

# Valley Fire

State Post Fire Watershed Emergency Response Team  
Addendum I

Hazard Site Evaluation

October 2015



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**DISCLAIMER**

The scope of the review and the information contained in this report should not be construed to be either comprehensive or conclusive, or to address all possible impacts that might be ascribed to the fire effect. Post fire effects in each area are unique and subject to a variety of physical and climatic factors which cannot be accurately predicted. The information in this report was developed from cursory field examination by licensed resource professionals and should be viewed in conjunction with other relevant sources of information. Neither the State of California nor any Agency or Department participating as a member of the State Post Fire Watershed Emergency Response Team makes any warranty, express or implied, nor assume any legal liability for the information disclosed herein.

**EXECUTIVE SUMMARY**

This Natural and Cultural Resource Addendum builds upon the efforts of the Phase I State Post Fire Watershed Emergency Response Team (SPFWERT) effort and is intended to further inform and facilitate the implementation of emergency measures to secure life safety hazard sites.

Primary objectives for the Phase I effort were to:

- Identify on-site and downstream threats to public health or safety from landsliding, debris torrents, flooding, road hazards, and other fire related problems.
- Develop and recommend emergency protective measures needed to avoid life-safety threats.

Following the Phase I effort, a Phase II SPFWERT team was assembled to:

- Identify threats to watershed resources, including: excessive erosion; impaired water quality; threats to wildlife, fisheries, and botanical values; and cultural resources.
- Develop and recommend emergency protective measures needed to prevent identified threats.

The Phase II team evaluated the same sites for the purpose of identifying natural and cultural resource values at risk relative to the emergency protective measures proposed. During the survey, staff identified which emergency protective measures (EPMs) could be implemented to minimize impacts to life, health, and safety. Of the 107 sites evaluated, 38 sites were identified where structural work is required to complete the EMPs. All life and safety sites were evaluated by Natural Resources Conservation Service (NRCS) and SPFWERT. EPMs were proposed by both agencies. The EPM recommendations by NRCS and SPFWERT agencies will help protect values at risk and are not in conflict with one another. The potential environmental effects in the NRCS EPMs recommendations will be addressed per NEPA regulations. The observations herein are not intended to be comprehensive and conclusive, but rather to serve as a preliminary tool to assist emergency responding agencies (for example CAL FIRE, Lake County Fire Departments, Lake County, CalTrans, Lake County Public Works, CalOES, Natural Resource Conservation Service, utility companies, and other responsible agencies) in development of more detailed

post-fire emergency response plans. This report does not provide emergency response plans. It is intended that the emergency responding agencies will use the information presented in this report as a preliminary guide to complete their own detailed evaluations and develop detailed emergency response plans and emergency protective measures. It is intended for this document to help streamline or exempt the process of obtaining necessary permits for emergency recovery actions by local jurisdictions.

## **ACKNOWLEDGEMENTS**

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- J. Charles (“Chuck”) Whatford , Associate State Archaeologist  
California Department of Forestry and Fire Protection

### **Contacts List**

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## **SPECIALIST REPORTS FINDINGS SUMMARY**

### **California Department of Fish and Wildlife (CDFW)**

The Board of Forestry and Fire Protection and the Fish and Game Commission adopted a joint policy in 1994 to help direct the response of our respective agencies to improve ecosystem

protection activities as a result of large fire events in California. This policy directed CDFW to participate in the development of a SPFWERT with the goals of protecting lives and property downstream of burned areas and restoring and rehabilitating affected sites for ecosystem protection in identified watersheds. The Valley Fire burned a total of 76,067 acres. On October 12, 2015 the CDFW was deployed to participate in a multiagency team effort involving representatives of two other State agencies (CAL FIRE and Department Water Resources). The team was tasked with identifying on-site and downstream threats to public health and safety, personal property, and improvements to mitigate land-sliding debris torrents, flooding, road hazards, and other fire-induced problems.

The primary focus of the SPFWERT was the application of the technical expertise of the agencies involved in reviewing 107 sites where potential threats to life and property had been previously identified. These sites were determined to be focus areas for CAL FIRE, Lake County Fire Departments, Lake County, CalTrans, Lake County Public Works, CalOES, Natural Resource Conservation Service, utility companies, and other responsible agencies. Due to the potential for catastrophic watershed damage due to the Valley Fire, immediate emergency repairs at these sites are necessary. Recommendations for appropriate treatment measures at each of these sites are described in further detail in the form of Emergency Protective Measures (EPMs) and listed by site number in this report. The intent of this emergency multiagency effort was to streamline the repair process by declaring that work at these sites is exempt from the standard permitting process if the EMPs listed for each site are fully implemented. Without such exempt status, local responsible parties would be required to obtain permits independently from each represented agency, causing timely and critical delays. The imminent coming of winter and an expected heavy rainy season underlined the necessity of expediting this process. This collaborative effort is intended to benefit the protection of life, property, and ecosystem health.

A database and literature review was conducted to identify the sensitive species and habitats likely to exist within the Valley Fire burn area emergency rehabilitation treatment sites. The database review included the California Natural Diversity Database (CNDDDB)<sup>1</sup> and the CNPS's Online Electronic Inventory of Rare and Endangered Plants of California<sup>2</sup> (Table 1).

Common Name	Scientific Name	Status*
two-carpellate western flax	<i>Hesperolinon bicarpellatum</i>	CNSP 1B
Cobb Mountain lupine	<i>Lupinus sericatus</i>	CNSP 1B
few-flowered navarretia	<i>Navarretia leucocephala ssp. pauciflora</i>	CNSP 1B, FE, ST

<sup>1</sup> California Department of Fish and Game. 2015. *Natural Diversity Database. Government version.*

<sup>2</sup> CNPS, Rare Plant Program. 2015. *Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website <http://www.rareplants.cnps.org> [accessed 21 October 2015].*

foothill yellow-legged frog	<i>Rana boylei</i>	SSC
Clear Lake hitch	<i>Lavinia exilicauda chi</i>	ST
Jepson's milk-vetch	<i>Astragalus rattanii var. jepsonianus</i>	CNSP 1B
Burke's goldfields	<i>Lasthenia burkei</i>	CNSP 1B, FE, ST
western pond turtle	<i>Emys marmorata</i>	SSC
Konocti manzanita	<i>Arctostaphylos manzanita ssp. elegans</i>	CNSP 1B
Lake County stonecrop	<i>Sedella leiocarpa</i>	CNSP 1B, FE, SE

\* FE- Federal Endangered, FT-Federal Threatened, SE- State Endangered, ST-State Endangered, SSC- State Species of Special Concern, CNPS 1B- Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California

Biological site reviews were conducted on October 13-17, 2015. The site reviews consisted of inspecting the 107 hazard sites identified in the Phase I report. The potential of the habitat types and conditions observed within the areas identified were evaluated for emergency rehabilitation treatment to support the special status species as determined from the database and literature review. Based on the compiled data and site survey results, three animal species and several sensitive plant species were determined to potentially occur within the emergency rehabilitation areas. It was determined that the proposed work activities will not adversely impact any of the identified sensitive species, provided the EPMs are fully implemented.

Most of the vegetation communities affected by the Valley Fire have evolved with periodic fires and may naturally regenerate within a few years. For many plant species, fire can be a trigger for seed germination and subsequent seedling recruitment<sup>3</sup>, which could be a benefit in the coming post-fire years. Many wildlife species are dependent on this habitat, including the species identified as endangered, and have also adapted to a fire-prone ecosystem. Over time they are likely to recover.

The foothill yellow-legged frog (*Rana boylei*), could be impacted by post fire conditions such as increased flows due to loss of vegetation, bank de-stabilization, increased water temperatures due to loss of riparian vegetation, and increased sedimentation causing siltation of eggs.

The Clear Lake hitch (*Lavinia exilicauda chi*) and their habitat are located within the Valley Fire burn area. Large amounts of sediment and woody debris could be mobilized during the 2015-2016 storms, affecting Clear Lake hitch by possibly altering the form and structure of the Cache Creek and Kelsey Creek watersheds. These effects could be beneficial and/or have negative impacts. Beneficial impacts could include holding pools formed by woody debris and spawning gravel beds dispersed over previously sand/silt open stream channel. Negative impacts could include sedimentation, which could smother redds and aquatic invertebrate food sources, and

<sup>3</sup> Keeley, J. E and Fotheringham, C. J. 2000. Role of Fire in Regeneration from Seed. Seeds: The Ecology of Regeneration in Plant Communities, 2<sup>nd</sup> edition.

fill in pools that hitch use for refuge during their spawning migration. Loss of overhead canopy could increase solar radiation and consequently increase stream temperatures which are not beneficial for the hitch's spawning.

## **Engineering**

California Department of Water Resources provided engineering support for the evaluation of sites located during Phase I. Support was provided to the Phase II team in order to develop emergency protective measures for the 107 sites identified during the Phase I review.

The watersheds inside of the burn area are expected to see increased runoff volumes and corresponding increased erosion and debris in comparison to pre-fire conditions. The scope of the Phase II SPFWERT review is to evaluate potential hazards to the watershed at locations identified by the Phase I review. Remaining portions of the watersheds with burned landscapes will still be subject to increased hazards.

A drainage study of the watersheds may be helpful in identifying other areas of increased risk. Portions of the drainage network not sized for a 100-year flood event are subject to increased likelihood of failure and flooding.

## **Archaeology**

CAL FIRE Associate State Archaeologist J. Charles ("Chuck") Whatford assisted the interagency team of resource specialists by conducting an archaeological review of the proposed work locations. Technical advice was also provided to avoid adverse impacts to cultural resources to the recommended emergency protective measures (EPMs). The review included consideration of the results of the cultural resources records search conducted by the Northwest Information Center (NWIC) of the California Historical Resources Information System during suppression of the Valley Fire.

Given the compressed time frame of the team's emergency mandate, only those work locations where the proposed EPMs could involve the use of heavy equipment (Sites 112, 126 and 127) were field inspected. An archaeological survey of these three work locations was conducted. No cultural resources were found.

Consultations with local Native American tribal representatives were conducted via email and in person. On October 15 emails announcing the existence and mission of the Phase II team were sent to the Big Valley Rancheria Tribal Historic Preservation Officer (THPO), a member of the Koi Nation Tribal Council and the Middletown Rancheria THPO. As of the date this report was prepared, the only response received was from the Middletown Rancheria THPO, who asked to be consulted further. Consequently, Team II Leader Guy Anderson and Archaeologist J. Charles (Chuck) Whatford met with the Middletown Rancheria THPO and the Middletown

Rancheria Tribal Vice-Chairwoman on October 19 to discuss the Team's assessment efforts and recommendations.

At the majority of the 107 at-risk locations identified by the Phase I Team, no physical EPM work is proposed with the balance of the sites identified as needing an early warning system, storm patrol or some other type of event specific actions. At those locations where the Phase II Team has proposed EPM work, the implementation of the work is recommended to be performed by hand crews only, with no use of heavy equipment. Use of heavy equipment is proposed at only three locations (Sites 112, 126 and 127).

Based upon the results of the archaeological review (which included consultation with local Native American tribal representatives) and the emergency protective measures proposed by the team in this report, no adverse effects to cultural resources during implementation of the EPMs described below are anticipated.

