



M E M O R A N D U M

TO • Vick Germany

FROM • Yolanda Molette and Tom Roberts

DATE • February 5, 2004

SUBJECT • Status of the Regional Biological Assessment

This memorandum describes our progress on the Regional Biological Assessment (RBA) for the OPC. The enclosed list of materials were prepared to help develop the Biological Assessment, and include the following items.

- **Table Y** (Minimal Threat Activities, Requirements, Best Management Practices, Avoidance and Minimization measures, and Special Management Areas)
- **Table Z** (Avoidance and Minimizations Measures and Best Management Practices for Special Status Species in Four General Habitats and Special Management Areas)
- **Avoidance and Minimization Measures for Federal or State Listed Species, Federal Candidate or Proposed Species, and Species That May Become Listed**
- **Partial list of edits to BMPs**

Table Y describes the conditions of the maintenance activities and assigns Avoidance and Minimization measures and BMPs to each type of activity.

Table Z includes a list of special status plant and animal species that potentially or are known to occur within the project action area of the maintenance activities proposed by the participating members of the OPC. This list is limited to federal listed species, state listed species and federal candidate or proposed species, and species that may become listed. It was compiled on the basis of data available from the USFWS official species list, California Natural Diversity Data Base (CDFG), California Native Plant Society Electronic Inventory.

The list of Avoidance and Minimization Measures for special status species define the codes used in Table Y and Table Z. Please refer the Best Management Practices Manual for detailed descriptions.

The tables, the revised BMPs, and the new Avoidance and Minimization measures will form the structure of the central argument in the RBA: that BMPs + A&M Measures = a finding of *Not Likely to Adversely Effect* for the species at issue for the OPC. That is, a finding that determines that “take” is truly minor and incidental and does not require any off-site compensation. Although we anticipate further modification, and will return to the OPC for clarification of some items, we are ready to proceed to compile a Draft BA.

The following items described in the enclosed materials are not included, but are in preparation.

- Section 2 (Description of the Proposed Action)
- Figures describing Special Management Areas
- *Minimal Threat Activity Worksheet*
- Appendices

**TABLE Y
‘MINIMAL THREAT’ ACTIVITIES, REQUIREMENTS, BEST MANAGEMENT PRACTICES,
AVOIDANCE AND MINIMIZATION MEASURES, AND SPECIAL MANAGEMENT AREAS**

ACTIVITY ¹	SEDIMENT AND DEBRIS REMOVAL			VEGETATION MANAGEMENT			MAINTENANCE, REPAIR, REHAB, AND REPLACEMENT OF STRUCTURES						BANK STABILIZATION		TEMPORARY WATER DIVERSIONS		
Facility	Concrete-lined Channel	In-Channel Silt Basins	Natural Channel	Hand or Low-impact Removal	Herbicides	Vegetation Management Plan	Enhancement Projects	Maintenance, Repair, or Rehab of Weirs or Gates	In-kind Replacement of Weirs or Gates	Replacement of Culverts	Bridge Replacement	Maintenance, Repair or In-kind Replacement of Piers and Pilings	Maintenance or Repair of Basins	Debris Removal in Front of Structures	Repair or Replacement with In-kind Structures; New Stabilization	Installation of Hardscape	Temporary Water Diversions
Conditions	1) <3,000 linear feet/year.	1) <2 acres	1)	1) No substantial disturbance of root systems; no mechanized activities redpositing excavated soil material. 2) No use of heavy tracked or rubber-tired equipment except those identified in the "BMP Manual." 3) Minimize disturbance to channel; no erosion or additional sedimentation. 4) Prune to remove lower brushy growth and encourage higher canopy development. 5) Do not exceed that necessary to accommodate the design flows. 6) Meet flood capacity objective while maximizing vegetation functions.	1) The application of aquatic pesticides into waters of the U.S. requiring NPDES permit coverage is a minimum threat activity. As necessary to comply with aquatic pesticide regulations, the Discharger may seek coverage under the State Board's General NPDES Permit for Discharge of Aquatic Pesticides to Surface Waters of the United States (Permit No. CAG990003).	1) Identify specific maintenance activities facilitating or preserving a targeted vegetation cover type or succession of cover types.	1) Vegetate bare soils with native species; use erosion control methods following removal of invasive or exotic species. 2) Use watershed specific and appropriate California native species.	1) Coordinate with the CDFG and/or NOAA Fisheries. 2) No increase in facility footprint. 3) Develop and implement corrective action plan for improper operating culverts; activities in correction action plan are not covered.	1) Replacement is limited to currently serviceable structures. 2) Develop and implement corrective action plan for improper operating culverts; activities in correction action plan are not covered. 3) Minor deviations in configuration or filled area which are necessary for replacement are allowed provided adverse impacts are minimal.	1) Arched culvert must have an earthen bottom. 2) Concrete must be allowed to cure.	1) Replacement must be consistent with Corps NWP 14 conditions. 2) Minimal impact on riparian and aquatic habitats.	1) No treatment with erosote; must be constructed with or treated with materials approved by CDFG.	1) Minimize discharge of sediment or other pollutants downstream.	1) Delineate work area. 2) Retain woody material unless a structure, design flow or access is compromised. 3) No grouted rip-rap, sackrete, concrete blocks and mattresses, and gunnite for new construction.	1) ≤ 500 feet. 2) Part of a single and complete project. 3) No grouted rip-rap, sackrete, concrete blocks and mattresses, and gunnite for new construction.	1) Conduct an analysis of the failure and justification for use of hardscape. 2) Incorporate native riparian vegetation where channel design allow.	1) Restore channel unless the project includes realignment or configuration of to provide increased stability and habitat values and functions. 2) Maintain passage for anadromous fish.
Monitoring Requirement	1) Before, during and after photo documentation. 2) Water quality sampling and assessment of BMPs.	See concrete-lined channel.	1)	1) Before and after photo documentation.	1)	No monitoring.	No monitoring.	1)	1)	1)	No monitoring.	1)	1)	1)	1)	1) Before, during and after photo documentation.	
Reporting Requirement	1) List what, when and where. 2) Identify implemented site specific BMPs. 3) Statement of BMPs effectiveness. 4) Submit photographs and assessment.	See concrete-lined channel.	1)	1) List what, when and where. 2) Identify implemented site specific BMPs. 3) Statement of BMPs effectiveness.	1) List what, when and where.	1) List what, when and where.	1) List what, when and where.	1)	1)	1)	1) List what, when and where. 2) Identify implemented site specific BMPs. 3) Statement of BMPs effectiveness.	1)	1)	1)	1)	1) List what, when and where. 2) Identify implemented site specific BMPs. 3) Statement of BMPs effectiveness.	

