APPENDIX C

PUBLIC NOTICE COMMENTS & OTHER AGENCY DOCUMENTS

Set 3 of 3

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
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2015-F-0982

APR 05 2017

Memorandum

To: Rain Emerson, Supervisory Natural Resources Specialist, Bureau of Reclamation, Mid-Pacific Region, South-Central California Area Office, Fresno, California

From: Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Formal Consultation on the Tesoro Viejo Master Planned Community Project, Madera County, California

This memorandum is in response to the Bureau of Reclamation's (Reclamation) August 24, 2016, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Tesoro Viejo Master Planned Community Project in Madera County, California. Your request, which included the *Biological Assessment, Federal Approvals Needed for the Proposed Tesoro Viejo Master Planned Community Project* (biological assessment) as prepared by Reclamation, was received by the Service on August 26, 2016. The development of the Tesoro Viejo Master Planned Community, together with the federal actions mentioned below, are collectively considered the "Project". At issue are the Project's effects on the federally threatened central California distinct population segment of the California tiger salamander (*Ambystoma californiense*) (central California tiger salamander) (CTS) and its critical habitat, and the vernal pool fairy shrimp (*Branchinecta lynchi*) (VPFS), and the federally endangered succulent owl's-clover (*Castilleja campestris* spp. *succulenta*) and its critical habitat, and the San Joaquin kit fox (*Vulpes macrotis mutica*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal actions on which we are consulting include: (1) Reclamation's proposed approval of an additional point of water delivery on Lateral 6.2 Canal (Lateral 6.2) for Madera Irrigation District's (Madera ID) existing Warren Act Agreement, (2) Reclamation's proposed issuance of land use authorizations to Madera County associated with construction, operation, and maintenance activities within Reclamation's rights-of-way, and (3) the U.S. Army Corps of Engineers' (Corps) proposed issuance of an individual permit under Section 404 of the Clean Water Act to Tesoro Viejo Inc. for Project activities that will result in filling approximately 11.098 acres of Waters of the United States. In a May 25, 2016, e-mail (SPK-2006-00425), the Corps designated Reclamation as the lead federal agency to act on their behalf for purposes of compliance with section 7 of the Act for the Project. Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the Project may affect, and is likely to adversely affect the CTS, CTS critical habitat, VPFS, and critical habitat for succulent owl's-clover. The findings also conclude that the action may affect, but is not likely to adversely affect the succulent owl's-clover and San Joaquin kit fox.

In considering your request, we based our evaluation on the following: (1) the August 24, 2016, memorandum initiating consultation; (2) the March 15, 2016, site visit to Upper Jamison Ranch; (3)

the April 27, 2016, memorandum entitled *Assessment of Habitats, Structure, and Function of the Lateral 6.2 Canal within Tesoro Viejo* prepared by Vollmar Natural Lands Consulting (VNLC); (4) the April 28, 2016, memorandum entitled *Comparison of Documents Discussing Vernal Pool Fairy Shrimp Habitat at Tesoro Viejo Site* prepared by VNLC; (5) the June 2016 *Wetlands and Open Space Long-term Management Plan Draft* (Open Space Management Plan) prepared by VNLC; (6) the October 2016 revised biological assessment prepared by Reclamation; (7) the October 14, 2016, memorandum entitled *Activities to be Conducted in "Passive Open Space" Land Use Designation at Tesoro Viejo Project Site* prepared by VNLC; (8) the November 2016 *Long-term Management Plan Draft for Upper Jamison Ranch Off-site Mitigation Preserve* (Upper Jamison Management Pan) prepared by VNLC; (9) Reclamation's October 25, 2016 and December 29, 2016, memorandums responding to the Service's requests for additional information; (10) the March 9, 2017, memorandum entitled *California Tiger Salamander Mortality Reduction and Relocation Plan for Tesoro Viejo* (CTS Mortality Reduction and Relocation Plan) prepared by VNLC; (11) electronic mail correspondence and telephone exchanges between Reclamation and the Service; and (12) other information available to the Service.

