorphosis per reproductive effort. This resulted in roughly 11 metamorphic offspring over the lifetime of a female. Two reasons for the low reproductive success are the preliminary data suggests that most individuals of the California tiger salamanders require two years to become sexually mature, but some individuals may be slower to mature (Shaffer *et al.* 1993); and some animals do not breed until they are four to six years old. While individuals may survive for more than ten years, many breed only once, and in some populations, less than 5 percent of marked juveniles survive to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well as from human caused factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Dispersal and migration 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. At a study in Monterey County, it was found that upon reaching sexual maturity, most individuals returned to their natal/ birth pond to breed, while 20 percent dispersed 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 or pools into upland habitats. Maximum distances moved are generally difficult to establish for any species, but California tiger salamanders in Santa Barbara County have been recorded to disperse 1.3 miles from breeding ponds (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). In addition to traveling long distances during migration to or dispersal from ponds, California tiger salamanders may reside in burrows that are far from ponds.

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 adult California tiger salamanders. A trapping study conducted in Solano County during winter of 2002/2003 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. Fitting a distribution curve to the data revealed that 95 percent of juvenile salamanders could be found within 2,099 feet of the pond, with the remaining 5 percent being found at even greater distances. Results from the 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 (Trenham and Shaffer 2005). During post-breeding emigration, radio-equipped adult California tiger salamanders were tracked to burrows 62 to 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.

In addition, rather than staying in a single burrow, most individuals used several successive burrows at increasing distances from the pond. Although the studies discussed above provide an approximation of the distances that California tiger salamanders regularly move from their breeding ponds, upland habitat features will drive the details of movements in a particular landscape. Trenham (2001) found that radio-tracked adults favored grasslands with scattered large oaks, over more densely wooded areas. Based on radio-tracked adults, there is no indication that certain habitat types are favored as corridors for terrestrial movements (Trenham 2001). In addition, at two ponds completely encircled by drift fences and pitfall traps, captures of arriving adults and dispersing new metamorphs were distributed roughly evenly around the ponds. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

Several species have either been documented to prey or likely prey upon the California tiger salamanders including coyotes (*Canis latrans*), raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), egrets (*Egretta* species), great blue herons (*Ardea herodias*), crows (*Corvus*

brachyrhynchus), ravens (*Corvus corax*), bullfrogs (*Rana catesbeiana*), mosquito fish (*Gambusia affinis*), and crayfish (*Procrampus* species).

The California tiger salamanders are imperiled throughout its range by a variety of human activities (Service 2004). Current factors associated with declining populations of the salamander include continued degradation and loss of habitat due to agriculture and urbanization, hybridization with non-native eastern tiger salamanders (*Ambystoma tigrinum*) (Fitzpatrick and Shaffer 2004; Riley *et al.* 2003), and introduced predators. Hybridization with non-native eastern tiger salamanders has not yet been identified within the Sonoma County population. Fragmentation of existing habitat and agricultural activities that degrade and/or eliminate breeding pools may represent the most significant current threats to California tiger salamanders, although populations are likely threatened by more than one factor. Isolation and fragmentation of habitats within many watersheds have precluded dispersal between sub-populations and jeopardized the viability of metapopulations (broadly defined as multiple subpopulations that occasionally exchange individuals through dispersal, and are capable of colonizing or “rescuing” extinct habitat patches). Other threats are predation and competition from introduced exotic species; disease; various chemical contaminants; road-crossing mortality; and certain unrestrictive mosquito and rodent control operations.

Between 2001 and 2002, five breeding sites for Sonoma County DPS of the California tiger salamander were destroyed. Loss of real and potential salamander breeding sites, upland refugia, dispersal, and foraging habitat continues to occur in the Santa Rosa Plain. Between 2001 and 2002, five breeding sites for Sonoma County DPS of the California tiger salamander were destroyed. Loss of real and potential salamander breeding sites, upland refugia, dispersal, and foraging habitat continues to occur in the Santa Rosa Plain. To date, there have been 26 biological opinions (i.e., section 7 formal consultations) authorizing incidental take to all individuals inhabiting 676.607 acres of California tiger salamander habitat since the emergency listing on July 22, 2002. Five of these 26 biological opinions address adverse and beneficial affects associated with the construction of seasonal wetlands and creation of California tiger salamander breeding habitat and establishment of Burke’s goldfields, Sebastopol meadowfoam, and Sonoma sunshine. These five sites are the Hazel Mitigation Bank, Wright Preservation Bank, Slippery Rock Conservation Bank, Terra Bagnatta Mitigation Site, and the Alton North Conservation Bank. Temporary ground disturbance associated with these five sites include approximately 206.51 acres. There has been 476.982 acres of permanent California tiger salamander habitat loss permitted by the Service through section 7 consultations. The development projects have integrated in their project proposals to conserve a total of 623.505 acres of California tiger salamander habitat at Service approved locations within Sonoma County via the purchase of conservation credits, recording conservation easements, or offering fee title to the California Department of Fish and Game or another Service approved entity.

As of October 15, 2007, there are approximately 730 acres of *existing* Preserves that support occupied California tiger salamander habitat within conservation areas. Some of these existing

preserves also support the listed plants. There are also approximately 165 acres of *pending* Preserves within conservation areas that are anticipated to be protected in perpetuity.

The southern half (south of Llano Road) of the approximately 6.6 mile-long proposed State Route 116 project corridor is located within the potential range of the Sonoma County DPS of the California tiger salamander as defined in the Conservation Strategy (Conservation Strategy Team 2005). California tiger salamanders are unlikely to occur in the action area north of Llano Road because it is in the flood plain of Laguna de Santa Rosa (Conservation Strategy Team 2005). Much of the project alignment within the range of the listed salamander that lies outside the existing road hardscape is characterized by linear strip of ruderal vegetation contiguous with large areas of open grassland. Caltrans identified four types of natural vegetation types in and adjacent to the action area. Those included Valley Oak Woodland, Annual Grassland, North Coast Riparian Forest, and Northern Vernal Pool (Caltrans 2007). Much of the southern half of the action area is rural and dominated by grazing and agriculture. Such land practices can be conducive to California tiger salamander occupation particularly when they include stock ponds that function as potential salamander breeding sites. According to the August 2007 Biological Assessment, Caltrans determined that roadside ditches in and immediately adjacent to the action area have potential as California tiger salamander breeding sites (Caltrans 2007). California tiger salamander eggs were found approximately 0.4 miles north of the action area in ditches alongside Helman Road in 2001 (CNDDDB 2009). State Route 116 is a formidable barrier to linkage of California tiger salamander habitat on either side of the road. The California tiger salamander habitat in the action area is bounded by Llano Road and an unnamed tributary to Laguna de Santa Rosa to the north and is also bisected by Gossage Creek and Washoe Creek. Other linear aquatic habitat in and immediately adjacent to the action area includes roadside drainage ditches. Adjacent land uses vary from fragmenting urban development, intensive agriculture (vineyards), and ruderal fields. Those areas occupied by, or adjacent to, undeveloped fields have the highest potential to support tiger salamanders. The surrounding perennial aquatic habitat is unfavorable to breeding due to the presence of introduced predators such as crayfish (*Pacifastacus leniusculus*) and non-native fishes.

There are eight documented California tiger salamander records within 1.3 miles of the State Route 116 action area. These include at least three known breeding sites within less than 0.25 miles and as close as 1000 feet from the action area. The majority of the reported observations in the CNDDDB are located in the Rohnert Park area which is likely due to discoveries associated with local development. Some of these CNDDDB records were the result of project-related surveys and now portions of the habitats including breeding ponds associated with those records have since been removed due to the associated projects. The lack of recorded observations in potential habitat between Rohnert Park and Llano Road can likely be attributed to the lack of investigation of private land.

Burke's goldfields

Burke's goldfields was federally listed as endangered on December 2, 1991 (56 FR 61173). No critical habitat has been designated for this species.

Burke's goldfields is an annual herb in the aster family (Asteraceae). Plants are typically less than 11.8 inches in height (Hickman 1993) and usually branched (California Native Plant Society (CNPS) 1977). Leaves are opposite, less than two inches in length, and pinnately lobed. Yellow, daisy-like inflorescences with separate involucre bracts (leaf-like structures beneath the flower head) appear from approximately April through June (Skinner and Pavlik 1994). Fruits are achenes (dry, one-seeded fruits) less than 0.06 inches in length. The fruits of Burke's goldfields can be distinguished from those of other goldfields by the presence of one long awn (bristle and numerous short scales) (Hickman 1993). Individual Burke's goldfields plants may exhibit some geographic variation in morphology (McCarten 1985 as cited in CH2M Hill 1995, Patterson *et al.* 1994). Patterson *et al.* (1994) report robust specimens from the southern Santa Rosa Plain near the Laguna de Santa Rosa and variation in the number of awns from a Lake County population. Burke's goldfields can be distinguished from smooth goldfields (*Lasthenia glaberrima*) because smooth goldfields have partly fused involucre bracts and a pappus (ring of scale-like or hair-like projections at the crown of an achene) of numerous narrowed scales. The linear leaves without lobes distinguish common goldfields (*Lasthenia californica*) from Burke's goldfields (Hickman 1993).

Burke's goldfields is endemic to the central California Coastal Range region and has been reported historically from Mendocino, Lake, and Sonoma counties (CNPS 1977; Patterson *et al.* 1994). The type locality of Burke's goldfields is the only known occurrence from Mendocino County and is possibly extirpated. Two California Natural Diversity Database (CNDDDB) occurrences are recorded from Lake County, at Manning Flat and at a winery on Highway 29. Both Lake County occurrences are presumed extant. The remaining occurrences are from Sonoma County (CNDDDB 1998). Within Sonoma County, one occurrence is known from north of Healdsburg (Patterson *et al.* 1994). On the Santa Rosa Plain, Burke's goldfields is distributed primarily in the northwestern and central areas with two additional occurrences south of Highway 12 near the Laguna de Santa Rosa (CH2M Hill 1995). The core of the current range of Burke's goldfields is in the Santa Rosa Plain.

Burke's goldfields grow in vernal pools and swales below 500 meters (m) (Hickman 1993). At the Manning Flat occurrence in Lake County, Burke's goldfields is found in a series of claypan vernal pools on volcanic ash soils (56 FR 61173; CNDDDB 1998). At this location, the species is associated with common goldfields and few-flowered navarretia (*Navarretia leucocephala pauciflora*) (CNDDDB 1998). In Sonoma County, the vernal pools containing Burke's goldfields are on nearly level to slightly sloping loams, clay loams, and clays. A clay layer or hardpan approximately two to three feet below the surface restricts downward movement of water (56 FR 61173). Huichica loam is the predominant soil series on which Burke's goldfields is found on the northern part of the Santa Rosa Plain (Patterson *et al.* 1994; CNDDDB 1998). Huichica loam

is a fine textured clay loam over buried dense clay and cemented layers (Patterson *et al.* 1994). More southerly Burke's goldfields sites likely occur on Wright loam or Clear Lake clay (Patterson *et al.* 1994; CNDDDB 1998). Wright loam is a fine silty loam over buried dense clay and marine sediments. Clear Lake clay is hard dense clay from the surface to many feet thick (Patterson *et al.* 1994). Burke's goldfields sometimes occurs along with Sonoma sunshine and Sebastopol meadowfoam (*Limnanthes vincularis*). These three federally listed species are all associated with other plants that commonly grow in vernal pools on the Santa Rosa Plain, including Douglas' pogogyne (*Pogogyne douglasii* spp. *parviflora*), Lobb's aquatic buttercup (*Ranunculus lobbii*), smooth goldfields, California semaphore grass (*Pleuropogon californicus*), maroonspot downingia (*Downingia concolor*), and button-celery (*Eryngium* species) (CNDDDB 1998).