TABLE Y (Continued)
'MINIMAL THREAT' ACTIVITIES, REQUIREMENTS, BEST MANAGEMENT PRACTICES,
AVOIDANCE AND MINIMIZATION MEASURES, AND SPECIAL MANAGEMENT AREAS

ACTIVITY ¹	SEDIMENT AND DEBRIS REMOVAL			VEGETATION MANAGEMENT				MAINTENANCE, REPAIR, REHAB, AND REPLACEMENT OF STRUCTURES						BANK STABILIZATION		TEMPORARY WATER DIVERSIONS	
Facility	Concrete-lined Channel	In-Channel Silt Basins	Natural Channel	Hand or Low-impact Removal	Herbicides	Vegetation Management Plan	Enhancement Projects	Maintenance, Repair, or Rehab of Weirs and Gates	In-kind Replacement of Weirs or Gates	Replacement of Culverts	Bridge Replacement	Maintenance, Repair or In-kind Replacement of Piers and Pilings	Maintenance or Repair of Basins	Debris Removal in Front of Structures	Repair or Replacement with In-kind Structures; New Stabilization	Installation of Hardscape	Temporary Water Diversions
Project Best Management Practices²	CU-8; EV-1, EV-2; NR-3; SC-1 through SC-6; SS-2, SS-4; VDM-1 through VDM-3; VR-1 through VR-5; WD-4, WD-5			CU-1 through CU-7; EV-1, EV-2; NR-1 through NR-3; VDM-1 through VDM-3				CU-3, CU-4, CU-8; EV-1, EV-2; NR-3; SS-3, SS-4; VDM-1 through VDM-3; VR-4a, VR-4b; WD-4, WD-5						CU-1, CU-2; EV-1, EV-2; NR-1 through NR-3; SC-4; SS-1 through SS-4; VDM-1 through VDM-4; VR-1 through VR-4b; WD-4, WD-5		EV-1, EV-2; NR-3; WD-4, WD-5	
Objective Best Management Practices³	NR-1, SS-1, SS-3; VDM-4			SS-1, SS-3; VDM-4; VR-1, VR-3				NR-1, NR-2, SC-1 through SC-6; SS-1; VDM-4; VR-1 through VR-3						CU-2 through CU-6; SC-1, SC-3, SC-5, SC-6; VR-5		NR-1; SC-5; VDM-4	
General Avoidance and Minimization Measures	GEN-1 through GEN-3, GEN-8		GEN-1 through 5, GEN-7, GEN-8	GEN-1 through GEN-3, GEN-5, GEN-7, GEN-8,	GEN-1 through GEN-8	GEN-1 through GEN-5, GEN-7, GEN-8	GEN-1 through GEN-8	GEN-1 through GEN-8						GEN-1 through 3, GEN-5, GEN-7, GEN-8		GEN-1 through 3, GEN-5, GEN-7, GEN-8	
Specific Avoidance and Minimization Measures	FIS-1; BIR-1 through BIR-4; PLA-1 through PLA-4	FIS-1; AMP-1; AMP-2; INV-1 through INV-3; BIR-1 through BIR-4; PLA-1 through PLA-4	FIS-1; AMP-1; AMP-2; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; AMP-1; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; FIS-2; AMP-1; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; FIS-2; AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; FIS-2; AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	FIS-1; FIS-2; AMP-1; INV-1 through INV-3; BIR-1 through BIR-4; MAM-1; PLA-1 through PLA-4	
Special Management Areas	None	SMA 1 through SMA 7		SMA 1 through SMA 7				SMA 1 through SMA 7						SMA 1 through SMA 7		SMA 1 through SMA 7	