The Service concurs with your determination that the Project may affect, but is not likely to adversely affect the San Joaquin kit fox (kit fox). The Project site is located within the range of the kit fox and according to the California Natural Diversity Database (CNDDB), there is one occurrence of the kit fox within 10 miles. However, the most recent recorded occurrence of kit fox within a 20 mile radius of the Project site occurred in the 1990s and several, more recent surveys conducted by Live Oak Associates and the Endangered Species Recovery Program in the general vicinity of the Project site have failed to detect this species. The Project site contains annual grassland which provides potentially suitable habitat for the kit fox; however, a majority (74%) of the Project site is intensively cultivated with annual and perennial crops, providing little habitat value for kit fox. Based on this information, and on the Project Proponents' (Madera County, Madera ID, and Tesoro Viejo Inc.) commitment to adhere to the Service's 2011 *Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (Service 2011), it is the Service's opinion that the effects of the action on the kit fox will be of a discountable nature.

The Service also concurs with your determination that the Project may affect, but is not likely to adversely affect the succulent owl's-clover. A CNDDB search of the Friant and Lanes Bridge quadrangles identified seven documented occurrences of this species, with three occurrences within approximately two miles of the Project site. However, this species was not observed within the Project site during appropriately timed botanical surveys, which included all potentially suitable habitat (VNLC 2013). Additionally, the majority of the Project site is currently developed as annual or perennial crop land that was leveled prior to planting, eliminating any potential habitat for succulent owl's-clover. The few vernal pools located within the Project site are not typical of pools in which this species typically occurs. Based on field studies conducted in Merced County, the succulent owl's-clover typically occurs in medium to large pools with a maximum potential ponding depth of at least 5-6 inches (Dittes and Guardino 2002). The species also appears to have strong soil affinities, preferring older, gravelly, acidic soils of the high terraces, especially Redding and Amador soils (Dittes and Guardino 2002). Further analysis and development of predictive habitat maps also uncovered a close association with acidic soils (Vollmar et al. 2013). The vernal pools within the Project site do not possess these characteristics and therefore have a low likelihood of supporting succulent owl's clover. Based on the relative dearth of suitable habitat and the lack of detection during surveys, it is the Service's opinion that the effects of the action on the succulent owl's-clover will be of a discountable nature.

The remainder of this document provides our biological opinion on the effects of the Project on the central California tiger salamander and its critical habitat, vernal pool fairy shrimp, and critical habitat for the succulent owl's-clover.

Consultation History

March 2014: The proponents of the Project met informally with Service staff.

February 2016: Madera ID requested approval from Reclamation to add an additional point of delivery under their existing Warren Act Agreement to provide water to the Project site. Based on the larger scope of this approval, Reclamation agreed to be the lead federal agency for the consultation.

March 2016: Service biologists attended a site visit of Upper Jamison Ranch with Reclamation staff.

August 2016: Reclamation submitted a request to initiate formal consultation on the Project.

October 2016: The Service spoke with Reclamation staff over the telephone to request additional information regarding the biological assessment and its appendices.

November 2016: The Service sent a second request for additional information to Reclamation via e-mail and later discussed the request with Reclamation over the telephone. The Service also issued a memo stating that all of the information required to initiate consultation had been received.

January 2017: The Service received a memo from Reclamation responding to our November 2016 request for additional information.

February 2017: The Service provided comments to Reclamation on the Upper Jamison Ranch Management Plan and associated appendices.

March 2017: The Service spoke with staff from Reclamation, VNLC, and Tesoro Viejo Inc. over the telephone several times to discuss the Upper Jamison Ranch Management Plan and conservation easement and proposed CTS avoidance and minimization measures in the biological assessment.

BIOLOGICAL OPINION

Description of the Action

Federal Actions

Additional Point of Water Delivery on Lateral 6.2

Reclamation proposes to approve an additional point of water delivery on Lateral 6.2 for Madera ID's existing Warren Act Agreement. Madera ID has pre-1914 water rights to divert water from the North Fork of Willow Creek (referred to as Soquel water). On May 13, 2014, Reclamation executed Warren Act Agreement No. 10-WC-20-3984B authorizing Madera ID to introduce, store, and convey up to 25,000 acre-feet per year (AFY) of its Soquel water in Central Valley Project Friant Division facilities through February 28, 2019. Reclamation analyzed the execution of this 5 year Warren Act Agreement followed by a series of 5 year renewals pending Contracting Officer review over a 30 year period (through 2044) and a Finding of No Significant Impact was issued on January 31, 2014 (Reclamation 2014).