The flowers of Burke's goldfields are self-incompatible (Ornduff 1966, Crawford and Ornduff 1989) and insect-pollinated. Seed banks are of particular importance to annual plant species which are subject to uncertain or variable environmental conditions (Cohen 1966 and 1967; Parker *et al.* 1989; Templeton and Levin 1979). Burke's goldfields fit this criterion; it is an annual species living in California's highly variable Mediterranean climate.

No information exists with respect to the seed life of Burke's goldfields. Circumstantial evidence suggests that Burke's goldfields successfully germinated from seed in soil collected from a previously developed portion of the Westwind Business Park (Building F) when the soil was translocated and deposited in created seasonal wetlands (C. Wilcox, CDFG, 2000 *in litt.*). As annual species, it is expected that Burke's goldfields and Sonoma sunshine will respond to environmental stochastic events, such as changes in vegetative composition, climate, and disturbance, by partial germination of its seed bank. Baskin and Baskin (1998) indicate that species (annuals) adapted to "risky environments" produce persistent seed banks to offset years of low reproductive success and to ensure the species can persist at a site without immigration. These characteristics can be attributed to Burke's goldfields. Considering the adaptations of these plants to a variable Mediterranean climate, it is likely the seed of Burke's goldfields can persist as dormant embryos for an undetermined number of years. Although formal studies of seed viability have not been conducted for these species, it is reasonable to expect their seed banks may persist for extended periods without germination. Furthermore, it is not unlikely that the individual fruits of Burke's goldfields may be predisposed to variable germination requirements as a strategy for survival. Therefore, populations of these species may persist undetected for a period of years until conditions are favorable to allow germination.

For species that develop long-lived seed banks, a census of plants growing above ground may not accurately reflect the total number of plants at the site (Rice 1989; Given 1994). Population sizes of California's vernal pool/swale annual plant species, including Burke's goldfields, may fluctuate substantially between very high numbers in some years to very small numbers, or even absence in other years because of varying environmental conditions. Therefore, total extirpation cannot be assumed when above-ground plants of these species are not observed at a site. Furthermore, declines in population size over a few years may not necessarily indicate that

habitat is unsuitable (Given 1994), merely that environmental conditions within a vernal pool or swale have not favored seed germination.

Burke's goldfields is threatened with habitat loss, fragmentation, and degradation throughout all or part of its range by factors including urbanization, agricultural land use changes, alterations in hydrology, and erosion (CNPS 1977; 56 FR 61173; Patterson *et al.* 1994; CH2M Hill 1995; CNDDDB 1998). The only known Mendocino County occurrence is presumably extirpated (CH2M Hill 1995). The Manning Flat occurrence, located on private land in Lake County, is the largest known occurrence of the species and is threatened by extensive gully erosion that is destroying the habitat (CH2M Hill 1995; CNDDDB 1998). The second Lake County occurrence is on property owned by a winery. Recent reports suggest that some damage to this population has resulted from vineyard operations (R. Chan, University of California, Berkeley, 1998 *in litt.*). However, in the past the winery owners appeared willing to coordinate with the Service and the U.S. Army Corps of Engineers (Corps) to avoid and/or minimize further damage to the site (N. Haley, Corps, 1998 personal communication). On the Santa Rosa Plain, many Burke's goldfields locations have been extirpated due to urbanization and conversion of land to row crops. Formerly well-represented in the vicinity of Windsor, Burke's goldfields has now been nearly extirpated from the area (Patterson *et al.* 1994; CH2M Hill 1995).

Of the 48 known records of Burke's goldfields, 26 are presumed to remain extant, with a majority found on the Santa Rosa Plain. Four populations occur outside of the Santa Rosa Plain, of which only two populations, one in northern Healdsburg and one at the Ployes Winery, are extant.

1991 to 1998. Patterson *et al.* (1994) evaluated known Burke's goldfields sites on the Santa Rosa Plain, categorizing them as (1) in public ownership, (2) presumed extant and privately owned, and (3) extirpated or largely destroyed. Their data indicate that 33 percent of the acreage of known Santa Rosa Plain Burke's goldfields sites has been severely degraded or extirpated. As of 1998, the Service was aware of at least a dozen specific instances where ditching, draining, discing or overgrazing occurred on parcels containing Burke's goldfields. In many cases, the number of plants at those sites declined after the disturbance took place. In addition, the Service was aware of at least four instances of unauthorized discing that triggered Corps enforcement actions for sites where Burke's goldfields grew. Because of typically small parcel size, development projects that have proceeded since listing, such as Cobblestone and TMD Brown, have mitigated Burke's goldfields losses entirely off site. The few sites where plants were avoided in the course of development have failed to sustain viable populations (Service files).

The most severely affected portion of the range of Burke's goldfields has been the northwestern portion of the Plain. The majority of the known sites severely degraded or extirpated are in the Windsor area (Patterson *et al.* 1994, CH2M Hill 1995). Two of the largest known populations in the county occurred in this area and were considered extirpated by Patterson *et al.* (1994). The extirpations were thought to have resulted from urban and commercial development or agricultural land use changes. For example, one CNDDDB occurrence in the area contained 11

colonies in 1984; by 1993, only two were extant (CNDDDB 1998). A second occurrence had more than 20 vernal pools in 1985, but by 1994, only one colony of Burke's goldfields was present (CNDDDB 1998). This property once contained 50,000 plants, but after repeated discing only about 100 plants remain (B. Guggolz, CNPS, 1998 personal communication with the Service). Only a few stable Burke's goldfields sites still exist in the Windsor area and these are threatened by development (Patterson *et al.* 1994). The City of Windsor has already developed, or designated development, on every Burke's goldfields site within their general planning area (B. Guggolz, 1998 personal communication with the Service).

Since the time Burke's goldfields was listed in 1991, the species has continued to experience dramatic loss. The Service used data from 1994 (Patterson *et al.* 1994) to examine how numbers of Burke's goldfields plants changed at particular sites between the time of listing and the most recent surveys that had been conducted after listing. A site, as defined by Patterson *et al.* (1994), may be all or part of a CNDDDB occurrence. After listing, the number of sites with many individuals decreased, and the number with very few individuals increased. Fifteen of the 28 sites for which we have both pre- and post-listing surveys decreased in size after the species was listed. The percentage of sites with fewer than 10 individuals increased by 30 percent, and the percentage of sites with 10,000 to 100,000 individuals decreased by 7 percent. As of 1994, no sites were recorded with more than 100,000 plants. Data from Patterson *et al.* (1994) also indicate that between the time of listing and 1994, 12 different sites were extirpated or largely destroyed. The data indicate large populations of Burke's goldfields are diminishing and nearly half of the sites may have populations either extirpated or are highly vulnerable to extirpation due to small population numbers (less than 10 individuals) (calculated from Patterson *et al.* 1994; CH2M Hill 1995).

Only about 15 percent of the acreage of Burke's goldfields sites on the Santa Rosa Plain had some preservation designation as of 1994 (calculated from data in Patterson *et al.* 1994). However, the species has not been observed since 1987 at Todd Road Preserve, the largest of the preservation sites (Patterson *et al.* 1994; CH2M Hill 1995). Excluding this site, the preserved acreage of Burke's goldfields sites is only 8 percent of acreage known in 1994 (calculated from data in Patterson *et al.* 1994). Since 1994, one preservation bank with Burke's goldfields has been established, but only a small portion of the site supports Burke's goldfields.

1998 to present. The 1998 programmatic consultation for the listed plants was designed to allow up to 50 acres of low-quality seasonal wetlands to be filled and no more than 30 acres could be occupied (or presumed to be occupied) by the listed plant species. Of the 30 affected acres which are occupied or presumed occupied, no more than 6 acres would be on sites for which there are known records of the listed plants. Affects to no more than 6 additional acres on sites for which there are known records of listed plants may be authorized under the 1998 programmatic consultation at the Service's discretion, based upon the Service's evaluation of the significance of effects to the first 6 acres of known listed species habitat and / or upon substantial progress toward a comprehensive conservation program. Between the period of the 1998 programmatic consultation and the date of this Programmatic, less than 30 acres of low-quality seasonal

wetlands were authorized to be filled under the 1998 programmatic. At this time, it is unknown how many of the 30 adversely affected wetland acres were occupied with one or more of the listed plants. The low-quality seasonal wetlands were to be mitigated for with preservation and creation of listed plant habitat as outlined in the 1998 programmatic.

All of the State Route 116 Rehabilitation Project is located within the range of the Burke's goldfields and the project corridor includes potential seasonal wetland habitat for this endangered plant species. Listed plants were not found in the action area during project-related 2005 and 2006 botanical surveys. According to Caltrans the 2005 and 2006 surveys were performed according to the Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain* (Caltrans 2007). The nearest reported locations for Burke's goldfield are approximately 1.0 miles north and northeast of the action area (Caltrans 2007).

Although no listed plants were found in the 0.0492 acres of potential habitat within the action area, Burke's goldfields may be represented in the existing seed bank.

Sonoma sunshine

Sonoma sunshine was federally listed as endangered on December 2, 1991 (56 FR 61173). No critical habitat has been designated for this species.

Sonoma sunshine is an annual plant in the aster family. Plants are less than 11.8 inches tall with alternate, linear leaves (CNPS 1977; Hickman 1993). The lower leaves are entire, and the upper leaves have one to three lobes that are 0.4 to 1.2 inches deep (Hickman 1993). The daisy-like flower heads of Sonoma sunshine are yellow. The ray flowers have dark red stigmas. The disk flowers have white stigmas and white pollen but are otherwise yellow. Achenes are 0.1 to 0.15 inches long with small rounded or conic proturbences (papillate) and 4 to 6 strongly angled edges (CNPS 1977; Hickman 1993). Sonoma sunshine could be confused with common stickseed (*Blennosperma nanum*); however, Sonoma sunshine has longer and fewer lobes on the leaves and is more robust (CNPS 1977).

Sonoma sunshine occurs only in Sonoma County. In the Cotati Valley, the species ranges from near the community of Fulton in the north to Scenic Avenue between Santa Rosa and Cotati in the south. Additionally, the species extends or extended from near Glen Ellen to near the junction of State Routes 116 and 121 in the Sonoma Valley. During 2001, two new natural populations were identified north and south of the City of Santa Rosa, increasing the number of previously identified CNDDDB occurrences from 26 to 28. Of the 28 occurrences, 21 are presumed to be extant with a majority occurring on the Santa Rosa Plain and one occurring in Glen Ellen. In addition, Sonoma sunshine has been introduced to at least one site on Alton Lane during conservation activities. Seven populations within or near the City of Santa Rosa have been extirpated.

Sonoma sunshine grows in vernal pools and wet grasslands below 100 m (330 ft) (Hickman 1993). In the Sonoma and Cotati valleys, Sonoma sunshine occurs in vernal pools on nearly level to slightly sloping loams, clay loams, and clays, as described for Burke's goldfields (56 FR 61173). The two concentrations of Sonoma sunshine on the Santa Rosa Plain occur on different soil types (Patterson *et al.* 1994). Sonoma sunshine likely grows on Huichica loam north of Highway 12 and on Wright loam and Clear Lake clay south of Highway 12 (Patterson *et al.* 1994; CNDDDB 1998). These soil series are briefly described in the discussion of Burke's goldfields habitat above.

Sonoma sunshine flowers from March to April. The flowers of Sonoma sunshine are self-incompatible, meaning that they can set seed only when fertilized by pollen from a different plant. The extent to which pollination of this species depends on host-specific or more generalist pollinators is currently unknown.

Seed banks are thought to be of particular importance in annual species subject to uncertain or variable environmental conditions (Cohen 1966; 1967; Parker *et al.* 1989; Templeton and Levin 1979). The Sonoma sunshine also fit these criteria; they are annual species (Hickman 1993) living in an uncertain vernal pool environment (Holland and Jain 1977). In the absence of data to suggest otherwise, the presence of substantial seed banks for these species is a reasonable assumption.