1. Activities, facilities, conditions, monitoring and reporting requirements are from Table X – Summary of 'Minimal Threat' Flood Control Routine Maintenance Activities.
2. Best management practices (BMPs) are from the *BASMAA Operational Permits Committee Flood Control Facility Maintenance Best Management Practices: A Manual for Minimizing Environmental Impacts from Stream and Channel Maintenance Activities*, June 2000.
3. Additional BMPs to those listed above that avoid or minimize impacts from the routine flood control maintenance activity. *BASMAA Operational Permits Committee Flood Control Facility Maintenance Best Management Practices: A Manual for Minimizing Environmental Impacts from Stream and Channel Maintenance Activities*, June 2000.

**TABLE Z
AVOIDANCE AND MINIMIZATION MEASURES FOR LISTED SPECIAL STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE PROJECT ACTION AREA OF FLOOD CONTROL DISTRICTS**

	Riparian/Freshwater Marsh	Tidal Wetland/Mudflat	Riverine (Aquatic)	Upland	Special Management Areas (SMA)
Species	<p><i>Federal Listed Species.</i> California red-legged frog Valley elderberry longhorn beetle Kenwood marsh checkermallow</p> <p><i>Federal Candidate/Proposed Species.</i> California tiger salamander</p>	<p><i>Federal Listed Species.</i> California clapper rail California least tern Western snowy plover Saltmarsh harvest mouse Palmate-bracted bird's beak Soft bird's beak Suisun thistle</p> <p><i>State Listed Species.</i> California black rail</p> <p><i>Species That May Become Listed.</i> Suisun song sparrow Suisun ornate shrew Saltmarsh wandering shrew</p>	<p><i>Federal Listed Species.</i> California freshwater shrimp Delta smelt¹ Steelhead-Central California coast ESU</p>	<p><i>Federal Listed Species.</i> Vernal pool fairy shrimp Vernal pool tadpole shrimp Valley elderberry longhorn beetle California tiger salamander Burke's goldfields Contra Costa goldfields Contra Costa wallflower Palmate-bracted bird's beak Showy Indian clover White-rayed pentachaeta Yellow larkspur</p> <p><i>Federal Candidate/Proposed Species.</i> California tiger salamander</p> <p><i>State Listed Species.</i> Swainson's hawk</p> <p><i>Species That May Become Listed.</i> Western burrowing owl</p>	<p><i>SMA 1: Vernal pool tadpole shrimp.</i> Defined as the City of Fremont (see Figure 1).</p> <p><i>SMA 2: Vernal pool fairy shrimp, Palmate-bracted bird's beak.</i> Defined as Springtown (see Figure 2).</p> <p><i>SMA 3: Vernal pool fairy shrimp, Vernal pool tadpole shrimp, Valley elderberry longhorn beetle and Swainson's hawk.</i> Defined generally east of a line drawn between Fairfield in Solano County and Cedar Mountain in Alameda County (see Figure 3).</p> <p><i>SMA 4: California freshwater shrimp.</i> Defined as Sonoma Creek (see Figure 4).</p> <p><i>SMA 5: Western snowy plover.</i> Defined as known plover nesting areas (see Figure 5).</p> <p><i>SMA 6:</i> [Reserved until later time.]</p>
Avoidance & Minimization Measures	GEN-1 through GEN-8, INV-3, FIS-1, AMP-1, AMP-2, BIR-1 through BIR-3, PLA-1, PLA-4.	GEN-1 through GEN-8, BIR-3, BIR-4, MAM-1, PLA-1, PLA-2, PLA-3.	GEN-1 through GEN-5, GEN-7, GEN-8, INV-2, FIS-1, FIS-2, FIS-3.	GEN-1 through GEN-3, GEN-6 through GEN-8, INV-1, INV-3, AMP-1, AMP-2, BIR-1, BIR-2, PLA-1 through PLA-4.	GEN-1 through GEN-8, INV-1, INV-2, INV-3, BIR-1, BIR-2, PLA-2.
BMPs	CU-1 through CU-8; EV-1, EV-2; NR-1, NR-2; SC-1, SC-2, SC-3, SC-4; SS-1 through SS-4; VDM-1 through VDM-4.	CU-1 through CU-8; EV-1, EV-2; SC-1, SC-2, SC-3, SC-4; SS-1 through SS-4; VDM-1 through VDM-4.	CU-1 through CU-8; EV-1, EV-2; NR-1, NR-2, NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1, VR-2; WD-4, WD-5.	CU-1 through CU-7; EV-1, EV-2; SC-2; SS-1, SS-2, SS-4; VDM-2, VDM-3, VDM-4.	CU-1 through CU-8; EV-1, EV-2; NR-1, NR-2, NR-3; SC-1 through SC-6; SS-1 through SS-4; VDM-1 through VDM-4; VR-1, VR-2; WD-4, WD-5.