Reclamation would approve the additional point of delivery for up to 3,000 AFY. Water would be delivered from a new turnout on Lateral 6.2 for treatment at the Project's proposed water treatment facility prior to being distributed throughout the development. This water would be the primary source of water for the Project and will serve all dwelling units and commercial and industrial uses throughout the Project site.

Land Use Authorizations

Reclamation proposes to issue land use authorizations to Madera County for the following activities:

1. Piping of 0.97 mile of Lateral 6.2 from a point approximately 0.04 mile downstream of the point of diversion at the Madera Canal to approximately 0.15 mile east of the westerly Project boundary at Highway 41. The remaining 0.15 mile of Lateral 6.2 would be lined with concrete. Operation and maintenance of Lateral 6.2, including the proposed piped and lined sections, would continue to be carried out by Madera ID.

2. Relocation of the existing turnout on Lateral 6.2 to approximately 1,275 feet downstream from its current location for future delivery of 3,000 AFY of Madera ID's pre-1914 Soquel water.

3. Relocation of the existing Stream Gauge Bridge on Lateral 6.2 approximately 4,375 feet downstream from its current location.

4. Construction of four new roads across the newly piped section of Lateral 6.2 to meet Project circulation needs.

5. Installation of a multi-use access road and pedestrian path to be maintained by County of Madera Service Area #22 (CSA #22). The path would also allow Madera ID access to pipeline manholes for continued operation and maintenance of Lateral 6.2.

6. Construction of three new vehicular/pedestrian bridges and one new pedestrian-only bridge over the Madera Canal. These new bridges would provide access and circulation throughout the Project site. The two existing timber bridges over the Madera Canal would be demolished. The new bridges will be owned and maintained by CSA #22. All landscaping adjacent to the bridges will be maintained by CSA #22.

   The existing berm along the north and south sides of the Madera Canal would be modified as necessary to accommodate the new bridges, and the existing berm along Lateral 6.2 would be removed. The southerly berm along the Madera Canal (consisting of approximately 70,000 cubic yards) would be reduced an average of 3 to 12 feet to match the surrounding elevations. The existing berms located along both sides of the Madera Canal would be subject to 15 feet of excavation at the bridge crossings to facilitate the construction of the roadway for ingress and egress to and from the Project site. Maintenance of the berms, including weed abatement and erosion control, would be performed by CSA #22.

   Material from the existing berms would be used for backfill of the Lateral 6.2 pipeline. All bridges and roadway crossings are expected to include utility crossings which will be installed in steel conduits / sleeves within the bridge crossings and where said utilities cross beneath the proposed Madera Canal, Lateral 6.2 pipeline, and Reclamation's drainage easement.

7. Construction of roadway and pathway crossings that follow the main north/south drainage easement on the Project site. This drainage easement is connected at the north end to the Madera Canal and is intended to provide operational flexibility to Reclamation.

Section 404 Clean Water Act Permit

The Corps proposes to issue a Section 404 Clean Water Act permit to Tesoro Viejo Inc. authorizing the discharge of dredged or fill material into approximately 11.098 acres of Waters of the U.S, including wetlands, as described in the Section 404 Permit Application for the Project.