Sonoma sunshine is threatened with habitat loss, fragmentation, and degradation throughout all or part of its range by factors including urbanization, agricultural land use changes, and alterations in hydrology (Patterson *et al.* 1994; CH2M Hill 1995; CNDDDB 1998). In the Sonoma Valley, two of five known occurrences have been extirpated. One was extirpated by habitat destruction in 1986, and the area is now a vineyard. At the second site, most habitat was destroyed by grading for home sites in 1980; the remainder was converted to vineyard or overtaken by weeds (CNDDDB 1998). Of the presumed extant Sonoma Valley occurrences, one locality has been largely developed. A small area was retained by CDFG when the development took place, but Sonoma sunshine has not been recorded from this area since the subdivision was developed (Service files). A second Sonoma Valley locale is currently pasture. A portion of the occurrence may have been disced, and the landowners of a second portion want to convert the locale to vineyard (C. Wilcox, 1998, personal communication, Service files). The third Sonoma Valley occurrence is in Sonoma Valley Regional Park, which is not managed for conservation (CNDDDB 1998). On the Santa Rosa Plain, one locale has probably been extirpated by completion of a subdivision and one locale by major land alterations on the locale (CNDDDB 1998). Of the presumed extant locales, some support severely degraded habitat, are threatened by development, or have not supported confirmed populations of Sonoma sunshine in recent years (CH2M Hill 1995; CNDDDB 1998).

1991 to 1998. Patterson *et al.* (1994) estimated less than 12 biologically separate populations remain. Of the sites they examined, 17 percent (nearly one-third) had been extirpated, and 17 percent (nearly one-sixth) had not been confirmed recently. An additional 17 percent (one-sixth)

were believed to be extant but threatened by development as of 1994 (Patterson *et al.* 1994). A site, as defined by Patterson *et al.* (1994), may be all or part of a CNDDDB occurrence. At one CNDDDB occurrence, 12 Sonoma sunshine colonies were observed in 1989. By 1993, only six remained (CNDDDB 1998). The Service is aware of at least five specific Sonoma sunshine sites that have been developed or isolated by surrounding development or vineyards on the Santa Rosa Plain since the time of listing, including Cobblestone and TMD Brown. Other sites have been used as wastewater irrigated pastures, damaged by ORV use, heavily grazed, or been subject to land conversion activities (CNDDDB 1998; Service files). In addition, Sonoma sunshine is known from at least one of the Burke's goldfield sites mentioned above that were disced without authorization and that triggered Corps enforcement actions (Service files).

The Service used data from 1994 (Patterson *et al.* 1994) to examine how numbers of Sonoma sunshine plants at particular sites changed between the time of listing and the most current surveys that had been performed after listing. After listing, the number of sites with many individuals decreased, and the number with less than 10 individuals increased. The percentage of sites with fewer than 10 individuals increased by 15 percent between the time of listing and 1994.

Approximately 8 percent of the acreage of Sonoma sunshine sites known from the Santa Rosa Plain had some protection as of 1994 (calculated from data in Patterson *et al.* 1994). Of the 120 acres designated as preserve (excludes areas under conservation easement) the amount of habitat containing the species is estimated to be only 2 acres (Guggolz 1995 as cited in CH2M Hill 1995). Since 1994, one preservation bank with Sonoma sunshine has been established, but only 15 individual plants have been observed in recent surveys at the site (M. Waaland, 1998 personal communication with the Service).

1998 to present. The 1998 programmatic consultation was designed to allow up to 50 acres of low-quality seasonal wetlands to be filled and no more than 30 acres could be occupied (or presumed to be occupied) by the listed plant species. Of the 30 affected acres which are occupied or presumed occupied, no more than 6 acres would be on sites for which there are known records of the listed plants. Effects to no more than 6 additional acres on sites for which there are known records of listed plants may be authorized under the 1998 programmatic consultation at the Service's discretion, based upon the Service's evaluation of the significance of effects to the first 6 acres of known listed species habitat and / or upon substantial progress toward a comprehensive conservation program. Between the period of the 1998 programmatic consultation and the date of this Programmatic, less than 30 acres of low-quality seasonal wetlands were authorized to be filled under the 1998 programmatic. At this time, it is unknown how many of the 30 affected wetland acres were occupied with one or more of the listed plants. The low-quality seasonal wetlands were to be mitigated for with preservation and creation of listed plant habitat as outlined in the 1998 programmatic.

All of the State Route 116 Rehabilitation Project is located within the range of the Sonoma sunshine and the project corridor includes potential seasonal wetland habitat for this endangered plant species. Listed plants were not found in the action area during project-related 2005 and

2006 botanical surveys. According to Caltrans the 2005 and 2006 surveys were performed according to the Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain* (Caltrans 2007). The closest recorded Sonoma sunshine observation is approximately 0.75 miles northeast of the action area (Caltrans 2007).

Although no listed plants were found in the 0.0492 acres of potential habitat within the action area, Sonoma sunshine may be represented in the existing seed bank.

Sebastopol meadowfoam

Sebastopol meadowfoam was federally listed as endangered on December 2, 1991 (56 FR 61173). No critical habitat has been designated for this species.

Sebastopol meadowfoam is an annual herb with weak, somewhat fleshy, decumbent stems up to 11.8 inches long. The seedlings are unusual among *Limnanthes* species in that they have entire leaves. Leaves of mature plants are up to 3.9 inches long and have 3 to 5 leaflets that are narrow and unlobed with rounded tips. The leaves are borne on long petioles; petiole length, like stem length, appears to be promoted by submergence. Sebastopol meadowfoam has fragrant, white flowers that are borne in the leaf axils during April and May. The flowers are bell-shaped or dish-shaped, with petals 0.47 to 0.71 inch long. The sepals are shorter than the petals. The petals turn outward as the nutlets mature. The nutlets are dark brown, 0.12 to 0.16 inch long, and covered with knobby pinkish tubercles (Patterson *et al.* 1994).

Historically, Sebastopol meadowfoam was known from 40 occurrences in Sonoma County and one occurrence (occurrence #39) in Napa County, at the Napa River Ecological Reserve. In Sonoma County, all but two occurrences were found in the central and southern portions of the Santa Rosa Plain. Occurrence #20 occurred at Atascadero Creek Marsh west of Sebastopol, and the second (#40) occurred in the vicinity of Knights Valley northeast of Windsor (CNDDDB 2001).

The current condition of numerous Sebastopol meadowfoam occurrences is unclear, because many have not been visited in over 5 years. The southern cluster of occurrences extends 3 miles from Stoney Point Road west to the Laguna de Santa Rosa, and is bounded by Occidental Road to the north and Cotati to the south. The central cluster stretches 1.5 miles on either side of Fulton Road extending northwards from Occidental Road to River Road. Patterson *et al.* (1994) estimated that the Santa Rosa Plain occurrences represent only 10 hydrologically separate populations of Sebastopol meadowfoam. At least one occurrence (#21) has been extirpated from the Santa Rosa Plain (CNDDDB 2002). Recent field surveys found that all three occurrences outside of the Santa Rosa Plain have probably been extirpated (CNDDDB 2002).

The seeds of Sebastopol meadowfoam germinate after the first significant rains in fall, although late initiation of rains may delay seed germination. Sebastopol meadowfoam plants grow slowly underwater during the winter, and growth rates increase as the pools dry. Repeated drying and

filling of pools in the spring favors development of large plants with many branches and long stems. Sebastopol meadowfoam begins flowering as the pools dry, typically in March or April. The largest plants can produce 20 or more flowers. Flowering may continue as late as mid-June, although in most years the plants have set seed and died back by then (Patterson *et al.* 1994). Each plant can produce up to 100 nutlets (Patterson *et al.* 1994).

Nutlets of Sebastopol meadowfoam likely remain dormant in the soil, as they do for other species of *Limnanthes* (Patterson *et al.* 1994). One case presents strong circumstantial evidence for persistent, long-lived seed banks in this species. In the late 1980's and early 1990's, a site in Cotati remote from other Sebastopol meadowfoam colonies was surveyed for several years by independent qualified botanists. None of these botanists identified flowering populations of Sebastopol meadowfoam on the project site. Conditions of the pools on the site were highly degraded by wallowing hogs (*Sus scrofa*) and subsequent eutrophication of the pools. Following several years of negative surveys 12 plants of Sebastopol meadowfoam emerged simultaneously in one pool in the first year following removal of hogs. The population expanded rapidly to 60 plants the next year and was larger in subsequent years (Geoff Monk, personal communication with the Service), all limited to one pool. Long-distance dispersal is an improbable explanation for the simultaneous emergence of multiple plants at one location, so seed banks are implicated in this case as well. This example also indicates that lack of Sebastopol meadowfoam during periods of adverse conditions (drought, heavy disturbance, etc.) does not necessarily mean the population is extirpated.

This species grows in Northern Basalt Flow and Northern Hardpan vernal pools (Sawyer and Keeler-Wolf 1995), wet swales and meadows, on the banks of streams, and in artificial habitats such as ditches (Wainwright 1984; CNDDDB 2002). The surrounding plant communities range from oak savanna, grassland, and marsh in Sonoma County to riparian woodland in Napa County (CNDDDB 2002). Sebastopol meadowfoam grows in both shallow and deep areas, but is most frequent in pools 10 to 20 inches deep (Patterson *et al.* 1994). The species is most abundant in the margin habitat at the edge of vernal pools or swales (Pavlik *et al.* 2000 and 2001). Most confirmed occurrences of Sebastopol meadowfoam on the Santa Rosa Plain grow on Wright loam or Clear Lake clay soils (Patterson *et al.* 1994; CNDDDB 2002). A few occurrences are on other soil types, including Pajaro clay loam, Cotati fine sandy loam, Haire clay loam (Patterson *et al.* 1994) and Blucher fine sandy loam (Wainwright 1984).

Like Burke's goldfields and Sonoma sunshine, Sebastopol meadowfoam has been and continues to be threatened by habitat loss, habitat degradation, and small population size. Causes of habitat loss include agricultural conversion, urbanization, and road maintenance. Habitat degradation is caused by excessive grazing by livestock, alterations in hydrology, and competition from non-native species (in some cases, exacerbated by removal of grazing), off-highway vehicle use, and dumping (56 FR 61173; Patterson *et al.* 1994; CH2M Hill 1995; CNDDDB 2002).

1991 to 1998. Patterson *et al.* (1994) estimated only 10 hydrologically separate populations of Sebastopol meadowfoam exist. Of the sites they examined, nearly 10 percent were considered erroneous, 18 percent were extirpated, 18 percent were extant but threatened by development,

and 36 percent were extant but may not be large enough to qualify as high-quality preserve lands (Patterson *et al.* 1994). A site, as defined by Patterson *et al.* (1994), may be all or part of a CNDDB occurrence. According to Service records, significant Sebastopol meadowfoam sites are within southwest Santa Rosa. Other sites have been extensively fragmented by development, leaving parts of larger vernal pool complexes interspersed with homes. Repeated discing and land conversion activities have damaged some sites as well (Service files).

Excluding easements, eight Sebastopol meadowfoam sites comprising approximately 170 acres were preserved as of 1994 (Patterson *et al.* 1994). However, only a small portion of this acreage is considered actual Sebastopol meadowfoam habitat (CH2M Hill 1995). These eight sites comprised approximately 11 percent of the acreage of Sebastopol meadowfoam sites known from the Santa Rosa Plain in 1994 (calculated from data in Patterson *et al.* 1994). Since 1994, two preservation banks with Sebastopol meadowfoam have been established.