¹ Delta smelt are not known to occur within the maintenance activity areas. BMPs listed for this habitat would avoid indirect impacts on delta smelt potentially occurring downstream of the maintenance activity area.

AVOIDANCE AND MINIMIZATION MEASURES FOR FEDERAL OR STATE LISTED SPECIES, FEDERAL CANDIDATE OR PROPOSED SPECIES, AND SPECIES THAT MAY BECOME LISTED

REGIONAL BIOLOGICAL ASSESSMENT

GENERAL MEASURES

GEN-1 Participating members of the OPC will each designate an **Endangered Species Coordinator (ESC)**. Prior to commencement of a maintenance activity as described in the Biological Assessment (Section 2.0, Description of the Proposed Action – Minimal Threat Activities), the ESC will review project-specific information on the type, location and extent of the activity and associated areas of disturbance (e.g., staging areas, proposed stockpiled areas, proposed sediment disposal areas, etc.). Using both the BMPs (Best Management Practices) (see Appendix A) and the Avoidance and Minimization Measures described in this section, the ESC will determine the appropriate biological measures to implement, and complete and distribute a brief form, the *Minimal Threat Activity Worksheet* (Worksheet) to project staff, referring them to the documents where these measures are described in detail (e.g., BMP manual or Regional General Permit Terms and Conditions).

Since some of maintenance activities will require pre-construction surveys, the Worksheet must be completed in a timely manner to allow surveys to be completed. The Worksheet shall be retained as part of the Monitoring and Reporting Program described in GEN-2.

Implementation of this measure will precede implementation of all avoidance and minimization measures and BMPs.

GEN-2 Each ESC will implement an Endangered Species Monitoring and Reporting Program (Program). The reports will serve as companion documents to the Monitoring and Reporting requirements of general waste discharge permit designed to evaluate BMP effectiveness (see Section 2.0). Specific tasks of the Program shall include, but not be limited to, field forms prepared by qualified biological construction monitors (as determined by permit conditions); and post-construction restoration/revegetation evaluation. Reporting will be performed in accordance with the terms and conditions of the Biological Opinions.

- GEN-3 During maintenance activities, all trash that may attract predators shall be properly contained, removed from the work site and disposed of regularly. Following construction, all trash and construction debris shall be removed from the work area.
- GEN-4 No herbicides will be applied to waterways supporting listed plant or animal species.
- GEN-5 Parking, storage of vehicles, equipment, machinery, stockpiles of excavated soils, or construction materials, or dumping of oils or chemicals shall be prohibited within sensitive species buffer areas.
- GEN-6 Maintain routes of escape from excavated pits and trenches for animals that might become entrapped. Cover post holes, open pipe ends and other narrow pits at the end of each maintenance activity workday.
- GEN-7 Implement BMP VDM-3 (Revegetation After Soil Disturbance). The following measures supercede or add to conditions indicated in VDM-3.
- For all bare and vegetated areas disturbed due to implementation of a maintenance activity, develop and implement a Revegetation Plan in accordance with the U.S. Army Corps of Engineers Habitat and Mitigation Proposal Guidelines. Such a plan will include, but is not limited to, location of the restoration, species to be used, restoration techniques, time of the year the work will be done, identifiable success criteria for completion (as described below), and remedial actions if the success criteria are not achieved.
 - No invasive plant species will be used in any site restoration and soil stabilization efforts.
 - No non-native materials containing allelopathic compounds (e.g., *Eucalyptus* spp.) or weed seeds shall be used as mulch in revegetated sites.
 - All material, e.g., mulch, straw, erosion control blankets, will be certified as weed-free to the extent that certification is possible.
 - Do not cut or mow grasses to encourage the establishment and spread of non-native invasive grasses.
 - Monitoring shall be performed annually for five years or as agreed to by state and federal permitting agencies.
 - The success of the restoration effort will be evaluated using specific performance standard criteria. Upon agreement by state and federal permitting agencies, these criteria may include: a) plantings, as a whole, exhibit at least 70% cumulative survival and plantings have attained 75% cover at the revegetation site at the end of the five-year monitoring

period; b) no excessive rills, gullies, or other erosional features are observed, c) no invasive non-native plant species within the revegetation site, and d) properly functioning irrigation system in years one through two or until vegetation becomes established.

- Follow-up maintenance at revegetation sites shall include replacing dead or dying plants, weeding, removing invasive species, and ensuring that all plants receive sufficient water where appropriate.

This measure is referenced in FIS-1, AMP-1 and PLA-4. Other revegetation requirements may apply under certain circumstances as indicated in species-specific programmatic biological opinions (see [Appendices B-H](#)).