Tesoro Viejo Development

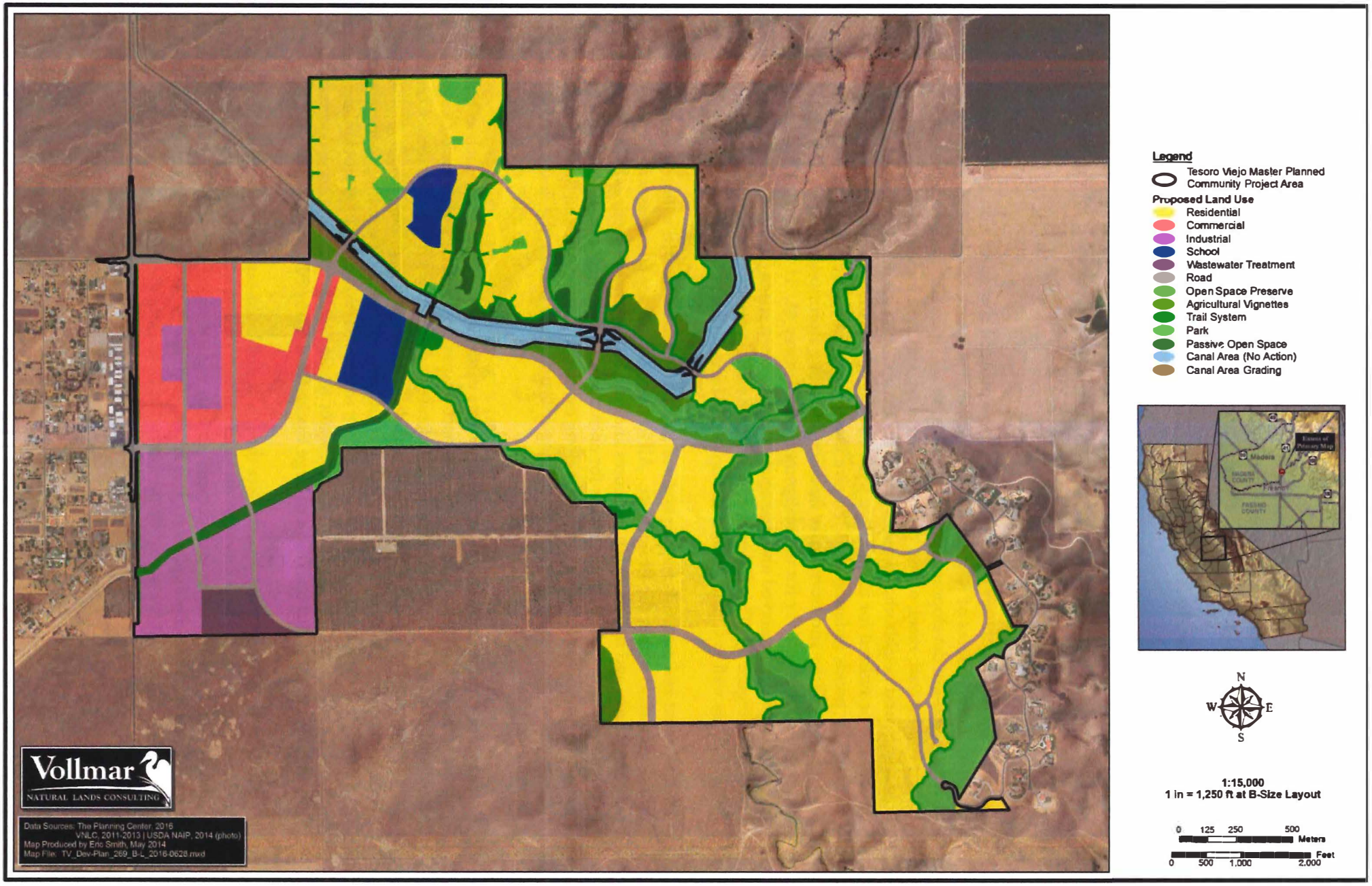
Tesoro Viejo Inc. proposes to construct a master-planned community on approximately 1,600 acres, which includes 44 acres of Reclamation-owned canal properties (Figure 1). The Project would include mixed-use development consisting of up to 5,170 dwelling units and about 3 million square feet of commercial, retail, office, public institutional, and light industrial uses. Agricultural vignettes, boulevards, and neighborhood parks would be incorporated into the developed areas. Fifteen acres of land will be utilized for interpretive trails and signage, seating, native plantings, grassy swales, and water quality ponds (referred to as 'Passive Open Space' in Figure 1). Sufficient land area would be set aside for utilities and stormwater facilities (including stormwater basins), K-8 and K-12 schools, and potential right-of-way for the realignment of Highway 41. In addition, 186.3 acres of the Project site will be preserved and managed as on-site open space (referred to as 'Open Space Preserve' in Figure 1). This Open Space Preserve would contain riparian habitat and other Waters of the U.S., as well as CTS breeding and upland habitat, and VPFS habitat.