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
100	Anderson Springs Road	38.77456	-122.69003	Flooding and debris damage	Lake County	Early warning and evacuation Assess structural integrity of foundation	NO
101	Foard Road	38.77462	-122.68904	Flooding and debris damage	Lake County	Early warning and evacuation Flood protection measures	NO
102	Foard Road	38.77438	-122.68942	Debris flow, bridge damage	Lake County	Early warning and storm patrol Monitor and clear debris	NO
103	Foard Road	38.77424	-122.69003	Burned out septic tank	Lake County	None proposed	NO
104	Rose Anderson Road	38.77469	-122.69970	Flooding and debris damage	Lake County / HOA	Seasonal closure, early warning, and evacuation Monitor and clear debris	NO
105	Van Dorn Reservoir Road	38.776	-122.703	Culvert flooding	Lake County	Clear out woody debris in culvert inlet Flood diversion measures Early warning and evacuation	YES
106	Van Dorn Reservoir Road	38.77623	-122.70312	Debris flow, bridge damage	Lake County	Early warning and storm patrol	NO
107	Anderson Springs Road	38.77684	-122.68563	Culvert flooding	Lake County	Clear debris from lower channel Early warning and evacuation Flood diversion measures	YES
110	Anderson Springs Road	38.77432	-122.69274	Debris flow, bridge damage	Lake County	Early warning and storm patrol	NO
111	Anderson Springs Road	38.77813	-122.68079	Flooding, Debris flow, bridge damage	Lake County	Early warning and storm patrol Flood Protection Measures	NO
112	Highway 175	38.77775	-122.67647	Culvert flooding	Lake County	Early warning and evacuation Flood Protection Measures Culvert replacement	YES
113	Monte Vista Court	38.77714	-122.66990	Culvert flooding	Lake County	Early warning and evacuation Flood Protection Measures Monitor and clear culvert	NO
114	Harbin Springs Road	38.79453	-122.66614	Debris flow	Harbin Springs Resort	Early warning and storm patrol Flood Protection Measures	NO
115	Harbin Springs Road	38.79110	-122.65312	Debris flow	Harbin Springs Resort	Early warning, seasonal closure and signage Flood protection measures	NO
116	Big Canyon Road	38.77676	-122.61748	Debris flow, fence, bridge damage	Lake County	Remove fencing obstructing stream channel Early warning and storm patrol	YES
117	Santa Barbara to Napa Streets (Polygon 117)	38.76307	-122.62952	Flooding, Debris flow	Lake County (Middletown?)	Early warning and evacuation Flood protection measures	NO
118	Highway 175 at Putah Creek	38.77223	-122.66386	Flooding, Debris flow	Caltrans	Remove fallen oak from stream channel Do not remove the stump or roots of the tree	YES

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
119	Main Street in Middletown (Polygon 119)	38.25062	-122.61407	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
120	St Helena Creek bridge (constructed in 1908)	38.75372	-122.61069	Flooding, Debris flow	Lake County	Clear vegetation in channel 200 feet upstream and downstream of the bridge Early warning and storm patrol	YES
121	Highway 29	38.76261	-122.60133	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
122	Highway 29	38.7581	-122.60319	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
123	Highway 29	38.79333	-122.56658	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
124	Spruce Road between two way points	38.7985 38.79516	-122.57366 -122.56831	Flooding, Debris flow	Lake County (Middletown?)	Early warning and evacuation Flood protection measures	NO
125	Gold Flat Court	38.78448	-122.54229	Flooding	Hidden Valley Lake Community Services District	Replace pump Early warning and evacuation Flood protection measures	NO
126	Hartmann Road	38.80014	-122.54394	Flooding, Debris flow, bridge damage	Hidden Valley Lake Association	The work is associated with Site 127. Remove vegetation in channel approximately 100 feet south of the bridge Early warning and storm patrol	YES
127	Hidden Valley Lake Campground on Hartmann Road	38.79904	-122.55145	Flooding, Debris flow	Hidden Valley Lake Association	Remove vegetation in channel approximately 150 feet north of the bridge Early warning and evacuation Flood protection measures	YES
128	Hartmann Road	38.80014	-122.54394	Culvert flooding, Debris flow	HVLCSD or Lake County	Clear dead trees in Gallagher Creek 200 feet upstream of culverts Early warning and evacuation Flood protection measures	YES
129	Hartmann Road	38.80037	-122.54012	Flooding, Debris flow	HVLCSD or Lake County	Early warning and evacuation Flood protection measures Monitor and remove debris	NO
130	Stinson Road at Gallagher Creek	38.80104	-122.54195	Culvert flooding, Debris flow	HVLCSD or Lake County	Clear trees in channel 200 feet upstream and downstream of culverts Early warning and storm patrol Monitor and clear culverts	YES

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
131	Stinson Road	38.80197	-122.54121	Runoff, erosion	Lake County (not a member of HV HOA)	Early warning and evacuation Flood protection measures	NO
132	Stinson Road	38.80172	-122.54339	Runoff, erosion	HVLCSD or Lake County	Early warning and evacuation Flood protection measures	NO
133	Stinson Road	38.80201	-122.54454	Culvert flooding, Debris flow	HVLCSD or Lake County	Early warning and evacuation Flood protection measures Monitor and clear culverts	NO
134	Sandy Rd near Dallas Court	38.80605	-122.55147	Culvert flooding, Debris flow	HVLCSD or Lake County	Early warning and storm patrol Monitor and clear culvert	NO
135	Bottle Rock Road	38.85387	-122.75888	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures Monitor and clear debris	NO
136	Bottle Rock Road	38.83104	-122.72789	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
137	Loconomi Road to Eureka Road (Polygon 137)	38.74824	-122.57774	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures Monitor and clear culvert	NO
139	Butts Canyon Road	38.70519	-122.46407	Culvert flooding, Debris flow	Napa County	Early warning and storm patrol Monitor and clear culvert	NO
140	Butts Canyon Road	38.71024	-122.47591	Culvert flooding, Debris flow	Lake County	Fill scour area with appropriately size rip-rap to even grade with inlet Early warning and storm patrol	YES
141	Butts Canyon Road	38.71401	-122.48257	Culvert flooding, Debris flow	Lake County	Remove accumulated sediment approximately 20 feet upstream of culvert inlet Install flared metal inlet or culvert riser Early warning and storm patrol	YES
142	Butts Canyon Road	38.7178	-122.49262	Culvert flooding, Debris flow	Lake County	Remove debris and sediment that is plugging the inlet Contour streambed material to lower gradient in front of culverts Early warning system and storm patrol Monitor and clear debris	YES
143	Butts Canyon Road	38.71824	-122.49591	Culvert flooding, Debris flow	Lake County	Remove fence obstructing stream channel Early warning system and storm patrol Monitor and clear debris	YES

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
146	Gold Flat Court to Gooselake Court (Polygon 146)	38.78463	-122.53917	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
500	Casa Grande Lane	38.78982	-122.68872	Culvert flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures Monitor and clear debris	NO
501	Casa Grande Lane	38.78431	-122.68903	Culvert flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures Monitor and clear debris	NO
502	Casa Grande Lane	38.78788	-122.69284	Flooding, Debris flow, bridge damage	Lake County	Remove woody debris 200 feet upstream and downstream of bridge Leave concrete footings Early warning and storm patrol	YES
503	Highway 175	38.78438	-122.68629	Flooding, Debris flow	CalTrans	Early warning and evacuation Flood protection measures	NO
504	Highway 175	38.79133	-122.70031	Culvert flooding, Debris flow	CalTrans	Clear dead trees and debris in unnamed tributary 200 feet upstream and downstream of culvert Early warning and storm patrol	YES
505	Parnassus Drive	38.80953	-122.71228	Flooding, Debris flow	Lake County	Monitor and clear culvert Early warning and evacuation Flood protection measures Storm Road Closure	NO
506	Maple Shadows Drive	38.81098	-122.71249	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
507	Maple Shadows Drive	38.81086	-122.71020	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
508	Forest Lake Drive	38.81702	-122.71568	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures Monitor and clear debris	NO
509	Cobb Boulevard	38.82199	-122.71492	Flooding, Debris flow, bridge damage	Lake County	Early warning and evacuation Flood protection measures Monitor and clear debris	NO

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
510	Golf Road	38.82201	-122.71598	Flooding, Debris flow	Lake County	Remove Himalayan blackberries ( <i>Rubus armeniacus</i> ) and loose woody debris from within 200 feet of culvert inlet located at Golf and Cobb Road Early warning and evacuation Flood protection measures	YES
511	Twin Oaks Drive	38.82172	-122.71304	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
512	Reed Road (Polygon 512)	38.82077	-122.72399	Flooding, Debris flow	Lake County	Prior to rain events the culvert and channel should be maintained and loose debris removed Monitor and clear debris Early warning and evacuation Flood protection measures	NO
513	Highway 175	38.82403	-122.72139	Flooding, Debris flow	CalTrans	Early warning and evacuation Flood protection measures	NO
514	Bottle Rock Road	38.82421	-122.72352	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
515	Rainbow Drive	38.82742	-122.72665	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
517	Seigler Canyon Road	38.89533	-122.65088	Flooding, Debris flow, bridge damage	Lake County	Clear vegetation 200 feet upstream and downstream of bridge Early warning and storm patrol Monitor and clear debris	YES
518	Seigler Canyon Road	38.89415	-122.65332	Flooding, Debris flow, bridge damage	Lake County	Clear vegetation 200 feet upstream and downstream of bridge Early warning and storm patrol Monitor and clear debris	YES
519	Seigler Canyon Road	38.87958	-122.67556	Flooding, Debris flow, bridge damage	Lake County	Clear vegetation 200 feet upstream and downstream of bridge Early warning and storm patrol Monitor and clear debris	YES
520	Ettawa Springs Road	38.85015	-122.69913	Flooding, Debris flow, Runoff, erosion	Lake County	Clear woody debris 200 feet upstream and downstream of convergence on Big Canyon Creek Clear woody debris 200 feet upstream of convergence on Mill Creek Early warning and storm patrol Flood protection measures	YES

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
521	Ettawa Springs Road	38.85089	-122.69658	Flooding, Debris flow	Lake County	Remove rock and sediment plugging the inlet of both culverts Remove rocks and sediment from the ditch channel along property Smooth the grade along ditch between the culverts to facilitate proper drainage Clear woody debris from the stream channel along property Early warning and storm patrol Flood protection measures	YES
522	Ettawa Springs Road	38.85122	-122.69420	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
523	Ettawa Springs Road	38.85142	-122.69241	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
524	Highway 29	38.84562	-122.60915	Flooding, Debris flow, bridge damage	CalTrans	Remove oak branch that is in the stream channel 30 yards south of bridge Early warning and storm patrol Flood protection measures	YES
525	Highway 29	38.84745	-122.61152	Flooding, Debris flow, bridge damage	CalTrans	Early warning and storm patrol Monitor and clear debris	NO
526	Highway 29	38.84131	-122.61196	Flooding, Debris flow, bridge damage	CalTrans	Prior to rain events upstream of the bridge should be inspected and loose debris removed Monitor and clear debris Early warning and storm patrol Monitor and clear debris	NO
527	Agua Dulce Drive	38.85837	-122.62817	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
528	Highway 29	38.86505	-122.62446	Flooding, Debris flow	CalTrans	Early warning and evacuation Flood protection measures	NO
529	Highway 29	38.88235	-122.60846	Culvert flooding, Debris flow	CalTrans	Remove wooden flap gate and vegetation at culvert outlet Early warning system and storm patrol Monitor and clear debris	YES
530	Riata Road	38.8828	-122.60618	Flooding, Debris flow, bridge damage	Lake County	Early warning and evacuation Flood protection measures	NO
531	Ellen Springs Court	38.8943	-122.59821	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
532	Perini Road	38.90324	-122.63936	Flooding, Debris flow, bridge damage	Lake County	Clear vegetation 200 feet upstream and downstream of bridge Early warning and storm patrol Monitor and clear debris	YES
533	Seigler Canyon Road	38.90731	-122.63621	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
534	Bell Park Avenue	38.90919	-122.61626	Flooding, Debris flow	Lake County	Clear loose debris, Himalayan blackberry ( <i>Rubus armeniacus</i> ), and small, woody vegetation from Bell Bridge to Highway 29 Early warning and evacuation Flood protection measures	YES
535	Morgan Valley Road	38.90805	-122.595	Flooding, Debris flow	Lake County	Clear approximately 300 feet of woody vegetation along the bottom of the channel to increase flow volume Early warning and evacuation Flood protection measures	YES
536	Seigler Canyon Road	38.89875	-122.64356	Flooding, Debris flow, bridge damage	Lake County	Clear vegetation 200 feet upstream and downstream of bridge Early warning and storm patrol Monitor and clear debris	YES
537	Big Canyon Road	38.8521	-122.68395	Flooding, Debris flow, bridge damage	Lake County	Clear dead trees and woody debris 200 feet upstream and downstream of the bridge Early warning and storm patrol Flood protection measures	YES
538	Big Canyon Road	38.8491	-122.67421	Flooding, Debris flow, bridge damage	Lake County	Clear dead trees and woody debris in Spikenard Creek 200 feet upstream of bridge Early warning and storm patrol Flood protection measures	YES
539	Big Canyon Road	38.84953	-122.67482	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
540	Big Canyon Road	38.84961	-122.67442	Flooding, Debris flow, bridge damage	Lake County	Clear woody debris 200 feet upstream and downstream of bridge Early warning and storm patrol	YES
541	Big Canyon Road	38.84871	-122.66909	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
542	Big Canyon Road	38.84895	-122.66862	Flooding, Debris flow, bridge damage	Lake County	Clear woody debris 200 feet upstream and downstream of bridge Remove tree obstructing bridge Early warning and storm patrol	YES

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
543	Big Canyon Road	38.84885	-122.66627	Culvert flooding, Debris flow	Lake County	Clear vegetation in channel 200 feet upstream of culverts Remove woody debris in culverts Early warning and storm patrol Monitor and clear debris	YES
544	Big Canyon Road	38.84929	-122.66646	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
545	Big Canyon Road	38.84619	-122.66416	Flooding, Debris flow, bridge damage	Lake County	Early warning and storm patrol Monitor and clear debris	NO
546	Big Canyon Road	38.84511	-122.65937	Flooding, Debris flow, bridge damage	Lake County	Early warning and storm patrol Monitor and clear debris	NO
547	Lower Lake near Seigler Canyon and Cache Creeks (Polygon 547)	38.92499	-122.6089	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
548	Cache Creek Lane	38.92044	-122.59792	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
549	Dam Road	38.9226	-122.5953	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
550	Jessie Street	38.91372	-122.61006	Flooding, Debris flow, bridge damage	Lake County	Clear vegetation 200 feet upstream and downstream of bridge Early warning and storm patrol Monitor and clear debris	YES
551	North bank of Cache Creek to Main Street, between Highway 53 and Lake Street (Polygon 551)	38.91735	-122.6111	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
552	Pinto Place, Bronco Lane, and Quarterhorse Lane, and Stagecoach Lane (Polygon 552)	38.91648	-122.59528	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
553	Quarterhorse Lane	38.92161	-122.59393	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
554	Copsey Creek Way	38.91424	-122.59355	Flooding, Debris flow, bridge damage	Lake County	Clear vegetation in channel bottom 200 feet upstream and downstream of bridge Early warning and storm patrol Monitor and clear debris	YES
555	Big Canyon Road	38.83173	-122.64526	Flooding, Debris flow, bridge damage	Lake County	Early warning and storm patrol Monitor and clear debris	NO