GEN-8 The number of access routes, number and size of staging area(s), and the total area of the activity shall be limited to the minimum necessary to achieve the goal of the maintenance activity. Routes and boundaries shall be clearly demarcated, and these areas shall be outside of sensitive habitat areas.

SPECIFIC MEASURES

INVERTEBRATE MEASURES

INV-1 **Vernal pool fairy shrimp and Vernal pool tadpole shrimp.** When conducting maintenance activities in **Special Management Areas 1** (City of Fremont, see Figure 1), ~~and 2~~ (Springtown, see Figure 2), **and 3** (generally east of a line drawn between Fairfield in Solano County and Cedar Mountain in Alameda County, see Figure 3), ~~(City of Fremont SMA, and the eastern Alameda Contra Costa County (EACC) SMA, respectively)~~ a qualified biologist will assess the presence of suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp (listed crustaceans). The habitat assessment will include seasonal pools, ponds and puddles located within 250 feet of the disturbance areas, which will typically include habitat adjacent to linear project corridors. Habitat for listed crustacean species includes any areas that seasonally pond water in which one or more of the listed vernal pool species could exist, and may include seasonal pools, ponds, and puddles.

Based on the results of the habitat assessment, if suitable habitat is not identified within 250 feet of the project activity, further action is not necessary. If suitable habitat is identified, the following conditions would apply in consistency with the *Programmatic Biological Opinion for the issuance of 404 permits for Projects with Relatively Small Effects on Vernal Pools Within the Jurisdiction of the Sacramento Field Office* (USFWS, 1995; see [Appendix B](#)):

- The maintenance activities would be designed to the extent feasible, to avoid the potential for direct and indirect mortality, harm, and harassment on listed crustaceans and its habitat. A U.S. Fish and Wildlife Service-approved biologists (monitor) will inspect any maintenance activity related activities at the proposed project site to ensure that no unnecessary take of listed specie or destruction of habitat occurs. The biologist used will have the authority to stop all activities the biologist deems may result in take or destruction beyond what would be considered incidental. Work would not be allowed to resume until appropriate corrective measures have been completed. The biologist also will be required to immediately report any unauthorized impacts to the USFWS and the California Department of Fish and Game (CDFG).
- Adequate fencing (e.g., silt fencing) will be placed and maintained around any avoided vernal pool habitat to prevent impacts from vehicles and personnel.
- All on-site maintenance activity personnel will receive instruction regarding the presence of listed species and the importance of avoiding impacts to these species and their habitat.

INV-2

California freshwater shrimp. When conducting maintenance activities in **Special Management Areas 4 and 4** (Sonoma Creek, see Figure 4 ~~and the Napa River SMA~~) a qualified biologist will assess the presence of suitable habitat for California freshwater shrimp (CFS). No other activities are proposed within the known range of the CFS. The distribution of shrimp populations within streams may expand or contract depending upon existing conditions, thus, an assessment would be repeated each year that stream work is conducted. Maintenance activities that affect CFS would likely be limited to bank stabilization and sediment removal at limited locations in **Special Management Areas 4**.

The CFS is adapted to freshwater environments and has not been found in brackish or estuarine environments (USFWS, 1998), thus, no protection measures are required for CFS for activities proposed in the lower Napa River / Mare Island Straits, these areas. For activities proposed in **Special Management Areas 4 and Napa River SMA**, the following measures will apply:

- Maintenance activities ~~will~~ will be designed to avoid or minimize the potential for direct and indirect mortality, harm, and harassment on CFS. Modifications to stream channels in areas that are determined to support CFS will be minimal or limited, and will retain habitat elements so that areas continue to provide habitat for this species.
- Maintenance activities will not include any permanent barriers that may inhibit CFS movement up or down the stream.
- In activity sites where suitable habitat for CFS has been identified, a streamside management plan will be developed and submitted to the USFWS for review and approval that identifies the extent and quality of CFS habitat within 1.0 mile upstream and downstream from the project area. The plan will address the maintenance of a natural riparian corridor that includes both summer and winter habitat components for CFS that will be incorporated into the project. Riparian vegetation, particularly shrubs, trees, railing vines and overhanging woody vegetation, will be protected to the extent feasible to allow development of winter habitat for the shrimp. [Note to Reviewer: The need for a streamside management plan is to be determined during informal consultation with USFWS.]
- Implementation of BMP SC-6 (Silt Fence) and FIS -1, which is described below, would reduce sediment deposition during maintenance activities. Additional measures will be taken to reduce unnatural rates of sediment deposition in streams following erosion control BMPs. Such measures may include maintaining vegetated riparian corridors to reduce sedimentation. ~~The reduction of sediment deposition will benefit the aquatic environment by maintaining pool depth, reducing the risk of unnatural morphological channel changes, maintaining appropriate substrate quality for spawning anadromous fish, and reducing unnatural inputs of nutrients.~~

INV-3 **Valley elderberry longhorn beetle.** When conducting maintenance activities in **Special Management Area 3** (generally east of a line drawn between Fairfield in Solano County and Cedar Mountain in Alameda County, see Figure 3) a biological monitor shall accompany tree/brush clearing crews. The monitor will flag all elderberry shrubs in the tree clearing zone and be present during tree clearing operations in the vicinity of flagged shrubs to ensure that elderberry shrubs are not cut. If avoidance is not feasible, habitat impacts shall be mitigated in accordance with the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS Revised July 9, 1999; see [Appendix C](#)).