All equipment and materials staging and soil stockpiles will be located within the designated ground-disturbance areas within the Project site. All of these temporary-use areas will be protected by the same avoidance and minimization measures and best management practices (BMPs) as the development area itself. Vehicle access for construction equipment and vehicles will be within these designated ground disturbance areas, and along existing County roads and State Highways. No off-road vehicle access, staging, or soil stockpiling will take place outside the designated ground disturbance area.

Construction equipment will consist of heavy duty earth moving equipment such as bull dozers, graders, scrapers, trenchers, excavators, compactors, pavers, loaders, water trucks/wagons, cranes, etc. of sufficient size to construct the infrastructure and structures for the Project. Construction activities required to build the Project will include: clearing and grubbing; rough grading; pad grading; trenching and backfilling for both wet and dry utilities; finish grading; concrete and paving for roadways; rock crushing; material separation; material laydown, drilling; stockpiling; concrete washouts; construction of treatment plants, water storage tank, bridges, school, commercial buildings and homes; and operation of large trucks for delivery of construction materials.

The Project is designed to be phased over time, with full build-out assumed to be completed by 2032. At that stage, the population of the fully realized Project would be estimated to be up to 15,590 residents. The Project is anticipated to start construction in May 2017, and a 15 year buildout is anticipated for Project completion. It is anticipated that the work directly authorized by Reclamation and the Corps would be performed in 2016 through 2021.

Figure 1. Tesoro Viejo Development Map



Conservation Measures

General Avoidance and Minimization Measures

1. Project Access. The Project Proponents shall ensure that Project-related traffic shall be restricted to designated access roads, routes and construction areas within the construction boundary, and along existing County roads and State highways. The Project Proponents shall ensure that vehicle speeds do not exceed 20 miles per hour, except on County roads and State highways.

2. Staging Areas. The Project Proponents shall confine all project-related parking, storage areas, laydown sites, equipment storage, soil stockpiles, and any other surface-disturbing activities to designated ground disturbance areas for the Project, and within the Project site. Vehicle access for construction equipment and vehicles will be within these designated ground disturbance areas. No off-road vehicle access, staging, or soil stockpiling will take place outside the designated ground disturbance area. All of these temporary use areas will be protected by the same avoidance and minimization measures and BMPs as the development area itself.

3. Firearms and Dogs. The Project Proponents shall prohibit firearms and domestic dogs from the Project site and access routes during construction and operations, except those in the possession of authorized security personnel or local, State, or Federal law enforcement officials.

4. Stormwater Best Management Practices. The Project will incorporate a number of BMPs specified by the State Water Resources Control Board's storm water control permit requirements for construction ("Construction General Permit") and post-construction operations (Phase II Small MS4 General Permit). Such BMPs include gravel blankets at access to construction sites; sand bags around drop inlets, catch basins, other inlets to waters of the State; silt fences; dust control; and temporary drainage structures for construction, such as swales and ponds. In accordance with MS4 General Permit requirements, additional BMPs will apply to the Project area to manage storm water flows following development.

Avoidance and Minimization Measures for CTS

1. Designated Biologist and Designated Monitor. At least 30 days prior to the start of Project activities, the Project Proponents shall identify one or more Designated Biologist(s) responsible for monitoring Project activities to help avoid and minimize effects to listed species, and to minimize disturbance to the habitat of such. The Designated Biologist(s) shall be knowledgeable and experienced in the biology and natural history of CTS and will be someone who holds or is an authorized individual under a Federal Recovery Permit [10(a)(1)(A)] for CTS, or meets the qualifications necessary to obtain a species handling permit under section 10(a)(1)(A). Reclamation or the Project Proponent shall obtain Service approval of the Designated Biologist(s) in writing prior to the commencement of Project activities with the potential to result in take of CTS, and shall also obtain approval in advance in writing if the Designated Biologist(s) must be changed.