1998 to present. The 1998 programmatic consultation was designed to allow up to 50 acres of low-quality seasonal wetlands to be filled and no more than 30 acres could be occupied (or presumed to be occupied) by the listed plant species. Of the 30 affected acres which are occupied or presumed occupied, no more than 6 acres would be on sites for which there are known records of the listed plants. Effects to no more than 6 additional acres on sites for which there are known records of listed plants may be authorized under the 1998 programmatic consultation at the Service's discretion, based upon the Service's evaluation of the significance of effects to the first 6 acres of known listed species habitat and / or upon substantial progress toward a comprehensive conservation program. Between the period of the 1998 programmatic consultation and the date of this Programmatic, less than 30 acres of low-quality seasonal wetlands were authorized to be filled under the 1998 programmatic. At this time, it is unknown how many of the 30 affected wetland acres were occupied with one or more of the listed plants. The low-quality seasonal wetlands were to be mitigated for with preservation and creation of listed plant habitat as outlined in the 1998 programmatic.

All of the State Route 116 Rehabilitation Project is located within the range of the Sebastopol meadowfoam and the project corridor includes potential seasonal wetland habitat for this endangered plant species. Listed plants were not found in the action area during project-related 2005 and 2006 botanical surveys. According to Caltrans the 2005 and 2006 surveys were performed according to the Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain* (Caltrans 2007). The nearest recorded observation for Sebastopol meadowfoam is approximately 400 feet north of the action area.

Although no listed plants were found in the 0.0492 acres of potential habitat within the action area, the Sebastopol meadowfoam may be represented in the existing seed bank.

Effects of the Proposed Action

California Freshwater Shrimp

The proposed project activities associated with the Blucher Creek Bridge replacement could have adverse effects on the endangered California freshwater shrimp through mortality, injury, harassment, and harm of individuals. According to the August 2007 Biological Assessment, bridge replacement will result in effects to 0.03 acres (1,351 square feet) of Blucher Creek due to the new bridge footings, wing wall, and the necessary work area.

California freshwater shrimp could be directly affected by activities that disturb overhanging riparian vegetation, undercut banks, and roots that extend into Blucher Creek. Direct mortality is likely to occur from crushing due to the construction of access, the removal of the existing triple box culvert, bridge construction, installation of rock slope protection, stream diversion, destabilization of the streambed, stranding from dewatering, unsuccessful rescue and relocation, and installation of sheet piling or any other proposed in-stream designs to maintain shrimp habitat upstream of the State Route 116 crossing.

Caltrans proposed sheet pile installation was designed to maintain the upstream shrimp habitat and allow for temporary diversion around the bridge work area but the Service remains uncertain how successful this measure will be. The sheet pile design or other remedial measures are unlikely to result in a hydrological situation that is identical to the existing conditions. Even if the sheet pile design is effective in avoiding adverse effects to upstream habitat, the bridge construction activities would still have potential adverse effects to potential downstream habitat due to water diversion, streambed destabilization, altering water quality during construction, and removal of riparian vegetation. Therefore, it is likely that diversion will affect potential shrimp habitat up and downstream of the crossing. Constricting the creek through a diversion will likely change up and downstream flow dynamics and possibly lead to the mortality of shrimp that get funneled through the diversion. Disturbance of the stream bank and bed could also increase sedimentation within and downstream of the construction area therefore degrading or removing potential shrimp habitat.

With the successful implementation of the proposed erosion control BMPs, that will include planting riparian vegetation along disturbed banks, the Blucher Creek bridge replacement is not expected to decrease long term downstream water quality for the listed shrimp because the replacement is not capacity increasing. Although the replacement of the existing Blucher Creek Bridge may alter the surrounding hydrology, installation of a clear span bridge will allow the creek to establish a more natural hydrology that may result in beneficial effects to fish passage, terrestrial wildlife passage, and California freshwater shrimp habitat.

Temporary dewatering may harm shrimp by preventing movement upstream or downstream for the duration of the project and harm or mortality could occur if shrimp become entrained in water pumps. If water pumps are used, entrainment may be minimized by installing mesh screening

over water intakes. Shrimp may also experience reduced health or mortality as a result of degraded water quality following concrete or toxic material spills and increased sediment due to erosion. However, the implementation of a hazardous spill and water quality and erosion control plans is expected to reduce this affect. Shrimp will be harassed if they are captured and relocated from the construction site. Relocating shrimp to the nearest suitable habitat should reduce affects from this action. Shrimp also are likely to be harassed by vibration from heavy equipment operation. The loss of overhanging and woody riparian vegetation may result in harm to the shrimp by decreasing canopy closure along the stream resulting in increased stream temperatures. This affect is expected to be temporary in nature since all areas will be revegetated and native trees will be planted in areas without rock slope protection and willow stakes will be planted in areas with rock slope protection. Establishing construction access at the crossing may also provide unintended access for the public to Blucher Creek following construction.

Caltrans maintains that replacing the box culvert with a free span bridge will remove structures from the creek therefore removing stability and allowing the establishment of riparian vegetation, dynamic banks, and other characters necessary for developing more suitable shrimp habitat. The placement of proposed rock slope projection over the stream bank and bed will limit the potential for these beneficial project effects to occur.

California Tiger Salamander

The following effects analysis for the Sonoma County DPS of the California tiger salamander is based on the interim guidelines for the Conservation Strategy (Conservation Strategy Team 2006). The interim guidelines do not differentiate between temporary and permanent effects.

The proposed project could have direct effects to California tiger salamanders through direct mortality, injury, or harassment of individual subadults and adults. Implementation of the proposed action would result in the loss of 6.185 acres of habitat available for the California tiger salamander.

The project will result in the loss of 0.299 acres of California tiger salamander habitat within 500 feet of a salamander observation; 1.94 acres of habitat between 500 and 2200 feet of a known California tiger salamander breeding site; 3.702 acres of habitat between 2200 feet and 1.3 miles of a known California tiger salamander breeding site; and 0.244 acres of potential salamander habitat beyond 1.3 miles of a known California tiger salamander breeding site. The habitat loss is summarized in Table 3.

As defined in the Conservation Strategy, effects analysis for the California tiger salamander are primarily based on the location of the action area relative to a known individual salamander observation and breeding pond locations. Those effects are differentiated and classified as follows.

Table 3. Effects of proposed action to California tiger salamander habitat by strategy designations.

Conservation Strategy Designations	Affected Area (acres)
Within 500 feet of a known breeding site.	0.299
Beyond 2200 feet of a known breeding site but within 500 feet of an individual California tiger salamander	0
Greater than 500 feet but less than 2200 feet of a known California tiger salamander breeding site	1.940
Greater than 2200 feet but within 1.3 miles of a known California tiger salamander breeding site	3.702
Areas defined in the Conservation Strategy as "Potential for Presence of CTS" or "Potential for Presence of CTS and Listed Plants"	0.244
Total	6.185

Mortality, injury, or harassment of the California tiger salamander could occur from being crushed by earth moving equipment and other construction activities within the action area throughout project construction and restoration.

The action area would become unavailable to dispersing tiger salamanders in the vicinity. Individual tiger salamanders inhabiting the action area could be crushed by construction activities that result in the collapse or exposure of upland burrows and other refugia. Individual tiger salamanders disturbed by project activities could attempt overland movements in an effort to find alternative upland habitat. These individuals could be harassed, injured, or killed by pedestrians, vehicles, and urban adapted predators during overland movements within the action area, or during attempts to find more suitable habitats in adjacent areas.

Individuals of this listed species also could fall into trenches, pits, or other excavations, and then be directly killed or unable to escape and be killed due to desiccation, entombment, or starvation. Individuals also may become trapped by plastic mono-filament netting used for erosion control or other purposes where they could be subject to death by predation, starvation, or desiccation (Stuart *et. al.* 2001). Various conservation measures such as minimizing the total area disturbed by project activities, and properly constructing exclusionary fencing may reduce mortality, injury, or harassment.

Construction may facilitate the invasion and establishment of non-native plant and animal species. Disturbance and alteration of habitat adjacent to roads may create favorable conditions for these non-native taxa. Non-native plants and animals may reduce habitat quality for tiger salamanders and their prey, and reduce the productivity or the local tiger salamander population.

Construction related activities are likely to cause disruption of surface movement, disruption or complete loss of reproduction, harassment from increased human activity, and permanent and temporary loss of shelter. Tiger salamanders are primarily nocturnal therefore the above effects would be further exacerbated should construction be performed at night. Artificial lighting used

during night time construction may increase predation of the tiger salamanders during periods of fall, winter, or spring rains, because they lose the protective cover of darkness during critical opportunities for upland movement (Wise and Buchanan 2002). Terrestrial salamanders are known to emerge soon after sunset and artificial lighting may delay emergence, resulting in reduced foraging time (Wise and Buchanan 2002). Tiger salamanders use visual cues to locate their prey and may be aided by artificial lighting. However, for the same reason, lighting may make them more vulnerable to capture by their predators. Many salamanders, such as the tiger salamander, are terrestrial as adults but migrate to ponds to breed and lay eggs. The orientation of some of these terrestrial species to and from these ponds is influenced by the spectral characteristics of light (Wise and Buchanan 2002). Artificial lights that emit unusual spectra may disrupt these migration patterns.

Various other work activities associated with the proposed project also may adversely affect California tiger salamanders. Trash left during or after project activities could attract predators to work sites, which could subsequently harass or prey on the animals. For example, raccoons, crows, and ravens are attracted to trash and also prey opportunistically on amphibians. Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade water quality or habitat to a degree where salamanders are adversely affected. Some potential also exists for disturbance of habitat which could result in the spread or establishment on non-native invasive plant species. There is also a possibility that people working on the site, particularly the onsite biologist(s), could introduce amphibian disease to habitat used by California tiger salamanders.

Increased levels of vehicles and increased vehicle speeds could lead to an increased mortality level for the California tiger salamander in the action area. According to one assessment, amphibian road mortality risk ranges from 34-61 percent for a road with 3,200 vehicles per day to 89-98 percent for a road with 15,000 vehicles per day (Mazerolla 2004). Although no systematic studies concerning road-crossing mortality of the Sonoma County DPS of the California tiger salamander have been conducted, it is known that significant numbers of California tiger salamanders in other portions of the species' range are killed by vehicular traffic while crossing roads (Hansen and Tremper 1993; S. Sweet, *in litt.*, 1993; J. Medeiros, personal communication with the Service, 1993). For example, during a one-hour period on a road bordering Lake Lagunita on the Stanford University campus, 45 California tiger salamanders were collected, 28 of which had been killed by cars (Twitty 1941). From 2000 to 2007 a total of 125 California tiger salamanders have been observed on an approximately 1200-foot segment of Stony Point Road in Sonoma County (Cook 2007). During the 2007 winter season, Cook (2007) reported observing 31 out of 59 tiger salamanders being killed by vehicles while attempting to cross Stony Point Road. The location of the observed Stony Point Road salamander roadkill is approximately 1.7 miles south of the State Route 116 Rehabilitation Project action area and includes salamander use of ruderal and disked habitat. Overall breeding population losses of California tiger salamanders due to road kills have been estimated to be between 25 and 72 percent (Twitty 1941; S. Sweet, *in litt.*, 1993; Launer and Fee 1996). Mortality may be increased by associated roadway curbs and berms as low as 3 to 5 inches, which allow California tiger

salamanders access to roadways but hinder their exit from them (Launer and Fee 1996; S. Sweet, *in litt.*, 1998). A recent study along a 0.7 miles high-vehicular-use (21,450 vehicles per day) section of the Trans-Canadian Highway in Alberta, Canada, Clevenger *et al.* (2001) recorded 183 road-killed tiger salamanders (*Ambystoma* species) in 30 days and concluded it was likely that very few of the local population had survived. California tiger salamander mortality on roads occurs throughout each rainy season on the Santa Rosa Plain due to cars running over salamanders that are moving to and from breeding sites.