FISH MEASURES

FIS-1 **Central California coast (CCC) steelhead.** Prior to conducting maintenance activities in **actively flowing channels**, the ESC will coordinate with National Oceanic and Atmospheric Administration (NOAA Fisheries) to determine the likelihood of steelhead occurrences within the maintenance activity area. If steelhead are known to be absent from the project area, then avoidance has been accomplished.

If steelhead are determined or presumed present in the maintenance activity area, then the following avoidance and minimization measures will be implemented:

- All in-channel maintenance activities will be restricted to low-flow periods of June 15 through October 15.
- Install cofferdams per BMP WD-5 (In Channel Flow Diversion Systems).
- Sediment curtains will be placed downstream of the maintenance activity zone to prevent transporting and depositing sediment disturbed during maintenance activities outside of the maintenance activity zone.
- Prior to construction of the diversion and placement of the sediment curtains, a qualified biologist will conduct fish relocation activities, and immediately release captured fish to a suitable habitat near the project site.
- Implement BMP WD-4 (Dewatering Nuisance Water). In addition, screen pumps used for dewatering the area within the cofferdams in accordance with NOAA Fisheries' *Fish Screening Criteria for Anadromous Salmonids* (1997; see [Appendix D](#)). A qualified biologist will be on-site during such pumping activities to ensure that any fish that may have remained within the construction area are relocated to suitable habitat near the project site.
- A qualified biological monitor will be on site during all in-channel maintenance activities. The biological monitor will be authorized to halt construction if impacts to listed fish species are evident.
- Refer to GEN-7 for implementation of revegetation measures for disturbed areas.

FIS-2 **CCC steelhead.** For culvert and bridge replacement projects in known or presumed salmonid habitat, the new structures will be designed and constructed to meet fish passage criteria described in NOAA Fisheries' *Guidelines for Salmonid Passage at Stream Crossing* (2001, see [Appendix E](#)). Designs will be submitted to NOAA Fisheries staff for approval prior to maintenance activities.

AMPHIBIAN MEASURES

AMP-1 **California red-legged frog.** For maintenance activities proposed **within or adjacent to riparian corridors or flood control channels**, a qualified biologist will conduct surveys at the maintenance activity site consistent with the federal survey guidelines to determine the presence or absence of the California red-legged frog (CRLF)(USFWS, 1995, see [Appendix F](#)). Because CRLF actively move through streams and watersheds, such surveys would be considered valid for only a single survey season. If CRLF are not identified during surveys or are known to be absent from the project area, no further CRLF protection measures would be required during the current season. If CRLF are identified during protocol-level surveys or presumed present at the maintenance activity site, the following avoidance and minimization measures would apply. These measures generally follow the Programmatic Biological Opinion for California red-legged frog (USFWS, *Programmatic Formal Endangered Species Act Consultation on Issuance of Permits under Section 404 of the Clean Water Act or Authorizations under the Nationwide Permit Program for Projects that May affect the California Red-legged Frog*, 1999, see [Appendix G](#)).

- At least 15 days prior to the onset of activities, the signatory agency shall submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No maintenance activities shall begin until the signatory agency has received written approval from the USFWS that the biologist(s) is qualified to conduct the work.
- A USFWS-approved biologist shall survey the work site two weeks before the onset of activities. If CRLF adults, tadpoles, or eggs are found, the approved biologist shall contact the USFWS to determine if moving any of these life-stages is appropriate. In making this determination the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves the moving of animals, the approved biologist shall be allowed sufficient time to move CRLF from the work site before work activities begin. Only USFWS-approved biologists shall participate in activities associated with the capture, handling, and monitoring of CRLF.
- Before any maintenance activities begin on a project, a USFWS-approved biologist shall conduct a training session for all maintenance activity personnel. At a minimum, the training shall include a description of the CRLF and its habitat, the importance of the CRLF and its habitat, the general measures that are being implemented to conserve the CRLF as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session.