Site#	Street	GPS location (NAD83)		Hazard	Possible Responsible Agency	Proposed Emergency Protective Measures	Physical work Identified?
		Latitude N	Longitude W				
556	Big Canyon Road	38.82377	-122.63148	Flooding, Debris flow, bridge damage	Lake County	Early warning and storm patrol Monitor and clear debris	NO
557	Big Canyon Road	38.80665	-122.61617	Culvert flooding, Debris flow	Lake County	Remove fence obstructing stream channel Early warning and storm patrol Install road warning signage Monitor and clear debris	YES
558	Big Canyon Road	38.80252	-122.61459	Flooding, Debris flow, bridge damage	Lake County	Remove large oak branch in the stream channel Early warning and storm patrol Install road warning signage	YES
559	Big Canyon Road	38.78092	-122.61427	Culvert flooding, Debris flow	Lake County	Remove fencing obstructing steam channel Early warning and storm patrol Monitor and clear debris	YES
560	Big Canyon Road	38.84851	-122.66692	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
561	Highway 175	38.79141	-122.70125	Flooding, Debris flow	CalTrans	Early warning and evacuation Flood protection measures	NO
562	Maple Shadows Drive	38.81114	-122.7137	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
563	Maple Shadows Drive	38.81025	-122.71142	Flooding, Debris flow	Lake County	Early warning and evacuation Flood protection measures	NO
564	Highway 175	38.81023	-122.71013	Culvert Flooding, Debris flow	CalTrans	Early warning and evacuation Flood protection measures	NO

## Site 100

**Site Description:**

This site is a single family dwelling located on Anderson Springs Road (38.77456' N, 122. 69003' W). The house is located in the Anderson Creek channel. Anderson Creek is a perennial fish bearing stream, in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The home is located very close to the waterway and built on a foundation that will be directly in the main force of flood flows. The threat to existing infrastructure is debris-laden flooding and debris flow down Anderson Creek.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Assess structural integrity of foundation.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another.*

## Site 101

**Site Description:**

This site is a single family home located on Foard Road (38.77462' N, 122.68904' W). The house is located at the confluence of Anderson Creek and Bear Canyon Creek. Anderson Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Anderson Creek rising to an elevation that will impact the home.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another.*

## Site 102

**Site Description:**

This site is a bridge located at Foard Road (38.77438' N, 122.68942' W). The bridge is located over Anderson Creek. Anderson Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The bridge has a center pier that is located in the center of the channel. The threat to existing infrastructure is debris-laden flow and debris flowing down Anderson Creek, piling on bridge and flooding nearby homes or damaging the bridge.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and storm patrol.  
Monitor and clear debris.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another.*

## Site 103

[No Photo Available]

**Site Description:**

This site is a burned out septic tank located off Foard Road (38.77424' N, 122.69003' W). The team was unable to access the site to take a photograph. The site is located near the confluence of Bear Canyon Creek and Anderson Creek. Bear Canyon Creek and Anderson Creek are perennial fish bearing streams in the Putah Creek watershed. Habitat type at this work site is mixed-riparian. Burned out septic tank could impact water quality in both Bear Canyon Creek and Anderson Creek.

**Emergency Response Protection Measure Recommendation:**

None proposed; take into account applicable county building codes regarding removal of the septic tank.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 104

**Site Description:**

This site is a local recreation facility located on Rose Anderson Road (38.77469' N, 122.69970' W). Property is located along the Anderson Creek channel. Anderson Creek is a perennial fish bearing stream in the Putah Creek watershed. The habitat type at this site is mixed-riparian. The facility includes a roughly four foot high board and concrete dam structure used to create a swimming pond in Anderson Creek. The concrete structures create a roughly four-foot drop downstream, creating a barrier for some fish species. The threat to existing infrastructure is debris flow piling up on dam structures and flooding and damaging nearby facilities.

**Emergency Response Protection Measure Recommendation:**

Seasonal closure, early warning of flood events, and evacuation of property.  
Monitor and remove debris.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 105



### Site Description:

This site is a home with an adjacent 24-inch culvert fed by a small steep drainage located on Van Dorn Reservoir Road (38.776' N, 122.703' W). The culvert runs under the driveway of the property and flows into the Anderson Creek channel. Anderson Creek is a perennial fish bearing stream in the Putah Creek watershed. The habitat at this site is mixed-riparian. The culvert regularly clogs with debris during normal years according to the property owner. The threat to existing infrastructure is overflow flooding into the home and washing out access road to four properties downstream.

### Emergency Response Protection Measure Recommendation:

Clear out woody debris in culvert inlet.  
Flood diversion measures.  
Early warning and evacuation.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish found downstream of the recommended work site would see a net benefit if the culvert was cleaned out.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Remove all debris such that it will not re-enter the stream channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fish, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Mike Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 106

**Site Description:**

This site is a bridge located at Van Dorn Reservoir Road (38.77623' N, 122.70312' W). The bridge is located over Anderson Creek. Anderson Creek is a perennial fish bearing stream, in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flow down Anderson Creek piling up on the bridge, causing damage to the bridge or flooding nearby homes.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 107



### **Site Description:**

This site is a 24-inch culvert on Anderson Springs Road (38.77684' N, 122.68563' W). The culvert is on a tributary to Anderson Creek. The tributary is a seasonally dry channel while Anderson Creek is a Perennial fish bearing stream, in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The culvert is in a high burn area and looks to be very susceptible to plugging, and the culvert may be undersized for expected high flows. Plugging of this culvert will flood the road, forcing water onto property on opposite side. The threat is debris-laden flow piling up at the culverts and flooding onto road and home.

### **Emergency Response Protection Measure Recommendation:**

Clear debris from lower channel.  
Early warning system and evacuation.  
Flood diversion measures near house.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Any fish found downstream of the recommended work site would benefit if debris were removed from culvert inlet.

**Environmental Protective Measures**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 110

**Site Description:**

This site is a bridge located at Anderson Springs Road (38.77432' N, 122.69274' W). The bridge is located over the Anderson Creek channel. Anderson Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flow down Anderson Creek, causing debris pileup and flooding.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 111

**Site Description:**

This site is a bridge located upstream of a single family dwelling on Anderson Springs Road (38.77813' N, 122.68079' W). The bridge is located over the Anderson Creek channel. Anderson Creek is a perennial fish bearing stream in the Putah Creek watershed. The habitat type at this work site is mixed-riparian. The threat to existing infrastructure is debris-laden flow down Anderson Creek, causing debris pileup and flooding.

**Emergency Response Protection Measure Recommendation:**

Flood protection measures.  
Early warning system and storm patrol.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 112



### Site Description:

This site is a culvert at a private residence north of Highway 175 (38.77775' N, 122.67647' W). The culvert is located on a swale run-off to Putah Creek. The swale run-off is seasonally dry. The habitat type at this work site is grassland. The plastic culvert melted during the fire event and is no longer functional. The threat is flooding to the home and associated outbuildings.

### Emergency Response Protection Measure Recommendation:

Culvert replacement.  
Early warning system and storm patrol.  
Flood protection measures.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: two-carpellate western flax (*Hesperolinon bicarpellatum*)

A California Department of Fish and Wildlife survey was conducted at this location and no sensitive species were identified.

### Cultural Resources:

Since use of heavy equipment will likely be necessary to replace the damaged culvert, the cultural resource records search results for the Valley Fire (obtained from the NWIC) applicable to this location were reviewed; there are no known archaeological or historic-era sites anywhere nearby. Subsequently an archaeological survey was conducted, with negative results.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Storm drains lines/culverts shall be adequately sized to carry peak 100-year storm flows for the drainage to one outfall structure.

The storm drain lines/culverts and the outfall structure shall be properly aligned within the stream and otherwise engineered, installed and maintained, to assure resistance to washout, and erosion of the stream bed, stream banks and/or fill.

Culvert inlets, outlets (including the outfall area) and fill faces shall be armored where stream flow, road runoff or rainfall energy is likely to erode fill material and the outfall area. If necessary to prevent erosion, water velocity shall be dissipated at the outfall using rock slope protection.

Un-grouted rock slope protection (RSP) and energy dissipater materials shall consist of clean rock, competent for the application, sized and properly installed to resist washout.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

If CAL FIRE is to implement the recommended work, Sonoma-Lake-Napa Unit (LNU) Forester Kim Sone or LNU Division Chief Jim Wright shall notify Middletown Rancheria Tribal Historic Preservation Officer at least 48 hours in advance of the date the work is begin.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 113

**Site Description:**

This site is a 36 to 48-inch culvert near a single family dwelling with outbuilding located on Monte Vista Court (38.77714' N, 122.66990' W). The dwelling is located on an unnamed tributary to Putah Creek. The tributary is seasonally dry. Habitat type at this site is oak woodland. Site was heavily burned. The threat to existing infrastructure is debris-laden flow down the creek piling up on the culvert and causing flooding of nearby buildings.

**Emergency Response Protection Measure Recommendation:**

Monitor and clear culvert.  
Early warning system and storm patrol.  
Evacuation of Home.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 114

### Site Description:



This site is a water tank and water treatment facility located on a private road west of Harbin Springs Road (38.79453' N, 122.66614' W). The water tank and water treatment facility are located next to a swale run-off north of Harbin Creek. The run-off is seasonally dry. The habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Harbin Creek.

### Emergency Response Protective Measure Recommendation:

Early warning and storm patrol.  
Flood diversion measures.

### Environmental Protection Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 115

**Site Description:**

This site is a recreation facility located on a private road east of Harbin Springs Road (38.79110' N, 122.65312' W). The recreation facility is located uphill on the east side of Harbin Creek. Harbin Creek is a seasonally dry channel in the Putah Creek watershed. The habitat type is oak woodland. The threat to existing infrastructure is debris flow and run-off down the hill flooding the facility.

**Emergency Response Protective Measure Recommendation:**

Early warning, seasonal closure, and signage.

Flood protection measures.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 116



### **Site Description:**

This site is a bridge located on Big Canyon Road (38.77676' N, 122.61748' W). The bridge is located over the Harbin Creek channel. Harbin Creek is a seasonally dry channel in the Putah Creek watershed. The habitat type is oak woodland. There is a fence suspended from the bridge that obstructs debris passage when channel is flowing. The threat to existing infrastructure is debris buildup during high flow flooding the road and surrounding area.

### **Emergency Response Protection Measure Recommendation:**

Remove fencing obstructing stream channel.  
Early warning and storm patrol.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### **Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew and work only, no heavy equipment in stream channel.

Remove fencing so that it will not be re-deposited into stream channel. Use hand tools only.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 117

**Site Description:**

This site is multiple homes in a community along Putah Creek, in the vicinity of Santa Barbara and Napa Streets west of Middletown (38.76307' N, 122.62952' W). Putah Creek is a perennial fish bearing stream. The habitat type at this site is oak woodland. The threat is flooding to multiple single family dwellings.

**Emergency Response Protective Measure Recommendation:**

Early warning and evacuation.

Flood protection measures.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

**Site 118****Site Description:**

This site is a bridge located at Highway 175 (38.77223' N, 122.66386' W). The bridge is located over the Putah Creek channel. Putah Creek is a perennial fish bearing stream. The habitat type at this site is oak woodland. There is a large oak tree in the Putah Creek channel downstream of the bridge. The oak tree is located 30 yards northwest of mile post marker 25.06. The threat to existing infrastructure is debris-laden flooding and debris flow down Putah Creek piling on the tree and flooding the road.

**Emergency Response Protection Measure Recommendation:**

Remove fallen oak from stream channel. Do not remove the stump or roots of the tree.

**Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment in stream channel.

Remove woody debris so that it will not be re-deposited into stream channel.

No equipment maintenance or fueling shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Construction activities should avoid impacts to any existing stands of unburned native resources in a burned area (e.g. shrubs). Such habitat should be adequately marked.

Woody debris removed from stream channel shall be chipped, or lopped and scattered prior to inundation by flows.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 119

**Site Description:**

This site is a community of single family homes located near Main Street in Middletown (38.25062' N, 122.61407' W). The community is located along Saint Helena Creek. Saint Helena Creek is a seasonally dry channel in the Putah Creek watershed. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Saint Helena Creek.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of homes.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 120



### **Site Description:**

This site is a bridge located at Wardlaw Street in Middletown (38.75372' N, 122.61069' W). The bridge is located over the Saint Helena Creek channel. Saint Helena Creek is a seasonally dry channel, in the Putah Creek watershed. The habitat type is oak woodland. Saint Helena Creek is a seasonally dry channel. The bridge has a center support mid-channel. The threat to existing infrastructure is debris-laden flow down Saint Helena Creek piling up on the bridge support and causing damage to the bridge or flooding of local homes.