Successful implementation of various proposed conservation measures may reduce mortality, injury, or harassment of tiger salamanders. Preservation of 8.528 acres of upland and seasonal wetland habitat within appropriate conservation banks and preserves, or acquired or created habitat would likely benefit the tiger salamander by contributing to the overall recovery of this species. Minimal adverse effects may occur on some of the proposed conservation banks and preserves as part of their establishment and management, but overall these conservation banks and preserves are anticipated to have a net beneficial effect for tiger salamanders. Implementation of a management plan for each of the conservation banks and preserves likely would ensure that the conservation values of the bank or preserve would be maintained to provide optimal conditions for breeding, foraging, refugia, and dispersal of tiger salamanders.

Sebastopol Meadowfoam, Sonoma Sunshine, and Burke's Goldfield

The following effects analysis for the three listed plants is based on the interim guidelines for the Conservation Strategy (Conservation Strategy Team 2006). The interim guidelines do not differentiate between temporary and permanent effects. As defined by the Conservation Strategy, effects analysis for the three listed plants is based on the location of the action area relative to appropriate wetland habitat with the Santa Rosa Plain.

Construction of the State Route 116 Rehabilitation Project will result in the filling of the 0.0492 acres of appropriate seasonal wetland habitat within the described distribution of the Sebastopol meadowfoam, Sonoma sunshine, and Burke's goldfields. Listed plants were not observed in the action area during two years of protocol surveys. However, fill or other disturbance of the 0.0492 acres could result in the loss of a dormant seedbank containing one or all three of the listed plants.

Preservation of 0.0492 acres of occupied or established along with an additional 0.0246 acres of established habitat for Sebastopol meadowfoam, Sonoma sunshine, and Burke's goldfield within a Service-approved conservation bank, reserve, or acquired habitat would likely benefit one or all three listed plant species by contributing to their overall recovery. Minimal adverse effects may occur on some of the proposed conservation banks and preserves as part of their establishment and management, but overall these conservation banks and preserves are anticipated to have a net beneficial effect for the three listed plants. Implementation of a management plan for each of the conservation banks and preserves likely would ensure that the conservation values of the bank or preserve would be maintained to provide optimal habitat conditions for these listed plants.

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.

Land use practices surrounding the action area are expected to continue to be predominantly agricultural with riparian habitat remaining along the banks of Blucher Creek. However, the Service is aware of continued interest in Sonoma County for continued urbanization and vineyard establishment. Construction activities that create impervious surfaces will increase the amount of storm water runoff from those sites resulting in higher peak flows and channel erosion. Storm water runoff from urban development (i.e., parking lots) introduces a variety of chemicals (including petroleum products) to streams and wetlands degrading water quality to the extent that shrimp are not able to survive.

Local and state flood control activities can eliminate shrimp habitat and prevent recolonization. In-stream gravel mining causes direct loss of shrimp habitat through vegetation removal, stream substrate removal, and water quality degradation through increased siltation and likely results in direct mortality of shrimp through entrainment. In addition, private individuals and local governments have constructed temporary “summer” dams in creeks and rivers within the range of the shrimp. These dams alter stream hydrology, trapping sediment, causing downstream scour, and creating barriers to shrimp migration.

Heavy grazing can result in the reduction of riparian vegetation, degraded water quality, increased water temperatures, and bank erosion. Agricultural development activities, impoundments, and water diversion can reduce stream flows, causing streams to dry up during the summer and fall fragmenting shrimp habitat and likely resulting in mortality of shrimp that are unable to find deeper year round pools. Introduced predators can reduce or eliminate shrimp populations or prevent colonization of new habitat or recolonization of historic habitats. More than one factor threatens shrimp populations in most streams. Many threats identified prior to the shrimp’s listing have intensified.

Stream restoration projects can benefit shrimp and other native species in the long term by increasing habitat complexity, removing invasive/exotic vegetation, stabilizing channels and stream banks, increasing spawning areas, decreasing sedimentation, and increasing shade and cover. However, restoration activities may cause temporary decrease in water quality due to construction, alter channel dynamics and stability, and could result in harassment or mortality of individual shrimp.

Cumulative effects to the Sonoma County DPS of the California tiger salamander include continuing and future conversion of suitable breeding, foraging, sheltering, and dispersal habitat resulting from urban and agricultural development. Additional urbanization can result in road

widening and increased traffic on roads that bisect breeding and aestivation sites, thereby increasing road-kill while reducing in size and further fragmenting remaining habitats.

Tiger salamanders are likely exposed to a variety of pesticides and other chemicals throughout their range. The listed amphibian could also die from starvation due to the loss of their prey base. Hydrocarbon and other contamination from oil production and road runoff; the application of numerous chemicals for roadside maintenance; urban/suburban landscape maintenance; and rodent and vector control programs may all have negative effects on tiger salamander populations. In addition, the animal may be harmed through increased road kill due to the construction and use of new roads and increased traffic in the overall region and collection by amphibian enthusiast and others.

The pesticide, methoprene is a commonly used agent for mosquito control, and is used in Sonoma County (Marin/Sonoma Mosquito and Vector Control District, internet website 2002). Methoprene increases the level of juvenile hormone in insect larvae and disrupts their molting process. Lawrenz (1984) found that methoprene (Altosid SR 10) retarded the development of selected crustacea that had the same molting hormones (i.e., juvenile hormone) as insects, and anticipated that the same hormone may control metamorphosis in other arthropods. Because the success of many aquatic vertebrates relies on an abundance of invertebrates in temporary wetlands, any delay in insect growth could reduce the numbers and density of available prey (Lawrenz 1984).

Further habitat fragmentation; additional non-native species introduction; and increased access to aquatic habitat could facilitate or increase the spread of amphibian diseases within the range of the California tiger salamander.

Unauthorized fill of wetlands, urbanization, increases in non-native species, and continued and expanded irrigation of pastures with recycled wastewater discharge, are likely to continue with concomitant adverse effects on Burke's goldfields, Sonoma sunshine, and Sebastopol meadowfoam. These actions result in additional habitat loss and degradation; increasingly isolated populations (exacerbating the disruption of gene flow patterns); and further reductions in the reproduction, numbers, and distribution of these species which will decrease their ability to respond to stochastic events.

As stated in the Conservation Strategy, urban and rural growth on the Santa Rosa Plain has taken place for over one hundred years, and for the past twenty years, urban growth has rapidly encroached into areas inhabited by the California tiger salamander and the listed plants. The loss of seasonal wetlands caused by development on the Santa Rosa Plain has led to declines in the populations of California tiger salamander and the listed plants. Voters in the cities of Cotati, Rohnert Park, Santa Rosa, and Sebastopol, and the Town of Windsor have established urban growth boundaries for their communities. This is intended to accomplish the goal of city-centered growth, resulting in rural and agricultural land uses being maintained between the urbanized areas. Therefore, it can be reasonably expected that rural land uses will continue into

the foreseeable future. There are also areas of publicly owned property and preserves located in the Santa Rosa Plain, which will further protect against development. Some of the areas within these urban growth boundaries, however, include lands inhabited by California tiger salamander and the listed plant species. Agricultural practices have also disturbed seasonal wetlands, which are habitat for the California tiger salamander and listed plant on the Santa Rosa Plain. Some agricultural practices, such as irrigated or grazed pasture, have protected habitat from intensive development.

The Conservation Strategy was designed to plan for future cumulative effects from Federal and non-Federal actions to the California tiger salamander and listed plant habitat within the Santa Rosa Plain. The Conservation Strategy and the associated interim guidelines are intended to benefit the California tiger salamander and the listed plants by providing a consistent approach for conservation vital to habitat preservation and the long-term conservation of the species. They are also intended to provide more certainty and efficiency in the project review process. The Conservation Strategy and the interim guidelines provide guidance to focus conservation efforts on preventing further habitat fragmentation and to establish, to the maximum extent possible, a viable preserve system that will contribute to the long-term conservation and recovery of these listed species.

The global average temperature has risen by approximately 0.6 degrees centigrade during the 20th Century (IPPC 2001, 2007; Adger et al 2007). There is an international scientific consensus that most of the warming observed has been caused by human activities (International Panel on Climate Change 2001, 2007; Adger et al. 2007), and that it is "very likely" that it is largely due to increasing concentrations of greenhouse gases (carbon dioxide, methane, nitrous oxide, and others) in the global atmosphere from burning fossil fuels and other human activities (Cayan et al. 2005, EPA Global Warming webpage <http://yosemite.epa.gov>; Adger et al. 2007). Eleven of the twelve years between 1995 and 2006 rank among the twelve warmest years since global temperatures began in 1850 (Adger et al. 2007). The warming trend over the last fifty years is nearly twice that for the last 100 years (Adger et al. 2007). Looking forward, under a high emissions scenario, the International Panel on Climate Change estimates that global temperatures will rise another four degrees centigrade by the end of this Century; even under a low emissions growth scenario, the International Panel on Climate Change estimates that the global temperature will go up another 1.8 degrees centigrade (International Panel on Climate Change 2001).

The increase in global average temperatures affects certain areas more than others. The western United States, in general, is experiencing more warming than the rest of the Nation, with the 11 western states averaging 1.7 degrees Fahrenheit warmer temperatures than this region's average over the 20th Century (Saunders et al. 2008). California, in particular, will suffer significant consequences as a result of global warming (California Climate Action Team 2006). In California, reduced snowpack will cause more winter flooding and summer drought, as well as higher temperatures in lakes and coastal areas. The incidence of wildfires in the Golden State also will increase and the amount of increase is highly dependent upon the extent of global warming. No less certain than the fact of global warming itself is the fact that global warming,

unchecked, will harm biodiversity generally and cause the extinction of large numbers of species. If the global mean temperatures exceed a warming of two to three degrees centigrade above pre-industrial levels, twenty to thirty percent of plant and animal species will face an increasingly high risk of extinction (International Panel on Climate Change 2001, 2007).

The mechanisms by which global warming may push already imperiled species closer or over the edge of extinction are multiple. Global warming increases the frequency of extreme weather events, such as heat waves, droughts, and storms (International Panel on Climate Change 2001, 2007; California Climate Action Team 2006; Lenihan et al. 2003). Extreme events, in turn may cause mass mortality of individuals and significantly contribute to determining which species will remain or occur in natural habitats. As the global climate warms, terrestrial habitats are moving northward and upward, but in the future, range contractions are more likely than simple northward or upslope shifts. Ongoing global climate change (Anonymous 2007; Inkleby et al. 2004; Adger et al. 2007; Kanter 2007) likely imperils the California freshwater shrimp, California tiger salamander, and the three listed plants and the resources necessary for their survival. Since climate change threatens to disrupt annual weather patterns, it may result in a loss of their habitats and/or prey, and/or increased numbers of their predators, parasites, and diseases. Where populations are isolated, a changing climate may result in local extinction, with range shifts precluded by lack of habitat.

Conclusion

After reviewing the current status of the California freshwater shrimp, California tiger salamander, and the three listed plants, the environmental baseline for the action area, and the effects of the proposed project and the cumulative effects, it is the Service's biological opinion that the State Route 116 Rehabilitation Project is not likely to jeopardize the continued existence of these five listed species. Critical habitat has not been proposed or designated for the California freshwater shrimp or the three listed plants; therefore none will be adversely modified. Critical habitat has not been designated for the California tiger salamander in Sonoma County; therefore none will be adversely modified.

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 harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take

that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by Caltrans so they become binding conditions of project authorization for the exemption under 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity that is covered by this incidental take statement. If Caltrans (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of 7(o)(2) may lapse.