- A USFWS-approved biologist shall be present at the work site until such time as all removal of CRLF, instruction of workers, and habitat disturbance have been completed. After this time, the signatory agency shall designate a person to monitor on-site compliance with all minimization measures. The USFWS-approved biologist shall ensure that this individual receives training outlined above and in the identification of CRLF. The monitor and the USFWS-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated during review of the proposed project. If work is stopped, the Corps and USFWS shall be notified immediately by the USFWS-approved biologist or on-site biological monitor.
- A USFWS-approved biologist shall ensure that the spread or introduction of invasive non-native plant species shall be avoided to the maximum extent possible. When practicable, invasive non-native plants at the activity site shall be removed.
- Refer to GEN-7 for implementation of revegetation measures for disturbed areas.
- Refer to GEN-8 for implementation of boundary limitations.
- In-stream maintenance activities shall be completed between April 1 and November 1. Should the signatory agency or signatory agency demonstrate a need to conduct activities outside this period, the Corps may authorize such activities after obtaining approval from the USFWS.
- To control erosion during and after project implementation, the signatory agency shall implement best management practices, as identified by the Regional Water Quality Control Board.
- If a maintenance activity site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than five millimeters to prevent CRLF from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of maintenance activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
- A USFWS-approved biologist shall permanently remove from within the maintenance activity site, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the maximum extent possible. The permitted shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

AMP-2 **California tiger salamander.** For maintenance activities located in proximity to **breeding pools** and **vernal wetlands** within the known distribution of the California tiger salamander (CTS), a qualified biologist will conduct a habitat assessment survey of uplands and wetland habitats to determine the potential presence of suitable breeding habitat for this species. If potential breeding habitat is identified greater than 1.0 km from the maintenance activity site, no further avoidance measures will be required. If CTS breeding habitat is determined to be present in the project vicinity (within 1.0 km), and the site is readily accessible to migrating CTS, the following avoidance and minimization measures will be implemented:

- Prior to maintenance activities, a qualified biologist will inspect all upland habitat features including small mammal burrows (e.g., gopher and ground squirrel burrows), debris piles, or other suitable habitat prior to maintenance activities to identify and relocate adult CTS, if present. The excavation of all burrows will not be required.
- Before any maintenance activities begin on an activity, a qualified biologist shall conduct a training session for all maintenance activity personnel. At a minimum, the training shall include a description of the CTS and its habitat, the importance of the CTS and its habitat, the general measures that are being implemented to conserve the CTS as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
- Work activities within suitable aquatic breeding habitat shall be completed between May 1 and November 1 when the feature is dry, or following metamorphosis of larval salamanders (roughly late spring to early summer) if it holds water. If CTS eggs or larvae are identified ~~in seasonal wetlands,~~ activities that affect these features will be delayed until the initiated following metamorphosis and dispersal of juvenile salamanders into upland areas.
(roughly late spring to early summer).
Refer to GEN-8 for implementation of boundary limitations.

BIRD MEASURES

BIR-1 **Swainson’s hawk.** When working in **Special Management Area 3** (generally east of a line drawn between Fairfield in Solano County and Cedar Mountain in Alameda County, see Figure 3) maintenance activities shall occur outside the nesting season (i.e., outside of March 1 through September 15). Alternatively, if activities take place during the nesting season, a qualified biologist shall conduct a pre-construction survey no more than two weeks before the start of work for any given maintenance activity and report whether or not there are nesting Swainson’s hawks within 1,320 feet (access permitting). If there are nesting Swainson’s hawks present within the 1,320-foot buffer areas, maintenance activities will be delayed until the CDFG has been consulted to determine suitable avoidance measures. A potential avoidance measure may include delaying all maintenance activities within 1,320 feet of an active Swainson’s hawk nest until the adult and/or juvenile hawks

- are no longer using the nest as the center of their activity.
- BIR-2 **Western burrowing owl.** In **grasslands** throughout the combined service areas and no more than two weeks before a maintenance activity, a survey for burrows and burrowing owls shall be conducted by a qualified biologist within 250 feet of the disturbance, which for most activities will be a narrow right-of way for access across uplands into the project site. The survey will generally conform to the protocol described by the California Burrowing Owl Consortium (1993, see [Appendix H](#)) which includes up to four surveys on different dates if there are suitable burrows present.
- If occupied owl burrows are found within the survey area, a determination shall be made by a qualified biologist whether or not maintenance activities will impact the occupied burrows or disrupt reproductive behavior.
 - If it is determined that a maintenance activity will not impact occupied burrows or disrupt breeding behavior, construction will proceed without any restriction or mitigation measures.
 - If it is determined that a maintenance activity will directly impact occupied burrows during August through February, the subject owls will be passively relocated from the occupied burrow(s) using one-way doors. There shall be at least two unoccupied burrows suitable for burrowing owls within 300 feet of the occupied burrow before one-way doors are installed. Artificial burrows shall be in place at least one-week before one-way doors are installed on occupied burrows. One-way doors will be in place for a minimum of 48 hours before burrows are excavated.
 - If it is determined that maintenance activities will physically impact occupied burrows or disrupt reproductive behavior during the nesting season (February 1 through July), then the maintenance activity will be allowed only if it is implemented 250 feet away from occupied burrows.
- BIR-3 **California black rail and California clapper rail.** When working adjacent to **salt or brackish marshland**, presume presence for either species during the period February 1- August 31 and limit noise levels at the marsh edge to less than 76 dBA, the USFWS standard used by Caltrans (Morton, 2003).
- BIR-4 **Western snowy plover.** It is not anticipated that flood control activities will take place in snowy plover nesting habitat. However, when a maintenance activity is adjacent to **Special Management Area 5** (known snowy plover nesting SMA, see Figure 5), no activity may take place between March 15 and August 31. No hardscape for bank stabilization will be used within 2,000 feet of a known snowy plover breeding site.