### **Emergency Response Protection Measure Recommendation:**

Clear vegetation in channel 200 feet upstream and downstream of the bridge.  
Early warning system and storm patrol.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### **Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crews only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany- Lorie Hammerli, Ben Ewing

Engineering- Michael Baldwin

Archeology- J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 121

**Site Description:**

This site is a single family dwelling located on Highway 29 and Saint Helena Lane in Middletown (38.76261' N, 122.60133' W). The house is along Lupiyoma Creek. Lupiyoma Creek is a seasonally dry channel in the Putah Creek watershed. The habitat type at this site is oak woodland. The threat is debris laden flooding to the house.

**Emergency Response Protective Measure Recommendation:**

Early warning and evacuation of home.  
Flood protection measures.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

**Site 122****Site Description:**

This site is a single family dwelling located on Highway 29 in Middletown (38.7581' N, 122.60319' W). The house is at the confluence of Putah Creek and Saint Helena Creek. Saint Helena Creek is seasonally dry while Putah Creek is a perennial fish bearing stream. The habitat type at this site is oak woodland. The threat is debris laden flooding to the house.

**Emergency Response Protective Measure Recommendation:**

Early warning and evacuation of home.  
Flood protection measures.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 123

**Site Description:**

This site is a single family home located on Highway 29 (38.79333' N, 122.56658' W). The house is located at the confluence of an unnamed tributary and Putah Creek. The unnamed tributary is a seasonally dry channel while Putah Creek is a perennial fish bearing stream. Habitat type at this site is predominantly grassland. The threat to existing infrastructure is debris-laden flooding and debris flow down Putah Creek rising to an elevation that will impact the home.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 124

**Site Description:**

This site is four family homes and three businesses located on Spruce Road between the two way points 38.7985' N, 122.57366' W and 38.79516' N, 122.56831 W. The homes and businesses are located along Putah Creek. Putah Creek is a perennial fish bearing stream. Habitat type at this site is grassland and valley oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Putah Creek rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of homes and businesses.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 125

**Site Description:**

This site is a pump station located on the Putah Creek levee near Gold Flat Court (38.78448' N, 122.54229' W). The pump station is located along the north side of Putah Creek. Putah Creek is a perennial fish bearing stream. Habitat type is grassland and sparse riparian vegetation. The threat to existing infrastructure is debris-laden flooding and debris flow down Putah Creek rising to an elevation that will impact the homes nearby. The pump is used to drain subdivision runoff from behind the levee into Putah Creek. The pump is burned and is inoperable which increases risk of flooding of homes.

**Emergency Response Protection Measure Recommendation:**

Replace Pump.

Early warning of flood events and evacuation of homes.

Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 126



### Site Description:

This site is a bridge located on Hartmann Road (38.80014' N, 122.54394' W). The bridge is located southwest of Site 127 on Gallagher Creek, a tributary to Coyote Creek, in the Putah Creek watershed. The habitat type at this site is emergent vegetation (tules and cattail). Pondered water was present at the time of site review. The creek may experience higher than average flow events and debris laden flow. The threat is debris-laden flow piling up at the bridge and on in-channel vegetation flooding the campground, Hartmann Road, and surrounding buildings.

### Emergency Response Protection Measure Recommendations:

The work is associated with Site 127. Remove vegetation in channel approximately 100 feet south of the bridge.

Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include:

Western pond turtle (*Actinemys marmorata*) and foothill yellow-legged frog (*Rana boylei*).

A California Department of Fish and Wildlife survey was conducted at this location and no sensitive species were identified.

### Cultural Resources:

Since use of heavy equipment will likely be necessary to complete the recommended work, the cultural resource records search results for the Valley Fire (obtained from the NWIC) applicable to this location

were reviewed; there are no known archaeological or historic-era sites anywhere nearby. Subsequently an archaeological survey was conducted, with negative results.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Prior to and during work, the site shall be inspected for Sensitive Natural Resources. Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

No heavy equipment or vehicles in the channel.

Work shall begin south of the bridge over Hartmann Road where the creek is dry and work north.

If feasible, work shall be completed prior to 0.5 inches or greater of rainfall and during periods of low or no water flow.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

If CAL FIRE is to implement the recommended work, Sonoma-Lake-Napa Unit (LNU) Forester Kim Sone or LNU Division Chief Jim Wright shall notify Middletown Rancheria Tribal Historic Preservation Officer at least 48 hours in advance of the date the work is to begin.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 127



### Site Description:

This site is located on Hartmann Road adjacent to Hidden Valley Lake Campground (38.79904' N, 122.55145' W). This work location is on Gallagher Creek, a tributary to Coyote Creek, in the Putah Creek watershed. The habitat type within this reach of Gallagher Creek is mixed-riparian and emergent vegetation. This section of Gallagher Creek is downstream of the burn area and upstream of the bridge at Hartmann Road (Site 126). The creek may experience higher than average flow events and debris laden flow. The threat is debris laden flow backing up on in-stream vegetation or at the bridge at Hartmann Road and flooding the campground, Hartmann Road, and surrounding buildings.

### Emergency Response Protection Measure Recommendation:

Remove vegetation in channel approximately 150 feet north of the bridge.

Flood protection measures.

Early warning system and evacuation.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: western pond turtle (*Actinemys marmorata*) and foothill yellow-legged frog (*Rana boylei*).

A California Department of Fish and Wildlife survey was conducted at this location and no sensitive species were identified.

### Cultural Resources:

Since use of heavy equipment will likely be necessary to complete the recommended work, the cultural resource records search results for the Valley Fire (obtained from the NWIC) applicable to this location were reviewed; there are no known archaeological or historic-era sites anywhere nearby. Subsequently an archaeological survey was conducted, with negative results.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Prior to and during work, the site shall be inspected for Sensitive Natural Resources. Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

No heavy equipment or vehicles in the channel.

Work shall begin south of the bridge over Hartmann Road where the creek is dry and work north.

If feasible, work shall be completed prior to 0.5 inches or greater of rainfall and during periods of low or no water flow.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

If CAL FIRE is to implement the recommended work, Sonoma-Lake-Napa Unit (LNU) Forester Kim Sone or LNU Division Chief Jim Wright shall notify Middletown Rancheria Tribal Historic Preservation Officer at least 48 hours in advance of the date the work is to begin.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 128



### Site Description:

This site is a single family home with outbuildings and culverts on Hartmann Road (38.80014' N, 122.54394' W). The home is located at the convergence of Gallagher Creek and an unnamed tributary. Gallagher Creek and the tributary are seasonally dry channels, in the Putah Creek watershed. The habitat type at this work site is oak woodland. There are three, 36-inch culverts under the access drive across Gallagher Creek. Several dead trees are blocking the entrance to the culverts. The threat is debris laden flow piling up at the culverts causing flooding onto the home. In addition, general flooding at the convergence will put the property at risk

### Emergency Response Protection Measure Recommendation:

Clear dead trees in Gallagher Creek 200 feet upstream of culverts.

Flood diversion measures along both channels.

Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish found downstream of the recommended work would benefit if debris were cleared from culvert in order to clear way for fish passage.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 129

**Site Description:**

This site is two homes with outbuildings on Hartmann Road (38.80037' N, 122.54012' W). Gallagher Creek transects both properties. Gallagher Creek is a seasonally dry channel in the Putah Creek watershed. The habitat type at this site is oak woodland. There are two private drives with four 36-inch culverts crossing the creek. The threat to existing infrastructure is debris-laden flow piling up on culverts causing flooding and damaging facilities nearby.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of property.  
Monitor and remove debris.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 130



### **Site Description:**

This site has three 60-inch culverts located on Stinson Road (38.80104' N, 122.54195' W). The culverts are located on Gallagher Creek. Gallagher Creek is a seasonally dry channel in the Putah Creek watershed. The habitat type at this site is oak woodland. The channel has several dead trees obstructing the culverts. The threat to existing infrastructure is debris-laden flow down Gallagher Creek piling up on the culverts and causing flooding of road and local homes.

### **Emergency Response Protection Measure Recommendation:**

Clear trees in channel 200 feet upstream and downstream of culverts.  
Early warning system and storm patrol.  
Monitor and clear culverts.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

Species that have potential to occur in this habitat include: western pond turtle (*Emys marmorata*) and foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish found downstream of the recommended work site would benefit if obstructions were removed from culverts.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 131

**Site Description:**

This site is a single family home located on Stinson Road (38.80197' N, 122.54121' W). The home is in the area of the Gallagher Creek channel. Gallagher Creek is a seasonally dry channel in the Putah Creek watershed. Habitat type at the site is oak woodland. The threat to existing infrastructure is runoff and sediment from the burned slope behind the home and adjacent parcel. Homeowner reports occasional ponding from runoff that does not reach the home.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Flood diversion measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 132

**Site Description:**

This site is a single family home located on Stinson Road (38.80172' N, 122.54339' W). The home is located adjacent to an unnamed tributary to Gallagher Creek. The tributary is a seasonally dry channel in the Putah Creek watershed. Habitat type at the site is oak woodland. The threat to existing infrastructure is runoff and sediment from the burned slope behind the home and adjacent parcel.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Flood diversion measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 133



### Site Description:

This site is a single family home with outbuildings located on Stinson Road (38.80201' N, 122.54454' W). The property is located along an unnamed tributary of Gallagher Creek. The tributary is a seasonally dry channel in the Putah Creek watershed. The habitat type at this site is oak woodland. There are two arch type culverts with a vertical clearance of 24-inches where the tributary crosses Stinson Road and two 48-inch culverts under a private drive on the property across the creek. The threat is debris-laden flow blocking the culverts causing flooding to the home as well as flooding Stinson Road.

### Emergency Response Protection Measure Recommendation:

Early warning system and storm patrol.  
Monitor and clear culverts.  
Flood diversion measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 134

**Site Description:**

This site is a 48-inch culvert on Sandy Road (38.80605' N, 122.55147' W). The culvert is on an unnamed tributary to Gallagher Creek. The tributary is a seasonally dry channel in the Putah Creek watershed. The habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flow down the creek blocking the culvert and causing flooding of the road and nearby area.

**Emergency Response Protection Measure Recommendation:**

Monitor and clear culvert.

Early warning system and storm patrol.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 135

**Site Description:**

This site includes a campground and private access bridge on Bottle Rock Road (38.85387' N, 122.75888' W). The campground is located on Kelsey Creek. Kelsey Creek is a perennial fish bearing stream. Habitat type at this site is mixed-conifer. The threat to existing infrastructure is debris-laden flow and debris flow down Kelsey Creek piling on bridge and flooding nearby campsites and facilities or damaging bridge.

**Emergency Response Protection Measure Recommendation:**

Monitor and clear debris.  
Early warning system and storm patrol.  
Evacuation

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 136

**Site Description:**

This site includes a campground and cabins on Bottle Rock Road (38.83104' N, 122.72789' W). The campground and cabins are on Kelsey Creek. Kelsey Creek is perennial fish bearing stream. Habitat type at this site is mixed-conifer. The threat is debris-laden flooding and debris flow down Kelsey Creek rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of homes.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 137



### **Site Description:**

This site includes multiple single-family dwellings in an area on and between Loconomi Road and Eureka Road in the Long Valley area (38.74824' N, 122.57774' W). The homes are located along an unnamed tributary to Putah Creek. The tributary is a seasonally dry channel. Habitat type at this work site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down the channel rising to an elevation that will impact the homes.

### **Emergency Response Protection Measure Recommendation:**

Monitor and clear culvert.  
Early warning system and storm patrol.  
Evacuation of home.  
Flood protection measures.

### **Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 139

**Site Description:**

This site is a 24-inch culvert located on Butts Canyon Road (38.70519' N, 122.46407' W). The culvert is located on Butts Creek. Butts Creek is a seasonally dry channel in the Putah Creek watershed. Habitat type at this work site is oak woodland. The threat to existing infrastructure is debris-laden flow down the drainage piling up on the culvert and causing flooding of road and nearby area.

**Emergency Response Protection Measure Recommendation:**

Monitor and clear culvert.  
Early warning system and storm patrol.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 140



### Site Description:

This site is a 12-foot culvert located on Butts Canyon Road (38.71024' N, 122.47591' W). The culvert is located on Butts Creek. Butts Creek is a seasonally dry channel in the Putah Creek watershed. Habitat type at this work site is oak woodland. The culvert is askew to the direction of the channel and is showing about 6-inches of scour below the inlet. The threat to existing infrastructure is debris-laden flooding and debris flow down Butts Creek rising to an elevation that will clog the culvert and the channel and causing flooding of Big Canyon Road.

### Emergency Response Protection Measure Recommendation:

Fill scour area with appropriately size rip-rap to even grade with inlet.  
Early warning and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Remove all debris such that it will not re-enter the stream channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 141



### Site Description:

This site is an approximately 30-inch culvert on Butts Canyon Road (38.71401' N, 122.48257' W). The culvert is located in a drainage swale to Butts Creek. The drainage swale is seasonally dry and in the Putah Creek watershed. Habitat type at this site is oak woodland. The culvert is covered with up to 60-feet of fill. Inlet is below watercourse level. There is a high chance of plugging. The threat to existing infrastructure is debris-laden flow down the creek piling up on the culvert and causing flooding of road and nearby area.