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to listed plant species. However, protection of listed plants is provided to the extent that the Act requires a Federal permit for removal or reduction to possession of endangered and threatened plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, damage, or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

Amount or Extent of Take

California Freshwater Shrimp

The Service expects that incidental take of the shrimp in Blucher Creek will be difficult to detect or quantify. The aquatic nature, cryptic coloration, secretive habits, and small body size of the species make the finding of a dead specimen unlikely; losses may be masked by seasonal fluctuations in numbers or other causes; and the species occurs in habitat that makes them difficult to detect. Due to the difficulty in quantifying the number of shrimp that will be taken due to harassment as a result of the proposed action, the Service estimates that all individuals within 100 feet upstream and 200 feet downstream of the Blucher Creek Bridge crossing will be taken as a result of the proposed action. Upon implementation of the following reasonable and prudent measures, incidental take of shrimp associated with the proposed replacement of the State Route 116 Bridge over Blucher Creek and associated restoration activities in the form of harassment will become exempt from the prohibitions described under section 9 of the Act for direct effects.

California Tiger Salamander

The Service anticipates that incidental take of the California tiger salamander will be difficult to detect or quantify for the following reasons: the activity patterns of tiger salamanders makes the finding of a dead specimen unlikely, losses may be masked by annual fluctuations in numbers, and the species occurs in habitat that makes it difficult to detect. Due to the difficulty in quantifying the number of the California tiger salamanders that will be taken as a result of the

proposed action, the Service is quantifying take incidental to the State Route 116 Rehabilitation Project as the number of acres of habitat that will be affected as a result of the action. Therefore, the Service estimates that the proposed action will result in the take of all California tiger salamanders inhabiting or utilizing the 6.185 acres of appropriate habitat identified in the action area. Anticipated take is expected to be in the form of harm, harassment, capture, injury, and mortality from habitat loss and modification, construction related disturbance, increased predation, reduced fitness, and by ongoing operation and use of the modified 6.6 mile portion of State Route 116 from Cotati and Sebastopol.

Effect of the Take

The Service has determined that the level of anticipated take is not likely to result in jeopardy to the California freshwater shrimp and California tiger salamander. Critical habitat has not been designated or proposed for the shrimp; therefore, none will be destroyed or adversely modified.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the effect of the State Route 116 Roadway Rehabilitation Project on the California freshwater shrimp and California tiger salamander:

1. Caltrans will implement the State Route 116 Roadway Rehabilitation Project as described in the August 2007, Biological Assessment and this biological opinion.
2. Minimize effects to the California freshwater shrimp and the California tiger salamander.
3. Ensure compliance with this biological opinion by Caltrans.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. The following Terms and Conditions implement Reasonable and Prudent Measure one (1):
 - a. Caltrans shall minimize the potential for harm, harassment, or killing of federally listed species resulting from project related activities by implementation of the conservation measures as described in the Biological Assessment, and appearing in the Project Description of this biological opinion.

- b. Caltrans shall make the terms and conditions in this biological opinion a required term in all contracts for the State Route 116 Roadway Rehabilitation Project that are issued by them to all contractors.
2. The following Terms and Conditions implement Reasonable and Prudent Measure two (2):
 - a. The Resident Engineer or their designee shall be responsible for implementing the conservation measures and Terms and Conditions of this biological opinion and shall be the point of contact for the project. The Resident Engineer shall maintain a copy of this biological opinion onsite whenever construction is taking place. Their name and telephone number shall be provided to the Service at least thirty (30) calendar days prior to groundbreaking at the project. Prior to ground breaking, the Resident Engineer must submit a letter to the Service verifying that they possess a copy of this biological opinion and have read the Terms and Conditions.
 - b. A qualified biologist(s) shall be onsite during all activities that in potential California freshwater shrimp or California tiger salamander habitat. The biologist shall have oversight over implementation of all the Terms and Conditions in this biological opinion, and shall have the authority to stop project activities, through communication with the Resident Engineer, if any of the requirements associated with these Terms and Conditions are not being fulfilled. The qualifications of the biologist(s) must be presented to the Service for review and written approval prior to ground-breaking at the project site. Prior to approval, the biologist(s) must submit a letter to the Service verifying that they possess a copy of this biological opinion and understand its Terms and Conditions. The biologist(s) shall keep a copy of this biological opinion in their possession when onsite. The biologist(s) shall be given the authority to stop any work that may result in take of this listed animal species through communication with the Resident Engineer. If the biologist(s)/Resident Engineer exercises this authority, the Service and the California Department of Fish and Game shall be notified by telephone and electronic mail within one (1) working day. The Service contact is Chris Nagano, Division Chief, Endangered Species Program at the Sacramento Fish and Wildlife Office at telephone (916) 414-6600.
 - c. Permanent and temporary disturbances and other types of project-related disturbance to potential habitats for the California freshwater shrimp and California tiger salamander shall be minimized to the maximum extent practicable by Caltrans. These areas also should be included in pre-construction surveys and, to the maximum extent possible, should be established in locations disturbed by previous activities to prevent further adverse effects.
 - d. Caltrans shall provide a Service-approved California freshwater shrimp biologist to monitor the installation and effectiveness of the proposed sheet pile design in Blucher

Creek. Caltrans shall contact the Service to inform them of the planned activities and schedule within two weeks prior to the installation. The sheet piling shall be installed prior to the removal of the existing bridge. The monitor shall survey 100 feet up and downstream of the bridge, where feasible, within 48 hours prior to the sheet pile installation to document current use by the listed shrimp and the current hydrologic conditions. The monitor shall be onsite during sheet pile installation and shall rescue and relocate any shrimp that are found in the construction site or within areas that will be dewatered. Salvaged shrimp shall be moved upstream within Blucher Creek to the nearest available habitat with undercut banks and overhanging vegetation, where the undercut banks and overhanging vegetation are in the water with a depth of at least one foot, and preferably two feet. Potential shrimp relocation sites shall be identified prior to construction activities. Within 48 hours following the sheet pile installation the monitor shall survey 100 feet up and downstream of the bridge, where feasible, to document use by the listed shrimp and the current hydrologic conditions. Caltrans shall repeat the monitoring and survey prior to and 48 hours following the removal of the existing in-stream bridge structures. If the monitoring indicates that the sheet pile design is not effective in maintaining upstream shrimp habitat, work at the bridge shall be stopped until remedial measures are developed and implemented. Any remedial measures shall be developed in concert with the Service and a Service-approved California freshwater shrimp biologist. The remediation plan shall be provided to the Service within 30 days to restore the existing hydrologic conditions providing California fresh water shrimp habitat upstream of the bridge. The sheet piling or remedial measures shall remain in place until completion of the new Blucher Creek Bridge. Following construction Caltrans will perform an on-site evaluation of the shrimp habitat maintenance structure with the Service, a Service-approved California freshwater shrimp biologist, and the California Department of Fish and Game to determine if the structure should be removed, modified, replaced, or left in place. The results of the surveys and effectiveness of the installation shall be reported to the Service within one month following the completion of the Blucher Creek Bridge replacement. The report shall include before and after photographs of the pool and bridge work action area.

- e. Biologists shall take precautions to prevent introduction of amphibian diseases to the action area by disinfecting equipment and clothing as directed in the October 2003 California tiger salamander survey protocol titled, *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*. This protocol is available at the Service's Sacramento office website (<http://www.fws.gov/sacramento/es/protocol.htm>). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle salamanders after working in other aquatic habitats.
- f. To prevent inadvertent entrapment of California tiger salamanders during construction, 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 must be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist should immediately place escape ramps or other appropriate structures to allow the animal to escape, or the Service and/or California Department of Fish and Game shall be contacted by telephone for guidance. The Service shall be notified of the incident by telephone and electronic mail within one working day.

- g. Plastic mono-filament netting (erosion control matting), or similar material, shall not be used because California tiger salamanders may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
 - h. An outline of the employee education program shall be submitted to the Endangered Species Program at the Sacramento Fish and Wildlife Office within twenty (20) working days prior to the start of construction. Documentation of the training, including individual signed affidavits, will be kept on file and available on request.
 - i. If Caltrans purchases habitat credits from a Service and California Department of Fish and Game approved conservation bank, payments shall be made at least sixty (60) calendar days prior to groundbreaking. Caltrans will provide the Service with the appropriate documents indicating that credits have been purchased, specifically including the amount of credits purchased based on the actual area affected by the proposed action.
3. The following Terms and Conditions implement Reasonable and Prudent Measure three (3):
- a. If requested, before, during, or upon completion of ground breaking and construction activities, Caltrans shall allow access by Service and/or California Department of Fish and Game personnel to inspect project effects to the California freshwater shrimp, the California tiger salamander and their habitat.
 - b. The following shall be implemented for offsite stormwater treatment, staging, storage, vehicle parking, and access sites associated with the project:
 - 1. Caltrans shall require as part of the construction contract that all contractors comply with the Act in the performance of the work as described in the project description of this biological opinion and conducted within the action area.

2. If a staging, storage, access, or vehicle parking area that is in compliance with the Act is not available, the agency with jurisdiction and the contractor would be responsible for compliance with the Act.
- c. Caltrans shall provide the Service with adequate annual written reports that describe the progress of implementation of all of the Terms and Conditions of this biological opinion. The first report is due December 31, the first year of groundbreaking, and annually thereafter on December 31 until all of the terms and conditions are completed, as stated in writing by the Service. The reports shall be addressed to the Chief of the Endangered Species Division, Sacramento Fish and Wildlife Office.
- d. Caltrans shall submit a post-construction compliance report prepared by the on-site biologist to the Sacramento Fish and Wildlife Office within 60 (sixty) calendar days of the completion of construction. This report shall detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the projects in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on the California freshwater shrimp and California tiger salamander, if any; (v) occurrences of incidental take of these species; and (vi) other pertinent information. The reports shall be addressed to the Chief of the Endangered Species Division, Sacramento Fish and Wildlife Office.
- e. Caltrans shall report to the Service any information about take or suspected take of listed wildlife species not authorized in this biological opinion. Caltrans must notify the Service and the California Department of Fish and Game via electronic mail and telephone within 24 hours of receiving such information. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and photographs of the specific animal. The individual animal shall be preserved, as appropriate, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or the Service takes custody of the specimen. The Service contacts are Chris Nagano, Division Chief, Endangered Species Program, Sacramento Fish and Wildlife Office at (916) 414-6600, and the Service's Law Enforcement Division at (916) 414-6660.

Reporting Requirements

Injured California tiger salamanders must be cared for by a licensed veterinarian or other qualified person such as the Service-approved biologist; dead individuals must be placed in a sealed plastic bag with the date, time, location of discovery, and the name of the person who found the animal; the carcass should be kept in a freezer; and held in a secure location. The Service and the California Department of Fish and Game must be notified within one (1) working day of the discovery of death or injury to a California freshwater shrimp or a California tiger salamander that occurs due to project related activities or is observed at the project site. Notification must include the date, time, and location of the incident or of the finding of a dead

or injured animal clearly indicated on a USGS 7.5 minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information. The Service contacts are Chris Nagano, Division Chief, Endangered Species Program at the Sacramento Fish and Wildlife Office (916/414-6600), and Dan Crum, Resident Agent-in-Charge of the Service's Law Enforcement Division at 916/414-6660. The California Department of Fish and Game contact is Mr. Scott Wilson at telephone (707) 944-5563. Sightings of any listed or sensitive animal species should be reported to the California Natural Diversity Database of the California Department of Fish and Game.

Sightings of any listed or sensitive species should be reported to the CNDDDB of the California Department of Fish and Game. A copy of the reporting form and a topographic map clearly marked with the location where the individuals were observed should also be provided to the Service.