   The Designated Biologist(s) will be present during all initial ground-disturbing activities. Initial ground-disturbing activities include vegetation clearing, grubbing, scraping, grading, trenching, and other activities that will convert potential CTS upland habitat to non-habitat through the disruption of on-site small mammal burrows. The Designated Biologist(s) shall

be identified during the employee education program and will be the contact for any employee, contractor, or agency personnel who might inadvertently kill or injure a CTS, or anyone who finds a dead, injured, or entrapped CTS. The Project Proponents and their contractors shall immediately notify the Designated Biologist(s) if a CTS is taken or injured by a project-related activity, or if a CTS is otherwise found dead or injured within the vicinity of the project. The Designated Biologist's name and telephone number shall be provided to the Project Proponents, Reclamation, the Corps, and the Service.

The Designated Biologist(s) may be assisted by approved biologists, identified as Designated Monitors, who may not meet the qualifications to be a Designated Biologist; however, only the Designated Biologist(s) will be authorized to conduct measures which require handling, capturing, or relocating CTS. Designated Monitors and their activities shall be approved in advance and in writing by the Service.

2. Education Program. Prior to the initiation of any on-site preparation or construction activities, the Designated Biologist(s) will conduct an education and training session for all persons employed or otherwise working on the Project site. The training shall consist of a brief presentation by the Designated Biologist(s). At a minimum, the training will include: a description of the listed species which may occur within the Project site and their habitat requirements, photographs, an explanation of the legal status of the species and their protections under the Act, and a list of measures being taken to avoid and/or reduce effects to these species during construction. A fact sheet conveying this information shall be prepared for distribution to the above-mentioned people and anyone else who may enter the construction site. During the entirety of construction and Project development, training sessions will be required for all new or additional personnel before they are allowed to access the Project site. An attendance sheet identifying the attendees and the contractor/company they represent will be provided to the Service. To ensure that employees and contractors understand their roles and responsibilities, training may have to be conducted in languages other than English.

3. Burrow Excavation and CTS Relocation. The CTS Mortality Reduction and Relocation Plan will be approved by the Service prior to implementation of the plan and prior to Project-related ground disturbance. Burrow inspection, excavation, and CTS relocation will be undertaken in areas of CTS upland habitat which are to be impacted by the Project. These activities will *not* be undertaken for the entire Project site at once. Instead, these activities will be scheduled to take place in phases, just ahead of the initiation of ground-disturbing activities. Individual project-phase work areas to be disturbed within the Project footprint will be designed in such a way to prevent undisturbed areas of potential CTS habitat from being surrounded or cut off from other CTS habitat. Work areas to be disturbed will be designed such that the most direct route from any given patch of potential CTS habitat on-site to the nearest accessible off-site CTS habitat remains open until the on-site patch has been subject to the relocation measures described below.

Surveys will be conducted prior to the start of ground-disturbing construction activities within the identified suitable upland habitat in a given project-phase work area. If surveys and excavations are conducted more than 14 days before the start of ground-disturbing construction activities, a second round of surveys shall be conducted for any newly established burrows prior to the start of construction. As necessary, surveys will be staged based on the start of ground disturbance in the different portions of the Project.

The identified suitable upland habitat will be visually surveyed by the Designated Biologist(s) to identify and flag burrows of small mammals. The Designated Biologist(s) will supervise the excavation of all flagged burrows to ensure that no CTS are present and to minimize the potential take from the development activities. Burrows will be excavated and any CTS found will be handled and relocated in accordance with the methods outlined in the CTS Mortality Reduction and Relocation Plan.

As an alternative, scent-dogs or other detection techniques may be used to select individual burrows for excavation. Burrows where scent-dogs do not alert may be collapsed without complete excavation. This provision will only be used if the scent-dogs or alternative detection techniques can be shown to have a sufficiently low false-negative rate, and if approved in writing by the Service prior to implementation.