### Emergency Response Protection Measure Recommendation:

Remove accumulated sediment approximately 20 feet upstream of culvert inlet.  
Install flared metal inlet or culvert riser.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Aquatic resources located downstream of the recommended work site would benefit if accumulated sediment is removed.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 142



### Site Description:

This site is two 48-inch culverts located on Butts Canyon Road (38.7178' N, 122.49262' W). The culverts are located on an unnamed tributary to Butts Creek. The tributary is a seasonally dry channel, in the Putah Creek watershed. Habitat type at this site is oak woodland. The unnamed tributary is seasonally dry. The outlets of the culverts are approximately 2.5 feet below the normal stream bed profile, increasing the risk of debris clogging the culverts. The threat is debris-laden flow piling up at the culverts and flooding onto the road.

### Emergency Response Protection Measure Recommendation:

Remove debris and sediment that is plugging the inlet; contour streambed material to lower gradient in front of culverts.

Early warning system and storm patrol.

Monitor and clear debris.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Removing debris and sediment upstream from culvert inlet will increase fish passage accessibility.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 143

**Site Description:**

This site is a 48-inch culvert located on Butts Canyon Road (38.71824' N, 122.49591' W). The culvert is located on an unnamed tributary to Butts Creek. The tributary is a seasonally dry channel, in the Putah Creek watershed. Habitat type at this work site is oak woodland. The culvert is askew to the channel and has a barbed wire fence obstructing the inlet. The threat to existing infrastructure is debris-laden flow down the creek piling up on the fence and culvert and causing flooding of road and nearby area.

**Emergency Response Protection Measure Recommendation:**

Remove fence obstructing stream channel.  
Monitor and clear culvert.  
Early warning system and storm patrol.

**Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

Species that have potential to occur in this habitat include: Foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

Remove fencing so that it will not be re-deposited into stream channel.

Use hand tools only.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 146

**Site Description:**

This site is a small neighborhood of single family homes located on Gold Flat Court, Oak Flat Road, Mountain Meadow Road, Horseshoe Court, Gooselake Court, Glencove Court, Magnolia Court, and Dove Court (38.78463' N, 122.53917' W). The neighborhood is located at the confluence of Coyote Creek and Putah Creek on the west end and along Putah Creek downstream. Coyote Creek is a seasonal dry creek while Putah Creek is a perennial fish bearing stream. Habitat type at this site is sparse riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Coyote Creek and Putah Creek rising to an elevation that will overtop the levee and impact the neighborhood.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of homes.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 500



### Site Description:

This site is two culverts in series near a home located on Casa Grande Lane (38.78982' N, 122.68872' W). The culverts are conveying flow under the driveway into a confined drainage leading to another single residence (Site 501). The channel is seasonally dry and is located in the Putah Creek watershed. Habitat type at this site is oak woodland. The threat to existing infrastructure is increased flow and debris-laden flow blocking the culverts impacting the home downslope and possibly overtopping Casa Grande Lane.

### Emergency Response Protection Measure Recommendation:

Early warning of flood events and evacuation of home.  
Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 501



### Site Description:

This site includes one house and culvert located on Casa Grande Lane (38.78431' N, 122.68903' W). The culvert drains a swale in the Putah Creek watershed. Habitat type at this site is oak woodland. The culvert discharges above the house, which then flows into a constrained masonry channel that bends around the home. The threat to existing infrastructure is debris-laden flow down the swale piling up on the culvert and causing flooding of road and home.

### Emergency Response Protection Measure Recommendation:

Monitor and clear culvert.  
Early warning system and storm patrol.  
Evacuation of home.  
Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 502



### **Site Description:**

This site is a bridge located on Casa Grande Lane (38.78788' N, 122.69284' W). The bridge is located over the Putah Creek channel. Putah Creek is a perennial fish bearing stream. The habitat type at this site is oak woodland. There are legacy bridge pilings downstream of the bridge. The threat to existing infrastructure is debris-laden flooding and debris flow down Putah Creek catching on the legacy pilings.

### **Emergency Response Protection Measure Recommendation:**

Remove woody debris 200 feet upstream and downstream of bridge. Leave concrete footings in place. Early warning system and storm patrol.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### **Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall be completed prior to January 1.

Hand crew work only, no heavy equipment in stream channel.

Remove woody debris so that it will not be re-deposited into stream channel.

No equipment maintenance or fueling shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Woody debris removed from stream channel shall be chipped or lopped and scattered.

There shall be no piling/burning of woody debris.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Construction activities should avoid impacts to any existing stands of unburned native resources in a burned area (e.g. shrubs). Such habitat should be adequately marked.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 503



### Site Description:

This site is a house under construction and a wine storage facility located on McKinley Drive (38.78438' N, 122.68629' W). The house is located along an unnamed tributary to Putah Creek. The tributary had water flowing at time of visit. Habitat at this site is oak woodland. Multiple structures are located adjacent to tributary, increasing the chance of debris clogging and local flooding. The threat to existing infrastructure is debris-laden flooding and debris flow down the creek rising to an elevation that will impact the home.

### Emergency Response Protection Measure Recommendation:

Monitor and clear debris.  
Early warning system and storm patrol.  
Evacuation of Home.  
Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 504



### Site Description:

This site is a culvert under a private road providing access to Highway 175 (38.79133' N, 122.70031' W). The culvert is located at an unnamed tributary to Putah Creek. The tributary is a seasonally dry channel. The habitat type at this work site is pine-oak woodland. The channel is laden with dead woody debris. The threat is debris-laden flow piling up at the culvert and flooding onto the private drive as well as Highway 175.

### Emergency Response Protection Measure Recommendation:

Clear dead trees and debris in unnamed tributary 200 feet upstream and downstream of culvert. Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

A California Department of Fish and Wildlife survey was conducted at this location and no sensitive species were identified.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Prior to and during work, the site shall be inspected for Sensitive Natural Resources. Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crew work only, no heavy equipment or vehicles in the channel. No heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Embedded material and trees roots shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Reviewed by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 505

**Site Description:**

This site includes two single family homes located on Parnassus Drive (38.80953' N, 122.71228' W). The houses are located in a swale in the Putah Creek watershed. Habitat type at this site is mixed-conifer forest. The threat to existing infrastructure is debris-laden flooding and debris flow down the swale, flooding the road and damaging the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of homes.  
Road closure during storms and warning signage.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 506

**Site Description:**

This site is two single family dwellings located on Maple Shadows Road (38.81098' N, 122.71249' W). The houses are located adjacent to an unnamed tributary to Putah Creek. This channel is a perennial flowing stream. Habitat type at this site is mixed-riparian. The channel is inundated with ivy. The threat to existing infrastructure is increased flow volume and debris flow rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 507

**Site Description:**

This site is a single family dwelling located on Maple Shadows Drive (38.81086' N, 122.71020' W). The house is located along an unnamed tributary to Putah Creek. The unnamed tributary is a perennial stream. Habitat type at this site is mixed-conifer. The threat to existing infrastructure is debris-laden flooding and debris flow down the unnamed tributary rising to an elevation that will impact the home.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 508



### Site Description:

This site is a recreation hall and outdoor chapel located on Forest Lake Drive (38.81702' N, 122.71568' W). The buildings are located along Kelsey Creek. Kelsey Creek is a perennial fish bearing stream. Habitat type at this site is mixed-riparian. Three culverts converge at this location conveying flows into Kelsey Creek. The threat to existing infrastructure is increased flow and debris overwhelming the culverts causing flooding of the recreation hall and outdoor chapel.

### Emergency Response Protection Measure Recommendation:

Routine maintenance of culvert and clear accumulated debris.  
Flood diversion measures along channel.  
Early warning system and storm patrol.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 509

**Site Description:**

This site includes a private family home and bridge located on Cobb Blvd. (38.82199' N, 122.71492' W). The house is located along Jones Creek. Jones Creek is a perennial fish bearing stream in the Kelsey Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flow down the creek piling up on the bridge and causing flooding of road and nearby home.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of home.  
Monitor and clear bridge.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 510



### Site Description:

This site is a golf clubhouse and course on Golf Road (38.82201' N, 122.71598' W). The clubhouse and course is located adjacent to Jones Creek. Jones Creek is a perennial fish bearing stream in the Kelsey Creek watershed. The habitat type at this work site is mixed-riparian. Multiple culverts converge into the outfall next to the golf clubhouse. There is dense vegetation and debris in the channel upstream of this site. The threat to existing infrastructure is debris-laden flooding and debris flow down Jones Creek.

### Emergency Response Protection Measure Recommendation:

Remove Himalayan blackberries (*Rubus armeniacus*) and loose woody debris from within 200 feet of culvert inlet located at Golf and Cobb Road.  
Flood diversion measures along channel.  
Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Clear Lake hitch (*Lavinia exilicauda chi*).

A California Department of Fish and Wildlife survey was conducted at this location and no sensitive species were identified.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Prior to and during work, the site shall be inspected for Sensitive Natural Resources.

Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crew work only, no heavy equipment or vehicles in the channel. No heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Embedded material and trees roots shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Reviewed By:**

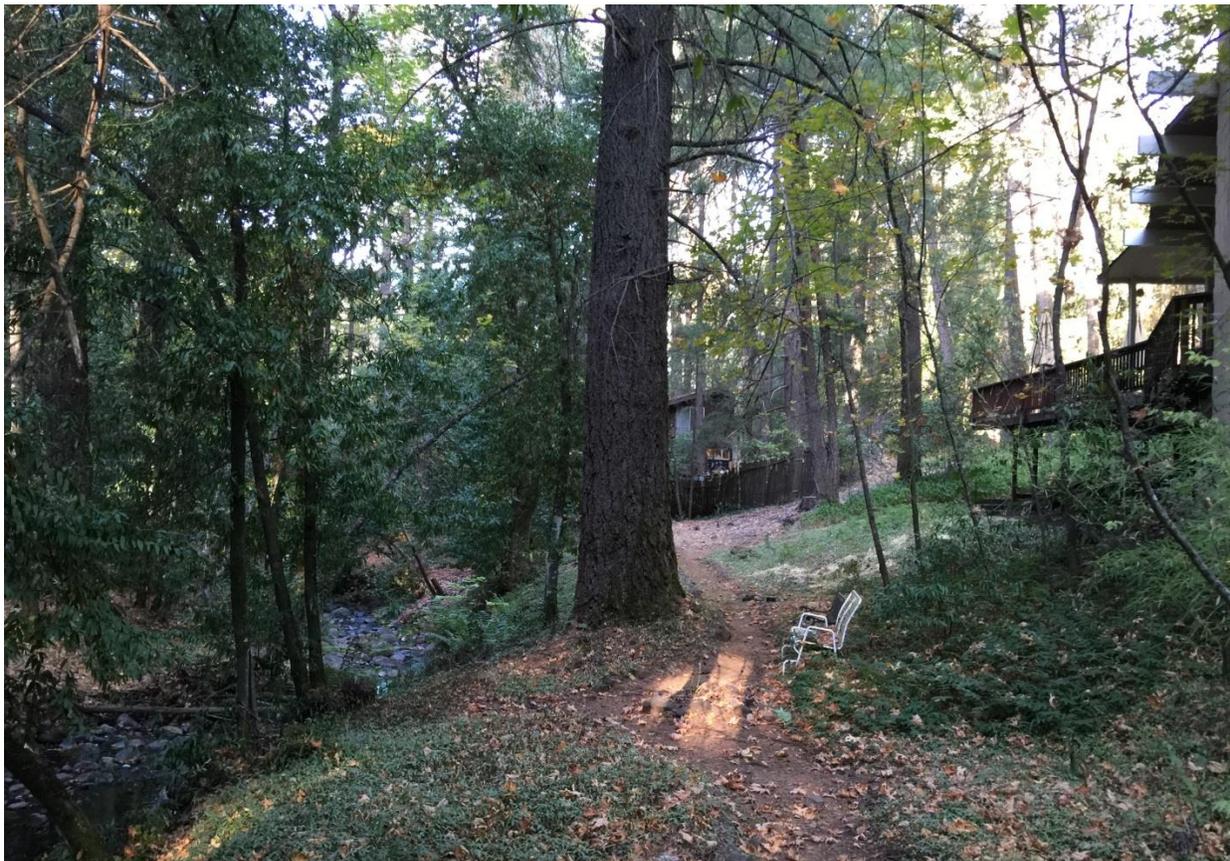
Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 511

**Site Description:**

This site includes multiple single-family dwellings located along Twin Oaks Drive (38.82172' N, 122.71304' W). The homes are located along Jones Creek. Jones Creek is a perennial fish bearing stream, in the Kelsey Creek watershed. Habitat type at this work site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Jones Creek rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of Home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 512



### Site Description:

This site is near multiple single family homes located on Reed Road (38.82077' N, 122.72399' W). The homes are located at an unnamed tributary to Kelsey Creek. Little flow present at the time of the site review. Habitat type at this site is mixed-riparian. A culvert conveys flow under Reed Road. Threat to existing infrastructure is debris-laden flooding and debris flow down the tributary from steep (45-50%) slopes to the downslope neighborhood. There are multiple pipes in the tributary that may increase the risk of flooding due to debris obstruction.