Caltrans shall submit post-construction compliance reports prepared by the on-site biologist to the Sacramento Fish and Wildlife Office within sixty (60) calendar days of the date of the completion of construction activity on each of the three projects. These reports shall adequately describe (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on the listed plants, California tiger salamander, and California freshwater shrimp, if any; (v) occurrences of incidental take of any of these listed species, if any; (vi) documentation of employee environmental education; and (vii) other pertinent information.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize 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 that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations. We make the following conservation recommendations:

1. Implement invasive plant control in areas of potential listed plant habitat in ways that would not harm native vegetation.
2. Encourage or require the use of appropriate California native species in re-vegetation and habitat enhancement efforts associated with projects authorized by Caltrans.

3. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California freshwater shrimp, California tiger salamander, Burke's goldfields, Sonoma sunshine, Sebastopol meadowfoam, and other appropriate species. Such banking systems also could possibly be utilized for other required conservation (i.e., seasonal wetlands, etc.) where appropriate.
4. Facilitate educational programs geared toward the importance and conservation of seasonal wetlands.
5. Encourage seed banking in Center for Plant Conservation certified botanic gardens (provided the seed collection does not adversely affect the source populations).
6. Assist the Service in implementing the Conservation Strategy and recovery actions being developed for the California tiger salamander, Burke's goldfields, Sonoma sunshine, and Sebastopol meadowfoam.
7. Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by California tiger salamander, other listed animals, and wildlife. In particular, Caltrans should install curbs or other features that would direct salamanders to safe crossing and prevent them from accessing the roadway. Caltrans should include photographs, plans, and other information in their biological assessments if they incorporate "wildlife friendly" crossings into their projects.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed and/or proposed species or their habitats, the Service requests notification of the implementation of these recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action on the proposed Caltrans Sonoma State Route 116 Roadway Rehabilitation Project in Sonoma County, California County, California. 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 final project design exceeds the described action area in the May 2008 Biological Assessment; (2) the amount or extent of incidental take is exceeded; (3) 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; (4) 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 (5) 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.

Mr. James Richards

67

If you have any questions regarding this biological opinion for the Sonoma State Route 116 Roadway Rehabilitation Project in Sonoma County, please contact John Cleckler or Ryan Olah of my staff at (916) 414-6625.

Sincerely,

A handwritten signature in cursive script that reads "Susan K. Moore".

Susan K. Moore
Field Supervisor

cc:

Scott Wilson, Liam Davis, Bill Cox, Melissa Escaron, Patrick Moeszinger, California
Department of Fish and Game, Yountville, California

Dave Walsh, National Marine Fisheries Service, Santa Rosa, California

Steven Bargsten, Regional Water Quality Control Board, Santa Rosa, California

Michael Monroe, Environmental Protection Agency, San Francisco, California

Jane Hicks, Regulatory Branch, U.S. Army Corps of Engineers, San Francisco, California

John Yeakel and Sarah Willbrand, Caltrans, Oakland, California

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IN LITT. CITATIONS

Samuel S. Sweet, University of California, Santa Barbara. 20 January 1993 letter to Wayne S. White, U.S. Fish and Wildlife Service.

_____ 31 August 1998 letter to Dwight Harvey, U.S. Fish and Wildlife Service. With enclosed report, "Vineyard development posing an imminent threat to *Ambystoma californiense* in Santa Barbara County, California."

CATEGORICAL EXEMPTION/ CATEGORICAL EXCLUSION DETERMINATION FORM

04-SON-116

27.8/34.5

131571

Dist.-Co.-Rte. (or Local Agency)

P./M/P.M.

E.A. (State project)

Federal-Aid Project No. (Local project)/ Proj. No.

PROJECT DESCRIPTION:

(Briefly describe project, purpose, location, limits, right-of-way requirements, and activities involved.)

Enter project description in this box. Use Continuation Sheet, if necessary

Caltrans proposes a project to modernize SR-116 in Sonoma County between the cities of Cotati and Sebastopol by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, signaling intersections, and adding auxiliary lanes.

CEQA COMPLIANCE (for State Projects only)

Based on an examination of this proposal, supporting information, and the following statements (See 14 CCR 15300 et seq.):

- If this project falls within exempt class 3, 4, 5, 6 or 11, it does not impact an environmental resource of hazardous or critical concern where designated, precisely mapped and officially adopted pursuant to law.
- There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.
- There is not a reasonable possibility that the project will have a significant effect on the environment due to unusual circumstances.
- This project does not damage a scenic resource within an officially designated state scenic highway.
- This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").
- This project does not cause a substantial adverse change in the significance of a historical resource.

CALTRANS CEQA DETERMINATION (Check one)

Exempt by Statute. (PRC 21080[b]; 14 CCR 15260 et seq.)

Based on an examination of this proposal, supporting information, and the above statements, the project is:

Categorically Exempt. Class _____. (PRC 21084; 14 CCR 15300 et seq.)

Categorically Exempt. General Rule exemption. [This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (CCR 15061[b][3])]

Print Name: Environmental Branch Chief

Print Name: Project Manager/DLA Engineer

Signature

Date

Signature

Date

NEPA COMPLIANCE

In accordance with 23 CFR 771.117, and based on an examination of this proposal and supporting information, the State has determined that this project:

- does not individually or cumulatively have a significant impact on the environment as defined by NEPA and is excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and
- has considered unusual circumstances pursuant to 23 CFR 771.117(b) (<http://www.fhwa.dot.gov/hep/23cfr771.htm> - sec.771.117).

In non-attainment or maintenance areas for Federal air quality standards, the project is either exempt from all conformity requirements, or conformity analysis has been completed pursuant to 42 USC 7506(c) and 40 CFR 93.

CALTRANS NEPA DETERMINATION (Check one)

Section 6004: The State has been assigned, and hereby certifies that it has carried out, the responsibility to make this determination pursuant to Chapter 3 of Title 23, United States Code, Section 326 and a Memorandum of Understanding (MOU) dated June 7, 2007, executed between the FHWA and the State. The State has determined that the project is a Categorical Exclusion under:

- 23 CFR 771.117(c): activity (c) ()
- 23 CFR 771.117(d): activity (d) ()
- Activity listed in the MOU between FHWA and the State

Section 6005: Based on an examination of this proposal and supporting information, the State has determined that the project is a CE under Section 6005 of 23 U.S.C. 327.

Melanie Brent
Print Name: Environmental Branch Chief

Print Name: Project Manager/DLA Engineer

Melanie Brent 4/30/09
Signature Date

Signature Date

Briefly list environmental commitments on continuation sheet. Reference additional information, as appropriate (e.g., air quality studies, documentation of conformity exemption, FHWA conformity determination if Section 6005 project; §106 commitments; §4(f); §7 results; Wetlands Finding; Floodplain Finding; additional studies; and design conditions). Revised September 15, 2008

CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM
Continuation Sheet

04-SON-116

27.8/34.5

131571

Dist.-Co.-Rte. (or Local Agency)

P.M/P.M.

E.A. (State project)

Federal-Aid Project No. (Local project)/ Proj. No.

Continued from page 1: Conditions and Minimization Measures:

Project will conform to standard Caltrans procedures for management of hazardous waste.

Project will conform to the Biological Opinion issued by the USFWS, including:

- implementation of conservation measures in the Biological Assessment;
- maintaining presence onsite of a qualified biologist during all activities conducted within potential habitat for California freshwater shrimp or California tiger salamander;
- minimizing to the extent practicable disturbance to such potential habitat;
- conforming to all terms and conditions specified regarding the sheet pile design in Blucher Creek;
- enforcement of all measures specified to prevent entrapment of California tiger salamanders during construction;
- use no monofilament netting (erosion control matting) or similar materials;
- follow the provisions for an employee education program as set forth in the Biological Opinion;
- if habitat credits from a USFWS and CADFG conservation bank are to be purchased, follow the provisions for purchase as set forth in the Biological Opinion;
- report all unauthorized take or suspected take of listed species to the USFWS and CADFG within 24 hours of receipt of such information.

Project will conform to the MOA with CA SHPO for the treatment of historic properties, including the placement of ESA fencing, the implementation of the Treatment Plan for Archaeological Site CA-SON-1695; and associated requirements for reporting, Native American consultation, treatment of human remains of Native American Origin, and discoveries and unanticipated effects.

Categorical Exclusion Checklist

District/Co/Route/P.M. <u>04-SON-116/27.8-35.5</u>	Fed. Aid No.: _____	EA: <u>131571</u>
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1. Project is a CE under Section 6004 of 23 U.S.C. 326. Yes No If "yes", check applicable activity below.

Activity Listed in 23 CFR 771.117(c)			
<input type="checkbox"/>	Activities which do not involve or lead directly to construction	<input type="checkbox"/>	Determination of payback under 23 CFR part 480 for property previously acquired with Federal-aid participation
1		11	
<input type="checkbox"/>	Utility installations along or across a transportation facility	<input type="checkbox"/>	Improvements to existing rest areas and truck weigh stations.
2		12	
<input type="checkbox"/>	Bicycle and pedestrian lanes, paths, and facilities	<input type="checkbox"/>	Ridesharing activities
3		13	
<input type="checkbox"/>	Activities included in the State's <i>highway safety plan</i> under <u>23 U.S.C. 402</u>	<input type="checkbox"/>	Bus and rail car rehabilitation
4		14	
<input type="checkbox"/>	Transfer of Federal lands pursuant to 23 U.S.C. 317 when the subsequent action is not an FHWA action	<input type="checkbox"/>	Alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons
5		15	
<input type="checkbox"/>	Installation of noise barriers or alterations to existing publicly owned buildings to provide for noise reduction	<input type="checkbox"/>	Program administration, technical assistance activities, and operating assistance to transit authorities to continue existing service or increase service to meet routine changes in demand
6		16	
<input type="checkbox"/>	Landscaping	<input type="checkbox"/>	Purchase of vehicles by the applicant where the use of these vehicles can be accommodated by existing facilities or by new facilities which themselves are within a CE
7		17	
<input type="checkbox"/>	Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur	<input type="checkbox"/>	Track and railbed maintenance and improvements when carried out within the existing right-of-way
8		18	
<input type="checkbox"/>	Emergency repairs under <u>23 U.S.C. 125</u>	<input type="checkbox"/>	Purchase and installation of operating or maintenance equipment to be located within the transit facility and with no significant impacts off the site
9		19	
<input type="checkbox"/>	Acquisition of scenic easements	<input type="checkbox"/>	Promulgation of rules, regulations, and directives
10		20	

Activity Listed in Examples in 23 CFR 771.117(d)			
<input checked="" type="checkbox"/>	Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).	<input type="checkbox"/>	Approvals for changes in access control.
1		7	
<input type="checkbox"/>	Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.	<input type="checkbox"/>	Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes, not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
2		8	
<input type="checkbox"/>	Bridge rehabilitation, reconstruction or replacement or the construction of grade separation to replace existing at-grade railroad crossings.	<input type="checkbox"/>	Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
3		9	
<input type="checkbox"/>	Transportation corridor fringe parking facilities.	<input type="checkbox"/>	Construction of bus transfer facilities when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.
4		10	
<input type="checkbox"/>	Construction of new truck weigh stations or rest areas.	<input type="checkbox"/>	Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
5		11	
<input type="checkbox"/>	Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.	<input type="checkbox"/>	Acquisition of land for hardship or protective purposes; advance land acquisition loans under <u>section 3(b) of the UMT Act.</u>
6		12	

Activity Listed in Appendix A of the MOU for State Assumption of Responsibilities for Categorical Exclusions			
<input type="checkbox"/>	Construction, modification, or repair of storm water treatment devices, protection measures such as slope stabilization, and other erosion control measures	<input type="checkbox"/>	Routine seismic retrofit of facilities to meet current seismic standards and public health and safety standards without expansion of capacity.
1		5	
<input type="checkbox"/>	Replacement, modification, or repair of culverts or other drainage facilities.	<input type="checkbox"/>	Air space leases that are subject to <u>Subpart D, Part 710, Title 23, Code of Federal Regulations.</u>
2		6	
<input type="checkbox"/>	Projects undertaken to assure the creation, maintenance, restoration, enhancement, or protection of habitat for fish, plants, or wildlife.	<input type="checkbox"/>	Drilling of test bores/soil sampling to provide information for preliminary design and for environmental analyses and permitting purposes.
3		7	
<input type="checkbox"/>	Routine repair of facilities due to storm damage, including permanent repair to return the facility to operational condition that meets current standards of design and public health and safety without expanding capacity (e.g., slide repairs, construction or repair of retaining walls).		
4			

2. Project is a CE for a highway project under Section 6005 of 23 U.S.C. 327. Yes No (Use only if project does not qualify under Section 6004.)