4. Exclusion Fencing. Within 24 hours of completion of survey and burrow excavation within a project-phase work area, and prior to the onset of ground disturbing activities within that work area, the Designated Biologist(s) will oversee the installation of an exclusion barrier to prevent CTS from moving back into the disturbance area. Exclusion fencing will be installed where a planned work area abuts CTS upland habitat (i.e., barriers will not be required where a work area abuts large areas of existing development or agricultural fields). The proposed exclusion fence will be a standard silt fence buried in a 6-inch trench. Because burrow excavation and relocation will be performed in the work areas, no one-way escape ramps are needed. The fencing will not sever connectivity between existing CTS habitat to the north and south of the Project site. Instead, its presence will serve to guide migrating CTS away from the disturbance area, providing direct lines of migration between the property to the north and south of the Project site and the conserved breeding pond and upland habitat within the Project site. The exclusion fencing will remain in place and in good repair for the duration of all development and construction activity within a given project-phase work area.

   Following installation, the fence will be inspected by the Designated Biologist(s) or Designated Monitor(s) on a weekly basis and immediately after every rain event to ensure it maintains structural integrity. Holes or burrows which appear to extend under the fencing will be blocked inside the fence line to prevent CTS from accessing work areas. The fence will be inspected every morning for trapped CTS during periods when CTS are likely to be migrating above-ground. These daily-inspection periods include the period from May 1 through August 31 when metamorphs are likely to be migrating away from their natal ponds, and all year on mornings following any rain event greater than 0.1 inches, when adults may be migrating to their breeding ponds. The Designated Biologist(s) will relocate any CTS discovered along the fence in accordance with the procedures outlined in the CTS Mortality Reduction and Relocation Plan.

5. Designated Biologist and Designated Monitor Authority. The Designated Biologist(s) and Designated Monitor(s) shall be given the authority to stop any work that may result in take of CTS, and to ensure the adherence to required avoidance and minimization measures. If a CTS is found at any time during major ground disturbing activities the Designated Biologist(s) or Designated Monitor(s) will immediately order a halt to any construction activities. Work will not resume until the animal has been relocated by the Designated Biologist(s) following the procedures outlined in the CTS Mortality Reduction and Relocation Plan. If the Designated Biologist(s) or Designated Monitor(s) exercises the authority to stop work or to translocate an animal, Reclamation, the Corps, and the Service shall be notified by telephone and electronic mail within on working day.

6. Rain Forecast. The Designated Biologist(s) and Project Proponents shall monitor the National Weather Service 72-hour forecast for the Project site. If a 70 percent or greater chance of rainfall is predicted within 72 hours, Project activities shall cease in all work areas where initial ground disturbance (vegetation removal, grading, excavation, etc.) has yet to finish until a zero percent chance of rain is forecast. Work may continue 24 hours after the rain ceases and there is a zero percent chance of precipitation in the 72-hour forecast. Project activities may continue during rainfall events within work areas that have been subject to burrow excavation and CTS relocation and enclosed with exclusion fencing.

7. Night Work. The Project Proponents shall strictly prohibit any work between sunset and sunrise when a 70 percent or greater chance of rainfall is predicted within 72 hours of Project activities until zero percent chance of rain is forecast. Project activities may occur between sunset and sunrise within work areas that have been subject to burrow excavation and CTS relocation and enclosed with exclusion fencing.

8. CTS in Project Area. If a CTS, or any animal that construction personnel believe may be of this species, is encountered during Project construction, the following protocol shall be followed: (1) All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease; (2) The construction foreman/manager and Designated Biologist(s) shall be immediately notified; (3) The Designated Biologist(s) shall relocate the CTS in compliance with the CTS Mortality Reduction and Relocation Plan; (4) The Designated Biologist(s) shall immediately notify Reclamation, the Corps, and the Service via telephone or electronic mail.

   Once initial ground-disturbing activities are completed, the Designated Biologist(s) shall be available by phone and available for site inspection as needed.

9. Prohibit Access to CTS Habitat Within Open Space Preserve. During all construction activities in Project work areas which abut CTS habitat, access to this habitat will be prohibited, and it will be protected with an exclusion barrier, as described in CTS Conservation Measure 4.