### Emergency Response Protection Measure Recommendation:

Prior to rain events the culvert and channel should be maintained and loose debris removed. This site should be monitored during rain fall events for debris and flooding. Early warning and evacuation of homes. Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 513



### **Site Description:**

This site included businesses, homes, and bridges located near the Cobb village center, along Highway 175 (38.82403' N, 122.72139' W). The structures are located along Kelsey Creek. Kelsey Creek is a perennial fish bearing stream. Habitat type at this work site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Kelsey Creek rising to an elevation that will impact the homes and businesses.

### **Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of homes and businesses.  
Flood protection measures.

### **Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 514

**Site Description:**

This site is multiple single family residences in the vicinity of Bottle Rock and Highway 175 (38.82421' N, 122.72352' W). The residences are located along Kelsey Creek. Kelsey Creek is a perennial fish bearing stream. The habitat type is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Kelsey Creek rising to an elevation that will impact the homes.

**Emergency Response Protective Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of homes.  
Flood protection measures.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 515

**Site Description:**

This site includes two single family homes located on Rainbow Drive (38.82742' N, 122.72665' W). The homes are located along Kelsey Creek. Kelsey Creek is a perennial fishing bearing stream. Habitat type at this work site is mixed-riparian. The threat is debris-laden flow down the channel causing flooding and debris flow related damage to homes.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of homes.  
Flood diversion measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 517



### Site Description:

This site is a bridge along Seigler Canyon Road (38.89533' N, 122.65088' W). The bridge is located over Seigler Canyon Creek. Seigler Creek was flowing at time of visit and in the Cache Creek watershed. Habitat at this site is mixed-riparian. The bridge's downstream edge is starting to fail and high debris flows may further damage the bridge. The threat to existing infrastructure is debris-laden flow down the creek piling up on the bridge and causing flooding of road and compromising bridge.

### Emergency Response Protection Measure Recommendation:

Clear vegetation 200 feet upstream and downstream of bridge.

Early warning system and storm patrol.

Monitor and clear debris.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda ssp. chi*)

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Cultural Resources:

Although the bridge deck is of modern construction, the abutments that support it are built of uncut, dry-laid stones. These rock abutments comprise an archaeological feature of unknown date that demonstrates an early construction bridge building technique. An historical resource record documenting these features was completed and will be filed with the NWIC.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

There shall be no piling/burning of woody debris.

Impacts to the stone bridge abutments shall be avoided.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 518

**Site Description:**

This site is a private bridge off of Seigler Canyon Road (38.89415' N, 122.65332' W). The bridge is located over Seigler Canyon Creek. Seigler Creek was flowing at time of visit and in the Cache Creek watershed. The habitat at this site is mixed-riparian. The bridge has a concrete center support wall in the channel. The threat to existing infrastructure is debris-laden flow down the creek piling up on the bridge and causing flooding of road and nearby area.

**Emergency Response Protection Measure Recommendation:**

Clear vegetation 200 feet upstream and downstream of bridge.  
Early warning system and storm patrol.  
Monitor and clear debris.

**Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda ssp. chi*) and foothill yellow-legged frog (*Rana boylei*).

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Prior to and during work, the site shall be inspected for Sensitive Natural Resources. Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Remove all debris such that it will not re-enter the stream channel.

Operator shall take all necessary steps to minimize sediment and reduce stream turbidity.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 519



### Site Description:

This site is a bridge on Seigler Canyon Road (38.87958' N, 122.67556' W). The bridge is located over Seigler Canyon Creek. Seigler Creek was flowing at time of visit and in the Cache Creek watershed. Habitat type at this site is mixed-riparian. Bridge is narrow and has been reduced to single lane traffic with K-rails set to protect bridge edges. The threat to existing infrastructure is debris-laden flow down the creek piling up on the bridge and causing flooding of road and nearby area.

### Emergency Response Protection Measure Recommendation:

Clear vegetation 200 feet upstream and downstream of bridge.

Early warning system and storm patrol.

Monitor and clear debris.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda ssp. chi*) and foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Cultural Resources:

Although the bridge deck is of modern construction, the abutments that support it are built of uncut, dry-laid stones. These rock abutments comprise an archaeological feature of unknown date that demonstrates an early construction bridge building technique. Near the bridge is an artificial flat supported by a retaining wall comprised of dry-laid local uncut stone. A scatter of rusted cans, exposed by the recent fire, was found on the flat. This refuse scatter included sanitary machine-made cans, all-metal punch-top opened beer cans, an enamelware basin and a glass soft drink bottle. Analysis of the manufacturing techniques of these items suggested that they all date to the mid-to-late 1950s. An historical resource record documenting these features was completed and will be filed with the NWIC.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Prior to and during work, the site shall be inspected for Sensitive Natural Resources. Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Construction activities should avoid impacts to any existing stands of unburned native resources in a burned area (e.g. shrubs). Such habitat should be adequately marked.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

The stone bridge abutments, stone retaining wall and refuse scatter shall be avoided while the prescribed channel work is done.

The refuse scatter shall be left in place without flagging to spare it unintentional attention.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 520



### **Site Description:**

This site is a single family home on Ettawa Springs Road (38.85015' N, 122.69913' W). The home is located above the convergence of Big Canyon Creek and Mill Creek. Big Canyon Creek and Mill Creek are perennial fish bearing streams, in the Putah Creek watershed. The habitat type at this work site is mixed-riparian. The access bridge along Ettawa Springs Road was destroyed by the fire and a temporary footbridge is in place. Several dead trees have fallen in the channel from the upstream burn area. A local landowner reported significant runoff from the hill behind the home during rain events. The threat is debris-laden flow and debris flooding onto home, runoff and erosion, as well as high water at the convergence threatening the building.

### **Emergency Response Protection Measure Recommendation:**

Clear woody debris 200 feet upstream and downstream of convergence on Big Canyon Creek.  
Clear woody debris 200 feet upstream of convergence on Mill Creek.  
Flood diversion measures above home and along channels.  
Early warning system and storm patrol.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish found downstream of the recommended work would see a net benefit if debris blockage was removed. Debris blockage is severe enough that it impedes fish passage upstream.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 521



### Site Description:

This site is a single family home on Ettawa Springs Road (38.85089' N, 122.69658' W). The home is located along Big Canyon Creek. Big Canyon Creek is a perennial fish bearing stream, in the Putah Creek watershed. The habitat type at this work site is mixed-riparian. The access bridge on Ettawa Springs Road was destroyed; there is a temporary footbridge in place. A roadside ditch collects and conveys water from the hillside and roadway away from the home. The ditch has two culverts that discharge into Big Canyon Creek. The culverts are spaced approximately 300 feet apart.

The 12-inch culvert inlet at the lower end of the property is half blocked by buildup of roughly one foot of rock and dirt over a 3-foot by 6-foot collection area. This culvert runs under the yard of the home into the creek and poses a high risk for road erosion and flooding of property. The 8-inch culvert at the upper end of the property is also partially blocked by sediment. Clogging of this culvert will send overflow water down the road towards the home. The ditch between the two culverts is full of rocks and

sediment along a 30-foot segment just below the culvert at the upper end of the property. There are several fallen trees in the stream channel that also pose a debris flooding hazard for the home.

**Emergency Response Protection Measure Recommendation:**

Remove rock and sediment plugging the inlet of both culverts.

Remove rocks and sediment from the ditch channel along property.

Smooth the grade along ditch between the culverts to facilitate proper drainage.

Clear woody debris from the stream channel along property.

Flood diversion measures.

Early warning system and storm patrol.

**Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 522

**Site Description:**

This site is a single family home located on Ettawa Springs Road (38.85122' N, 122.69420' W). The house is located along Big Canyon Creek. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Big Canyon Creek rising to an elevation that will impact the home.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 523

**Site Description:**

This site is a group of resort cabins, outbuildings and an access bridge on Ettawa Springs Road (38.85142' N, 122.69241' W). The buildings are located along Big Canyon Creek. Big Canyon Creek is perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Big Canyon Creek.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 524



### Site Description

This site is a private bridge located off of Highway 29 (38.84562' N, 122.60915' W). The bridge crosses Harris Creek. Harris Creek is a seasonally dry channel in the Cache Creek watershed. The habitat type at this site is oak woodland. The threat is debris flow piling on the bridge and flooding along Highway 29.

### Emergency Response Protective Measure Recommendation

Remove oak branch that is in the stream channel 30 yards south of bridge.  
Early warning, signage, and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical)

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda* ssp. *chi*).

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Environmental Protective Measures

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment in stream channel.

Remove oak branch so that it will not be re-deposited into stream channel.

No equipment maintenance or fueling shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Woody debris removed from stream channel shall be chipped, or lopped and scattered.

There shall be no piling/burning of woody debris.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Construction activities should avoid impacts to any existing stands of unburned native resources in a burned area (e.g. shrubs). Such habitat should be adequately marked.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 525

**Site Description:**

This site is a private bridge located off of Highway 29 (38.84745' N, 122.61152' W). The bridge crosses Harris Creek. Harris Creek is a seasonally dry channel in the Cache Creek watershed. The habitat type is oak woodland. The threat is debris-laden flow piling on bridge and flooding along Highway 29.

**Emergency Response Protective Measure Recommendation:**

Early warning and storm patrol.  
Monitor and clear debris.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 526

**Site Description:**

This site is bridge located on a private road west of Highway 29 (38.84131' N, 122.61196' W). The bridge is located at Harris Creek. Harris Creek is a seasonally dry creek in the Cache Creek watershed. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow piling up on the bridge, flooding the surrounding area and/or damaging the bridge.

**Emergency Response Protection Measure Recommendation:**

Prior to rain events upstream of the bridge should be inspected and loose debris removed. This site should be monitored during rainfall events for debris and flooding. Early warning of flood events and storm patrol.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 527

**Site Description:**

This site is two single family dwellings located near the corner of Big Canyon Road and Aqua Dulce Drive (38.85837' N, 122.62817' W). The two homes are near Copsy Creek. Copsy Creek is a seasonally dry channel in the Cache Creek watershed. The habitat type at this site is oak woodland. The threat is flooding and debris-laden flow to the homes.

**Emergency Response Protective Measure Recommendation:**

Early warning and evacuation of homes.  
Flood protection measures.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 528

**Site Description:**

This site is a single family home and business on Highway 29 (38.86505' N, 122.62446' W). The house is located on the west side of Copsey Creek. Copsey Creek is a seasonally dry channel in the Cache Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Copsey Creek rising to an elevation that will impact the home and business.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 529



### Site Description:

This site is a culvert located off of Highway 29 (38.88235' N, 122.60846' W). The culvert is located along an unnamed tributary to Copsey Creek near the confluence of both streams. The unnamed tributary and Copsey Creek are seasonally dry channels in the Cache Creek watershed. The habitat type at this site is oak woodland. The threat is debris-laden flow clogging in the culvert and flooding the Highway 29 and nearby homes.

### Emergency Response Protective Measure Recommendation:

Remove wooden flap gate and vegetation at culvert outlet.  
Early warning and storm patrol.  
Monitor and clear culvert.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda* ssp. *chi*).

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish found downstream of the recommended work would see a net benefit if culvert was cleared of debris and flap gate.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment in stream channel.

Remove woody debris so that it will not be re-deposited into stream channel.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Construction activities should avoid impacts to any existing stands of unburned native resources in a burned area (e.g. shrubs). Such habitat should be adequately marked.

Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

No equipment maintenance or fueling shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Woody debris removed from stream channel shall be chipped, or lopped and scattered.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

**Site 530****Site Description:**

This site is a bridge located on Riata Road (38.8828' N, 122.60618' W). The house is located on Copsey Creek. Copsey Creek is a seasonally dry creek in the Cache Creek watershed. Habitat type at this site is mixed-riparian. The bridge has a center piling that can catch debris. The threat to existing infrastructure is debris-laden flooding and debris flow down Copsey Creek piling up on the bridge, impacting Riata Road, the surrounding area, and nearby homes.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of homes.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 531

**Site Description:**

This site is a single family home located on Ellen Springs Court (38.8943' N, 122.59821' W). The house is located along the west side of Copsey Creek. Copsey Creek is a seasonally dry channel in the Cache Creek watershed. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Copsey Creek, rising to an elevation that will impact the home.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 532



### Site Description:

This site is a bridge on Perini Road (38.90324' N, 122.63936' W). The bridge is located over Seigler Canyon Creek. Seigler Canyon Creek is a seasonally dry channel, in the Cache Creek watershed. Habitat type at this site is mixed-riparian. There is moderate in-channel vegetation present. The threat to existing infrastructure is debris-laden flow down the creek piling up on the bridge and causing flooding of road and nearby area.