MAMMAL MEASURES

- MAM-1 **Saltmarsh harvest mouse, saltmarsh ornate shrew, saltmarsh wandering shrew.** When implementing maintenance activities in uplands adjacent to **salt or brackish marshland**, vehicles will be confined to existing roads where possible and disturbed areas re-vegetated with brackish marsh species. Crews will use matting, pontoon boards or other comparable methods whenever feasible to minimize impacts to the existing vegetation. The placement of mats will be verified by a qualified biologist prior to their placement to minimize habitat impacts. Crews will work exclusively from mat boards and boardwalks to minimize trampling of vegetation. A qualified biologist/monitor will be available during the course of construction.

PLANT MEASURES

- PLA-1 **Kenwood marsh checkermallow, Soft bird's beak, Suisun thistle, Burke's goldfields, Contra Costa goldfields, Contra Costa wallflower, Showy Indian clover, White-rayed pentachaeta, Yellow larkspur.** For all maintenance activity sites (including the area of disturbance) and adjacent areas (within 100 feet of the area of disturbance) supporting **upland, wetland and marsh vegetation**, a qualified botanist will conduct a habitat assessment. The qualified botanist will determine the presence of potentially suitable habitat for the aforementioned listed plant species. If no potentially suitable habitat is identified during the habitat assessment, then no further measures for protecting listed plant species are necessary.

If suitable habitat is determined present, then the qualified botanist will identify the appropriate species-specific focused surveys and surveying period for these listed plant species. All species-specific focused surveys will be conducted in accordance with USFWS plant survey guidelines. If no listed plant species are observed during the species-specific focused surveys, then no further avoidance measures for protecting listed plant species are necessary. If listed species are observed or presumed present, then the signatory agency will redesign the project to avoid listed plant species. If the maintenance activity occurs adjacent to a known or presumed present listed plant species or its habitat, then establish an exclusionary 100-foot buffer zone using visible fencing material at the edge of the habitat in coordination with a qualified botanist. The signatory agency will maintain all fencing material for the life of the project.

- PLA-2 **Palmate-bracted bird's beak.** For maintenance activities in **Special Management Area 2** (Springtown, see Figure 2), avoid direct and indirect effects on Palmate-bracted bird's beak and its habitat. In coordination with a qualified botanist, establish a 100-foot exclusionary buffer zone at the edge of chenopod scrub habitat using visible fencing material.

PLA-3 Although work in serpentinite areas is not anticipated, the signatory agency shall avoid disturbance to these areas. Limit the operation of maintenance equipment to established roads whenever possible. No stockpiling of materials or sediment shall be placed in these areas.

PLA-4 Refer to GEN-7 for implementation of revegetation measures for disturbed areas.



MEMORANDUM

TO • Vick Germany
FROM • Tom Roberts
DATE • February 4, 2004
SUBJECT • Partial List of BMP Edits

Page	Suggested Change
III-NR-3.1	The third bullet under NR-3 Approaches and Standards contains the text “between April 15 and October 15” as an operational period. There is a potential contradiction with NR-1’s direction to avoid nesting or breeding seasons, which could continue well into the summer. Suggest “between April 15 and October 15 <i>subject to the breeding and nesting season avoidance standard in NR-1.</i> ”
III-VDM-1.2	The seventh bullet under VDM-1 On-Site Activities contains the text “Do not locate ... spoil piles ...where significant adverse impacts on vegetation may occur.” Since spoil piles may cover dens or burrows, suggest adding “vegetation <i>and wildlife.</i> ”
III-VDM-1.3	The fifth bullet under VDM-1 Maintenance contains the term “habitat conservation plans.” To avoid confusion with the term as used in permits under the federal Endangered Species Act, suggest rephrasing as “habitat <i>protection</i> plans.”
III-VDM-3.1	The fifth bullet under VDM-3 Approaches and Standards, Vegetation, contains the sentence “Revegetate at a ratio of at least 1½:1.” While basically correct, this should acknowledge that other standards may apply. Elderberry bushes, for example, need mitigation up to 5:1 in some cases. Therefore suggest rewording “at least 1½:1 <i>or as specified in permit conditions.</i> ”
III-VDM-3.2	The first bullet under VDM-3 Approaches and Standards, Mulch, discusses erosion control blankets. These are generally OK, but there are situations they might be problematic for fossorial animals. Suggest addition as follows: “...slopes are 2:1 or steeper, <i>unless deemed adverse to wildlife.</i> ”