3. Unusual Circumstances (23 CFR 771.117(b)). Project does not include any:

<input checked="" type="checkbox"/>	Significant environmental impacts;
<input checked="" type="checkbox"/>	Substantial controversy on environmental grounds;
<input checked="" type="checkbox"/>	Significant impact on properties protected by section 4(f) of the DOT Act or section 106 of the National Historic Preservation Act; or
<input checked="" type="checkbox"/>	Inconsistencies with any Federal, State, or local law, requirement or administrative determination relating to the environmental aspects of the action

4. Air Quality. (SER Chapter 38)

A. Air Quality Checklist is complete and project meets all applicable air quality requirements.
Identify who completed the Air Quality Checklist and the date it was completed.

Glenn Kinoshita, April 28, 2009

B. Project is exempt from regional air quality conformity. (40 CFR 93.127, Table 3) Yes No
If "no", list the current RTP and RTIP including dates and page numbers that contain the project.

C. For Section 6005 CE, FHWA determination of air quality conformity is complete.
Provide name of FHWA contact and date of determination letter here:

Attach FHWA conformity determination letter.

5. Project complies with all other federal environmental laws, regulations, and executive orders on the PES form.

Environmental Statutory or Regulatory Compliance	Does Project Trigger Statute or Regulation? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Date and type of Technical Study or Memo to File or Field Survey	Outcome of Agency Coordination (Concurrence Type and Date)	Notes, Documentation Reference &/or Explanation
Historic Preservation (Section 106)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	HRER 4-03/HPSR 9-06	MOA 10/24/08	
Executive Order on Floodplains	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Floodplain Assessment 3/20/07	N/a	
Wetland Protection	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	NES 8/07		404 Permit, in progress
Coastal Zone	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Wild and Scenic Rivers	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Farmland Protection	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CDC Letter 4/10/16	Farmland Conversion Impact Rating 6/11/07	
Noise (23 CFR 772)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Hazardous Waste/Material	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Site Investigation Report 4/22/03		
Environmental Justice	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Project-Level Air Quality (CO, PM Hotspot and MSAT)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Water Quality	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	WQS, ND		401 Permit, in progress
Relocation	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Relocation Impact Statement 4/5/07		
Land Use	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Other (i.e., Visual)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	VIA 5/07		

Continued on next page

5. Project complies with all other federal environmental laws, regulations, and executive orders. (Continued)

Environmental Statutory or Regulatory Compliance	Does Project Trigger Statute or Regulation?	Date and type of Technical Study or Memo to File or Field Survey	Outcome of Agency Coordination (Concurrence Type and Date)	Notes, Documentation Reference &/or Explanation
Section 4(f) (23 CFR 774) <input type="checkbox"/> De minimis <input checked="" type="checkbox"/> Programmatic _____(type) <input type="checkbox"/> Individual. Legal sufficiency complete: Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Programmatic 4(f) Study 4/28/09	SHPO Finding of Effect –MOA 10/24/08	Minor Involvement with Historic Properties
Section 6(f) <input type="checkbox"/> De minimis <input type="checkbox"/> Programmatic _____(type) <input type="checkbox"/> Individual. Legal sufficiency complete: Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Endangered Species (Section 7 FESA) Effect Determination: <input type="checkbox"/> No effect <input checked="" type="checkbox"/> Not likely to adversely affect <input type="checkbox"/> Likely to adversely affect	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Biological Assessment 8/29/07	Biological Opinion 4/16/09	
Essential Fish Habitat (Magnuson-Stevens Act) Effect Determination: <input type="checkbox"/> Adverse affect <input type="checkbox"/> No adverse affect	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			

Based on all of the above, the project is determined to be a categorical exclusion pursuant to the National Environmental Policy Act and all other applicable federal environmental laws, regulations and executive orders have been complied with.

Prepared by: Oliver Iserien Date 4/28/09


Signature

CE Checklist: Air Quality Conformity Questions

04-SON-116	27.8/34.5	131571	
Dist.-Co.-Rte. (or Local Agency)	P.M/P.M.	E.A. (State project)	Federal-Aid Project No. (Local project)/ Proj. No.

<p>Step 1. Is the project located in a nonattainment or maintenance area for ozone, nitrogen dioxide, carbon monoxide (CO), PM2.5, or PM10 per http://www.epa.gov/oar/oaqps/greenbk/?</p> <p><input type="checkbox"/> If no, go to Step 14. Transportation conformity does not apply to the project.</p> <p><input checked="" type="checkbox"/> If yes, go to Step 2.</p>
<p>Step 2. Is the project exempt from conformity per <u>40 CFR 93.126</u> or <u>40 CFR 93.128</u>?</p> <p><input checked="" type="checkbox"/> If yes, go to Step 14. The project is exempt from all project-level conformity requirements (40 CFR 93.126 or 128). (check one box below and identify the project type, if applicable).</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> 40 CFR 93.126 Project type: <u>2</u></p> <p style="padding-left: 20px;"><input type="checkbox"/> 40 CRF 93.128</p> <p><input type="checkbox"/> If no, go to Step 3.</p>
<p>Step 3. Is the project exempt from regional conformity per <u>40 CFR 93.127</u>?</p> <p><input type="checkbox"/> If yes, go to Step 8. The project is exempt from regional conformity requirements (40 CFR 93.127) (identify the project type). Project type: </p> <p><input type="checkbox"/> If no, go to Step 4.</p>
<p>Step 4. Is the project located in a region with a currently conforming RTP and TIP?</p> <p><input type="checkbox"/> If yes, the project is included in a currently conforming RTP and TIP per 40 CFR 93.115. The project's design and scope have not changed significantly from what was assumed in RTP conformity analysis (40 CFR 93.115[b]) Go to Step 8.</p> <p><input type="checkbox"/> If no and the project is located in an isolated rural area, go to Step 5.</p> <p><input type="checkbox"/> If no and the project is not located in an isolated rural area, STOP and do not proceed until a conforming RTP and TIP are adopted.</p>
<p>Step 5. For isolated rural areas, is the project regionally significant per 40 CFR 93.101, based on review by Interagency Consultation?</p> <p><input type="checkbox"/> If yes, go to Step 6.</p> <p><input type="checkbox"/> If no, go to Step 8. The project, located in an isolated rural area, is not regionally significant and does not require a regional emissions analysis (40 CFR 93.101 and 93.109[I]).</p>
<p>Step 6. Is the project included in another regional conformity analysis that meets the isolated rural area analysis requirements per 40 CFR 93.109, including Interagency Consultation and public involvement?</p> <p><input type="checkbox"/> If yes, go to Step 8. The project, located in an isolated rural area, has met its regional analysis requirements through inclusion in a previously-approved regional conformity analysis that meets current requirements (40 CFR 93.109[I]).</p> <p><input type="checkbox"/> If no, go to Step 7.</p>
<p>Step 7. The project, located in an isolated rural area, requires a separate regional emissions analysis.</p> <p><input type="checkbox"/> Regional emissions analysis for regionally significant project, located in an isolated rural area, is complete. Regional conformity analysis was conducted that includes the project and reasonably foreseeable regionally significant projects for at least 20 years. Interagency Consultation and public participation were conducted. Based on the analysis, the interim or emission budget conformity tests applicable to the area are met (40 CFR 93.109[I] and 95.105). Go to Step 8.</p>
<p>Step 8. Is the project located in a CO nonattainment or maintenance area?</p> <p><input type="checkbox"/> If no, go to Step 9. CO conformity analysis is not required.</p> <p><input type="checkbox"/> If yes, hot-spot analysis requirements for CO per the CO Protocol (or per EPA's modeling guidance, CAL3QHCR can be used with EMFAC emission factors¹) have been met. Project will not cause or contribute to a new localized CO violation (40 CFR 93.116 and 93.123)². Go to Step 9.</p>

¹ Use of the CO Protocol is strongly recommended due to its use of screening methods to minimize the need for modeling. When modeling is needed, the Protocol simplifies the modeling approach.

<p>Step 9. Is the project located in a PM10 and/or a PM2.5 nonattainment or maintenance area?</p> <p><input type="checkbox"/> If no, go to Step 13. PM2.5/PM10 conformity analysis is not required.</p> <p><input type="checkbox"/> If yes, go to Step 10.</p>
<p>Step 10. Is the project considered to be a Project of Air Quality Concern (POQAC), as described in U.S. EPA Guidance of March 29, 2006?</p> <p><input type="checkbox"/> If no, the project is not a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Analysis Guidance. Interagency Consultation concurred with this determination on [REDACTED].</p> <p>Go to Step 12.</p> <p><input type="checkbox"/> If yes, go to Step 11.</p>
<p>Step 11. The project is a POAQC.</p> <p><input type="checkbox"/> The project is a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123, and EPA's Hot-Spot Guidance. Interagency Consultation concurred with this determination on [REDACTED]. Detailed PM hot-spot analysis, consistent with 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Guidance, shows that the project would not cause or contribute to, or worsen, any new localized violation of PM10 and/or PM2.5 standards. Go to Step 12.</p>
<p>Step 12. Does the approved PM SIP include any PM10 and/or PM2.5 control measures that apply to the project, and has a written commitment been made as part of the air quality analysis to implement the identified SIP control measures?</p> <p><input type="checkbox"/> If yes, a written commitment has been made to implement the identified SIP control measures for PM10 and/or PM2.5 through construction or operation of this project (40 CFR 93.117).</p> <p><input type="checkbox"/> If no, go to Step 13.</p>
<p>Step 13a. Have project-level mitigation or control measures for CO, PM10, and/or PM2.5, included as part of the project's design concept and scope, been identified as a condition of the RTP or TIP conformity determination? AND/OR</p> <p>Step 13b. Are project-level mitigation or control measures for CO, PM10, and/or PM2.5 included in the project's NEPA document? AND</p> <p>Step 13c (applies only if Step 13a and/or 13b are answered "yes"). Has a written commitment been made as part of the air quality analysis to implement the identified measures?</p> <p><input type="checkbox"/> If yes to 13a and/or 13b and 13c, a written commitment has been made to implement the identified mitigation or control measures for CO, PM10, and/or PM2.5 through construction or operation of this project. These mitigation or control measures are identified in the project's NEPA document and/or as conditions of the RTP or TIP conformity determination. (40 CFR 93.125(a))</p> <p><input type="checkbox"/> If no, go to Step 14</p>
<p>Step 14. Does the project qualify for a Section 6004 CE?</p> <p><input checked="" type="checkbox"/> If yes, STOP as all air quality conformity requirements have been met.</p> <p><input type="checkbox"/> If no, go to Step 15.</p>
<p>Step 15. Does the project qualify for a Section 6005 CE?</p> <p><input type="checkbox"/> If yes, attach conformity analysis, request conformity determination from FHWA, and when received, complete CE/CE Determination Form.</p> <p>Date of FHWA air quality conformity determination: [REDACTED]</p> <p>STOP as all air quality conformity requirements have been met.</p>

Name: Glenn Kinoshita

Date: 4/28/09

² As of October 1, 2007, there are no CO nonattainment areas in California. Therefore, the requirements to not worsen existing violations and to reduce/eliminate existing violations do not apply.