### Emergency Response Protection Measure Recommendation:

Clear vegetation 200 feet upstream and downstream of bridge.  
Early warning system and storm patrol.  
Monitor and clear debris

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda ssp. chi*) and foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Remove all debris such that it will not re-enter the stream channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 533

**Site Description:**

This site includes outbuildings and other unknown structures located on Seigler Canyon Road (38.90731' N, 122.63621' W). The structures are located along Seigler Canyon Creek. Seigler Canyon Creek is a seasonally dry creek, in the Cache Creek watershed. Habitat type at this site is oak woodland. Seigler Canyon Creek is a seasonally dry channel. The threat to existing infrastructure is debris-laden flooding and debris flow down Seigler Canyon Creek rising to an elevation that will impact the structures.

**Emergency Response Protection Measure Recommendation:**

Early warning and evacuation.

Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 534



### Site Description:

This site is a mobile home located on Bell Avenue (38.90919' N, 122.61626' W). The home is located adjacent to Seigler Canyon Creek. Seigler Canyon Creek is a seasonally dry creek, in the Cache Creek watershed. The habitat type at this work site is mixed-riparian. This reach of Seigler Canyon Creek is restricted by Bell Park Bridge and Highways 29 and 53. This work site is northeast of the burn area. The threat is inundation due to increased flow volume and debris-laden flow.

### Emergency Response Protection Measure Recommendation:

Clear loose debris, Himalayan blackberry (*Rubus armeniacus*), and small, woody vegetation from Bell Bridge to Highway 29.

Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include:

Clear Lake hitch (*Lavinia exilicauda chi*) and foothill yellow-legged frog (*Rana boylei*).

A California Department of Fish and Wildlife survey was conducted at this location and no sensitive species were identified.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Prior to and during work, the site shall be inspected for Sensitive Natural Resources. Any wildlife encountered during the course of work shall be allowed to leave the work area unharmed.

Hand crews only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

**Review by:**

Fisheries, Wildlife, Botany - Lorie Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 535



### Site Description:

This site is two single family homes on Morgan Valley Road (38.90805' N, 122.595' W). The homes are located along Copsey Creek downstream from a large arch culvert (25 feet high). Copsey Creek is a seasonally dry channel in the Cache Creek watershed, however multiple landowners report significant fish presence and spawning when water is present. The habitat type at this work site is oak woodland. There is a significant amount of woody vegetation present in the channel. Strong storm runoff last year brought the high water line within a foot of overtopping the retaining wall along the homes. The threat is debris-laden flooding and debris flows damaging the home and property.

### Emergency Response Protection Measure Recommendation:

Clear approximately 300 feet of woody vegetation along the bottom of the channel to increase flow volume.

Flood diversion measures along retaining wall/dirt berm.

Early warning and evacuation.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda ssp. chi*) and foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site. A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish and amphibians downstream of the recommended work site would not see a significant impact from the proposed vegetation removal if work is conducted when there is no water present in channel.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

**Review by:**

Fish, Wildlife, and Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 536



### Site Description:

This site is a bridge on a private road along Seigler Canyon Road (38.89875' N, 122.64356' W). The bridge is located over Seigler Canyon Creek. Seigler Canyon Creek is a seasonally dry channel, in the Cache Creek watershed. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flow down the creek piling up on the bridge and causing flooding of road and nearby area.

### Emergency Response Protection Measure Recommendation:

Clear vegetation 200 feet upstream and downstream of bridge.  
Early warning system and storm patrol.  
Monitor and clear debris.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda ssp. chi*) and foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures for Site 536**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Remove all debris such that it will not re-enter the stream channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 537



### Site Description:

This site is a single family home with outbuilding, including a bridge on Big Canyon Road (38.8521' N, 122.68395' W). The home is located downstream of the Big Canyon Road bridge over Big Canyon Creek, near the junction of Ettawa Springs Road. Big Canyon Creek is a perennial fish bearing channel in the Putah Creek watershed. The habitat type at this work site is mixed-riparian. Two dead trees are located in the center of the creek directly upstream of the bridge. The threat is debris-laden flow piling up at the bridge and catching on the trees causing flooding, impacting the home, buildings and, bridge.

### Emergency Response Protection Measure Recommendation:

Clear dead trees and woody debris 200 feet upstream and downstream of the bridge.  
Flood diversion measures.  
Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish and amphibians downstream of the recommended work site would not see a significant impact from the proposed vegetation removal if work is conducted when there is no water present in channel.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

Remove all debris such that it will not re-enter the stream channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

**Review by:**

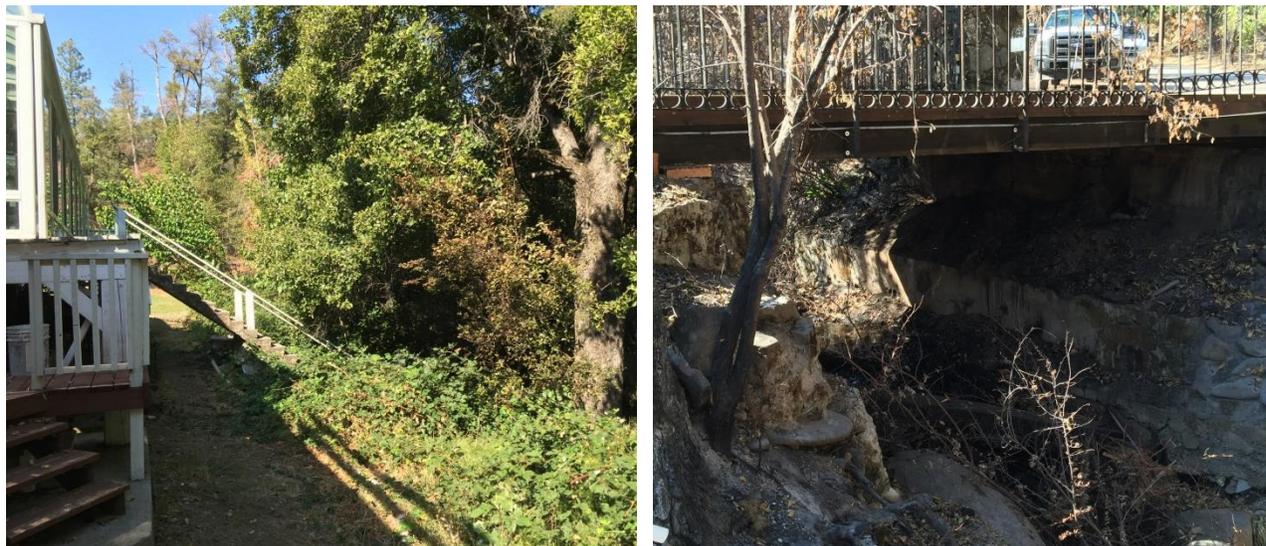
Fish, Wildlife, and Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 538



### Site Description:

This site is a single family home with outbuildings on Big Canyon Road (38.8491' N, 122.67421' W). The home is located along Spikenard Creek 300 feet upstream of the convergence with Big Canyon Creek. At the time of the site review, flow was present in Spikenard but no fish were observed. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. The habitat type at this work site is mixed-riparian. There is a private access bridge across Spikenard Creek. Several dead trees are in the channel under the bridge and upstream. The threat is debris-laden flow piling up at the bridges causing flooding to the home as well as flood water rising at the convergence of the creeks threatening buildings.

### Emergency Response Protection Measure Recommendation:

Clear dead trees and woody debris in Spikenard Creek 200 feet upstream of bridge.  
Flood diversion measures.  
Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

**Review by:**

Fish, Wildlife, and Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 539



### Site Description:

This site is two homes with outbuildings located on Big Canyon Road (38.84953' N, 122.67482' W). The property is located on both sides of Big Canyon Creek, above the confluence of Big Canyon Creek and Spikenard Creek. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is mixed-riparian. A side channel to Big Canyon Creek that runs during higher flows comes very close to the home and is a hazard during high water events. The threat to existing infrastructure is debris-laden flooding and debris flow down Big Canyon Creek rising to an elevation that will impact the home.

### Emergency Response Protection Measure Recommendation:

Early warning of flood events and evacuation of home.  
Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 540

**Site Description:**

This site is a bridge on Big Canyon Road over Big Canyon Creek (38.84961' N, 122.67442' W). The bridge is located just upstream of the convergence of Big Canyon Creek and Spikenard Creek. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. The habitat type at this work site is mixed-riparian. There are several dead trees in the channel. The threat is debris-laden flow piling up at the bridge and flooding the home as well as flood water rising at the convergence threatening buildings.

**Emergency Response Protection Measure Recommendation:**

Clear woody debris 200 feet upstream and downstream of bridge.  
Early warning system and storm patrol.

**Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

Remove all debris such that it will not re-enter the stream channel.  
Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

**Review by:**

Fish, Wildlife, and Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 541

**Site Description:**

This site is two single family homes located on Big Canyon Road (38.84871' N, 122.66909' W). These houses are located along Big Canyon Creek. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this work site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Big Canyon Creek rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of homes.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 542



### **Site Description:**

This site is a private access bridge located off of Big Canyon Road (38.84895' N, 122.66862' W). The bridge is located over the Big Canyon Creek channel. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. The habitat type is mixed-riparian. There is a 45-degree reinforcing support that is in the flow path, potentially a debris-catching hazard. There is also a large tree growing across the channel in front of the bridge that could snag debris if water levels rise. Several dead trees have fallen upstream of the bridge that pose a hazard. The threat is debris-laden flow down Big Canyon Creek piling up on the bridge support or tree and causing damage to the bridge or flooding of local homes.

### **Emergency Response Protection Measure Recommendation:**

Clear woody debris 200 feet upstream and downstream of bridge.  
Remove tree obstructing bridge.  
Early warning system and storm patrol.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 543



### **Site Description:**

This site is three 48-inch culverts located where Bad Creek crosses under Big Canyon Road (38.84885' N, 122.66627' W). Bad Creek is a seasonally dry channel in the Putah Creek watershed. The habitat type at this site is mixed-riparian. There is a significant amount of woody vegetation upstream. Woody debris is partially clogging one of the culverts. The threat is debris-laden flow down Bad Creek piling up on the culverts and causing flooding of Big Canyon Road and surrounding area.

### **Emergency Response Protection Measure Recommendation:**

Clear vegetation in channel 200 feet upstream of culverts. Remove woody debris in culverts  
Early warning system and storm patrol.  
Monitor and clear culverts.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

Fish found downstream of the recommended work would benefit if debris were removed from culvert inlet.

**Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Disturbance to the creek bank shall be minimized. Trees shall not be removed from the creek bank.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 544

**Site Description:**

This site is a single family home located on Big Canyon Road (38.84929' N, 122.66646' W). The house is located along Bad Creek, near the confluence with Big Canyon Creek. Bad creek is a seasonally dry channel in the Putah Creek watershed. Habitat type is at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow down Bad Creek rising to an elevation that will impact the home.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 545

**Site Description:**

This site is a bridge located on Big Canyon Road (38.84619' N, 122.66416' W). The bridge is across Big Canyon Creek. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. The habitat type at this site is oak woodland. The threat is flooding and debris-laden flow from a tributary leading to the bridge inlet.

**Emergency Response Protective Measure Recommendation:**

Early warning and storm patrol.  
Monitor and clear debris.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 546



### **Site Description:**

This site is a bridge located on Big Canyon Road (38.84511' N, 122.65937' W). The bridge is located at Big Canyon Creek. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow piling up on the bridge flooding the surrounding area or damaging the bridge.

### **Emergency Response Protection Measure Recommendation:**

Early warning of flood events and storm patrol.  
Monitor and clear debris.

### **Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 547



### Site Description:

This site includes multiple single-family dwellings, mobile homes and a recreational vehicle (RV) park located along Dam Road and Tish-a-Tang Road (38.92499' N, 122.6089' W). The dwellings are located along Cache Creek. Cache Creek is a perennial fish bearing stream. Cache Creek at this location is above the outlet dam for Clear Lake, so the water is slow moving. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Cache Creek rising to an elevation that will impact the homes and RV Park.

### Emergency Response Protection Measure Recommendation:

Early warning system and storm patrol.  
Evacuation of homes.  
Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 548

**Site Description:**

This site includes multiple single-family homes and structures located off Cache Creek Lane (38.92044' N, 122.59792' W). The homes and structures are located along Cache Creek. Cache Creek is a perennial fish bearing stream in the Cache Creek watershed. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Cache Creek rising to an elevation that will impact the homes and structures.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 549

**Site Description:**

This site is a group of single family homes located at the end of Dam Road South (38.9226' N, 122.5953' W). The homes are located along Cache Creek near the confluence of Copsey Creek. Cache Creek is a perennial fish bearing stream. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Cache Creek rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 550



### Site Description:

This site is a bridge on Jessie Street (38.91372' N, 122.61006' W). The bridge is located over Seigler Canyon Creek. Seigler Canyon Creek is a seasonally dry channel, in the Cache Creek watershed. Habitat type at this site is oak woodland. The bridge has two concrete wall supports in the channel. There is significant debris and woody vegetation present in the channel. The threat to existing infrastructure is debris-laden flow down the creek piling up on the bridge and causing flooding of road and nearby area.

### Emergency Response Protection Measure Recommendation:

Clear vegetation 200 feet upstream and downstream of bridge.

Early warning system and storm patrol.

Monitor and clear debris.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Foothill yellow-legged frog (*Rana boylei*), and Clear Lake hitch (*Lavinia exilicauda chi*).

CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

Remove all debris such that it will not re-enter the stream channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Woody debris shall be disposed of by lopping and scattering and/or chipping and scattering it outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

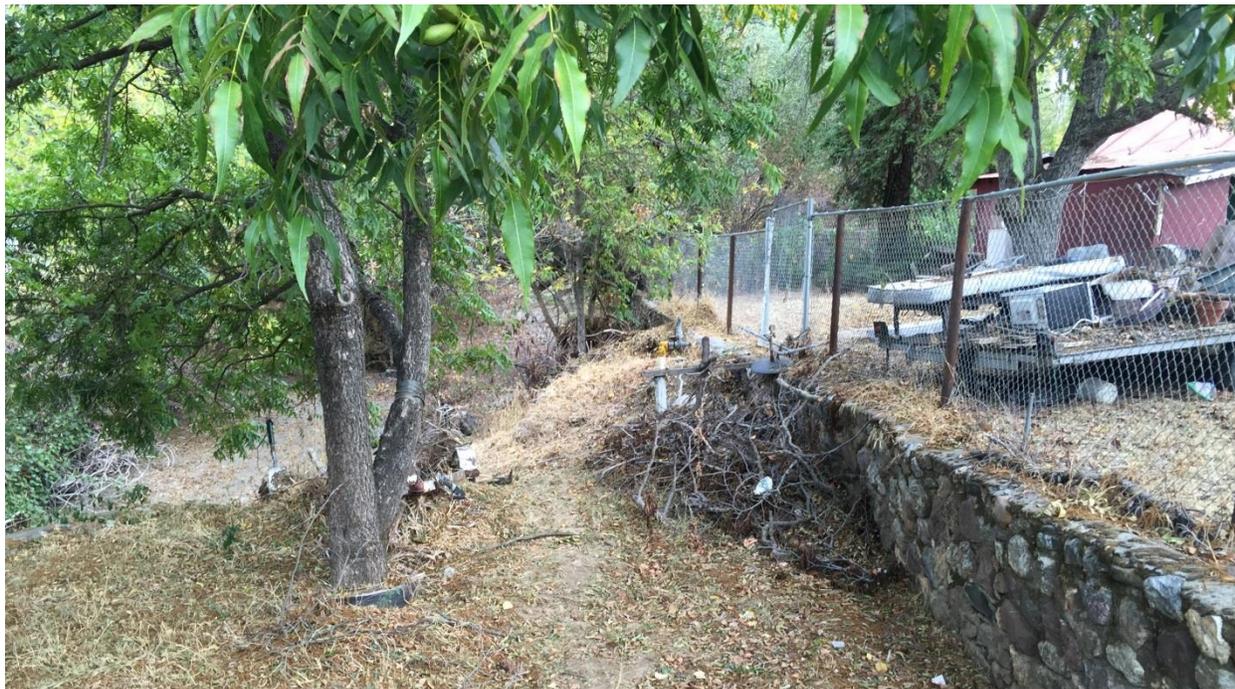
Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archaeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 551

**Site Description:**

This site includes an area of single-family dwellings bordered to the west by Highway 53, east by Lake Street, north by Cache Creek, and south by Main Street (38.91735' N, 122.6111' W). The dwellings are located along Seigler Canyon Creek. Seigler Canyon Creek is a seasonally dry channel in the Cache Creek watershed. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Seigler Canyon Creek rising to an elevation that will impact the homes in the area.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Evacuation of homes.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 552

**Site Description:**

This site is a community of single family homes that border Copsey Creek along Pinto Place, Bronco Lane, and Quarterhorse Lane to the east and Stagecoach Lane to the west (38.91648' N, 122.59528' W). Copsey Creek is a seasonally dry channel in the Cache Creek watershed; however it has significant fish activity when flowing. The habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Copsey Creek rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of homes.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 553

**Site Description:**

This site is a group of single family homes located at the end of Quarterhorse Lane (38.92161' N, 122.59393' W). The homes are located along Cache Creek just downstream of Copsey Creek. Cache Creek is perennial fish bearing stream. Habitat type at this site is oak woodland. The threat to existing infrastructure is debris-laden flooding and debris flow down Cache Creek rising to an elevation that will impact the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 554



### Site Description:

This site is a bridge over Copsey Creek on Copsey Creek Way (38.91424' N, 122.59355' W). Copsey Creek is a seasonally dry channel, in the Cache Creek watershed; however residents report significant fish activity in creek when flowing. The habitat type at this work site is oak woodland. There are two concrete wall supports in the channel as well as some vegetation in the channel. The threat is debris-laden flow piling up at the bridge supports and flooding onto nearby homes.

### Emergency Response Protection Measure Recommendation:

Clear vegetation in channel bottom 200 feet upstream and downstream of bridge.  
Monitor and clear debris.  
Early warning system and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Clear Lake hitch (*Lavinia exilicauda ssp. chi*) and foothill yellow-legged frog (*Rana boylei*).

A CNDDDB search indicated that several botanical species have the potential to occur within 1 mile of the work site.

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment or vehicles in the channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 555

**Site Description:**

This site is a bridge located on Big Canyon Road (38.83173' N, 122.64526' W). The bridge is located over Malo Creek at the confluence to Big Canyon Creek. . Malo Creek is a seasonally dry creek while Big Canyon Creek is a perennial fish bearing stream, in the Putah Creek watershed. Habitat type at this site is mixed-riparian. The threat to existing infrastructure is debris-laden flooding and debris flow piling up at the bridge impacting the surrounding area and/or damaging the bridge.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and storm patrol.  
Monitor and clear debris.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 556

**Site Description:**

This site is a bridge located on Big Canyon Road (38.82377' N, 122.63148' W). The bridge is on an unnamed tributary of Big Canyon Creek just west of Big Canyon Creek. The tributary is seasonally dry while Big Canyon Creek is a perennial fish bearing stream, in the Putah Creek watershed. The habitat type at this site is oak woodland. The threat is debris-laden flow piling on the bridge and flooding the road.

**Emergency Response Protective Measure Recommendation:**

Early warning and storm patrol.

**Environmental Protection Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 557



### Site Description:

This site is two culverts (approximately 30-inch and 24-inch) crossing under Big Canyon Road (38.80665' N, 122.61617' W). The culverts are located at an unnamed tributary to Big Canyon Creek near the convergence of Big Canyon Creek and Putah Creek. The unnamed tributary is a seasonally dry channel while Big Canyon Creek and Putah Creek are perennial fish bearing streams. The habitat type at this work site is oak woodland. There is barbed wire fencing across the channel on both sides of Big Canyon Road. There is evidence of previous overtopping. The threat is debris-laden flow piling up at the culverts and fencing as well as flood water rising and overtopping Big Canyon Road.

### Emergency Response Protection Measure Recommendation:

Remove fence obstructing stream channel.  
Early warning system and storm patrol.  
Install road warning signage.  
Monitor and clear debris.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

No records in immediate vicinity.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crews using hand tools only.

No heavy equipment in stream channel.

Remove fencing so that it will not be re-deposited into the stream channel.

No equipment maintenance shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Remove all debris such that it will not re-enter the stream channel.

Woody debris removed from the channel shall be lopped and scattered and/or chipped and scattered outside of the stream channel.

There shall be no piling/burning of woody debris.

**Review By:**

Fisheries, Wildlife, Botany - Lori Hammerli, Ben Ewing

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 558



### Site Description:

This site is a bridge located on Big Canyon Road (38.80252' N, 122.61459' W). The bridge is on the Cockerell Canyon Creek near the confluence of Putah Creek. Cockerell Canyon Creek is a seasonally dry channel in the Putah Creek watershed. The habitat type at this site is oak woodland. Downstream concrete footings are undermined and not founded on concrete. Additionally, there is a large oak branch in the stream channel. The threat to existing infrastructure is debris-laden flow piling on bridge, flooding the road and compromising the bridge.

### Emergency Response Protective Measure Recommendation:

Remove large oak branch in the stream channel.  
Early warning, signage, and storm patrol.

### Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):

Species that have potential to occur in this habitat include: Lake County western flax (*Hesperolinon didymocarpum*).

A California Department of Fish and Wildlife survey conducted at this site found no sensitive species in the planned work site.

### Environmental Protective Measures:

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment in stream channel.

Remove oak branch so that it will not be re-deposited into stream channel.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Construction activities should avoid impacts to any existing stands of unburned native resources in a burned area (e.g. shrubs). Such habitat should be adequately marked.

No equipment maintenance or fueling shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

Woody debris removed from stream channel shall be chipped, lopped and scattered.

There shall be no piling/burning of woody debris.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 559



### **Site Description:**

This site is a box culvert located on Big Canyon Road (38.78092' N, 122.61427' W). The box culvert is over an unnamed tributary of Harbin Creek. The unnamed tributary is a seasonally dry channel, in the Putah Creek watershed. The habitat type at this site is oak woodland. The unnamed tributary is a seasonally dry channel, in the Putah Creek watershed. There is a fence in the culvert outlet that obstructs water flow. The threat to existing infrastructure is debris-laden flow piling in the culvert and flooding local area.

### **Emergency Response Protection Measure Recommendation:**

Remove fencing obstructing stream channel.  
Storm patrol and early warning.

### **Sensitive Natural Resources (Aquatic, Terrestrial, and Botanical):**

A California Department of Fish and Wildlife survey was conducted at this location and no sensitive species were identified.

Fish found downstream of the recommended work would see a net benefit if fencing was cleared of debris and removed from tunnel.

### **Environmental Protective Measures:**

To avoid potential impacts to downstream aquatic resources, work shall not be conducted if flowing water is present. Work shall be completed prior to January 1.

Hand crew work only, no heavy equipment in stream channel.

Remove fencing so that it will not be re-deposited into stream channel. Use hand tools only.

No equipment maintenance or fueling shall be done within or near the stream channel where petroleum products or other pollutants from equipment may enter these areas under any flow.

Operator shall take all necessary steps to contain sediment and reduce stream turbidity.

Construction activities should avoid impacts to any existing stands of unburned native resources in a burned area (e.g. shrubs). Such habitat should be adequately marked.

Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

**Review by:**

Fisheries, Wildlife, Botany - Ben Ewing, Lorie Hammerli

Engineering - Michael Baldwin

Archeology - J. Charles (Chuck) Whatford

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 560

**Site Description:**

This site is two homes with outbuildings located on Big Canyon Road (38.84851' N, 122.66692' W). The property is located at the confluence of Bad Creek and Big Canyon Creek. Big Canyon Creek is a perennial fish bearing stream in the Putah Creek watershed. Habitat type at this site is oak woodland. The buildings back up to a steep hill that has been burned. The threat to existing infrastructure is debris-laden runoff and erosion down the hill onto the structures.

**Emergency Response Protection Measure Recommendation:**

Early warning of flood events and evacuation of home.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 561

**[No Photo Taken at Request of Business]**

**Site Description:**

This site includes a business located on Highway 175 (38.79141' N, 122.70125' W). The business is located along an unnamed tributary to Putah Creek. The channel had water present at time of visit and Putah Creek is a perennial fish bearing stream. Habitat type at this site is pine-oak woodland. There were several buildings along the creek at this location. No photos were taken at the instruction of the business, for operational security reasons. The threat to existing infrastructure is debris-laden flooding and debris flow down the tributary rising to an elevation that will impact the buildings on the property.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.

Evacuation of business.

Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 562



### Site Description:

This site is a single family home located on Maple Shadows Drive (38.81114' N, 122.7137' W). The house is located at an unnamed tributary to Putah Creek. Putah Creek is a perennial fish bearing stream. Habitat type at this site is mixed-riparian. There are several obstructions in the channel that can block natural flow. The threat to existing infrastructure is debris-laden flooding and debris flow down the tributary.

### Emergency Response Protection Measure Recommendation:

Early warning of flood events and evacuation of home.  
Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 563

**Site Description:**

This site includes two houses located on Maple Shadows Drive (38.81025' N, 122.71142' W). The homes are located between an unnamed tributary and swale runoff in the Putah Creek watershed. Habitat type at this site is mixed-conifer. The threat to existing infrastructure is debris-laden flooding and debris flow down the creek or swale rising to a level impacting the homes.

**Emergency Response Protection Measure Recommendation:**

Early warning system and storm patrol.  
Flood protection measures.

**Environmental Protective Measures:**

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

## Site 564



### Site Description:

This site is a single family home located on Highway 175 (38.81023' N, 122.71013' W). The house is located at an unnamed tributary to Putah Creek. Putah Creek is a perennial fish bearing stream. Habitat type at this site is mixed-riparian. There is a small foot bridge with concrete pilings located in the channel as well as a culvert at Highway 175. The threat to existing infrastructure is debris-laden flooding and debris flow down the tributary, catching on the small foot bridge and culvert at Highway 175, and water rising to an elevation that will impact the home.

### Emergency Response Protection Measure Recommendation:

Early warning of flood events and evacuation of home.  
Flood protection measures.

### Environmental Protective Measures:

None proposed.

*Both NRCS and SPFWERT conducted field visits to this site. Both agencies proposed recommendations at this site. Recommendations from both agencies will help protect values at risk and are in not conflict with one another*

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