10. Material Inspection. Worker(s) shall thoroughly inspect all construction pipe, culverts, or other similar structures with a diameter of one inch or greater that are stored for one or more overnight periods for CTS before the object is subsequently moved, buried, or capped. If during inspection, an individual CTS is discovered inside a pipe, culvert, or similar structure, the object will not be moved, buried, or capped until the animal has been relocated by the Designated Biologist(s) in compliance with the CTS Mortality Reduction and Relocation Plan.

11. Equipment Inspection. Workers shall inspect for CTS under vehicles and equipment before the vehicles and equipment are moved. If a CTS is present, the worker shall notify the Designated Biologist(s) who shall relocate the CTS in compliance with the CTS Mortality Reduction and Relocation Plan.

12. Trash Abatement. The Project Proponents shall initiate a trash abatement program prior to initiation of Project activities and shall continue the program throughout the duration of the Project. This program shall ensure that trash and food items are contained in closed (animal-proof) containers and removed at the end of each workday.

13. Erosion Control Materials. Erosion control materials with plastic or synthetic mono-filament netting will not be used within the Project site in order to prevent CTS from becoming entangled, trapped, or injured. This includes products that use photodegradable or biodegradable synthetic netting, which can take a full calendar year or more to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, tackified hydroseeding compounds, or other similar materials. This limitation shall be communicated to the contractor through use of Special Provisions included in the bid solicitation package.

14. Insecticides and Rodenticides. Insecticides and rodenticides will not be used in construction or development areas as part of the Project development process. Insecticides and rodenticides may continue to be used within agricultural areas of the Project site as part of normal farming practice, consistent with all applicable laws and regulations.

15. Herbicide Use Plan. An Herbicide Use Plan will be developed as part of the Project. The plan will include no more than two applications of herbicide per year during development activities. Herbicides shall be used in construction areas only in a manner that avoids primary or secondary poisoning of CTS and the prey populations on which they depend within the Action Area. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other appropriate State and Federal regulations, as well as additional Project-related restrictions deemed necessary by the Service. Herbicides may continue to be used within agricultural areas of the Action Area as part of normal farming practice, consistent with all applicable laws and regulations.

16. Residential Lighting. Lights associated with residential tracts shall be directed away from CTS habitat to the extent practicable.

17. Management of CTS Habitat within the Project Site. As part of the Project, 186.3 acres within the Project site will be preserved as open space. This conserved area includes a documented CTS breeding pond within designated CTS critical habitat, as well as 94.4 acres of CTS upland habitat, 57.2 acres of which is located within designated CTS critical habitat. The management of this habitat will be described in the Open Space Management Plan. This management plan will call for exclusion of humans and vehicles from sensitive habitat areas; control of invasive weeds; and protection, management, and monitoring of wetlands, grasslands, and riparian habitat.

    Some of the upper watershed of the documented CTS breeding pond within the Open Space Preserve will be modified. However, the entirety of the non-wetland channel which directly feeds this pond will be preserved and managed. An outfall will direct stormwater from the modified portion of the watershed to the channel, ensuring that the pond's overall watershed area is not significantly changed, and that no significant water quality degradation takes place due to Project implementation. This pond's hydrology will be monitored in perpetuity as described in the Open Space Management Plan.

    The final Open Space Management Plan will be approved by the Service prior implementation of the plan.

18. Conservation and Management of Upper Jamison Ranch. As part of the Project, a 415.2-acre portion of the Upper Jamison Ranch property will be placed under conservation easement and managed in perpetuity. The preserved portion of the Upper Jamison Ranch

supports two documented CTS breeding pools, as well as approximately 415.2 acres of CTS upland habitat. This portion of Upper Jamison Ranch would become part of an expanding corridor of permanently conserved open space in the region, managed for the benefit of CTS and other sensitive species. The management of this habitat will be described in the Upper Jamison Management Plan. Management activities will include bullfrog management, thatch management, as well as monitoring and management of wetlands and other habitat.

The final Upper Jamison Management Plan, including an endowment analysis, will be submitted to the Service for approval prior to recordation of the conservation easement and no later than 30 working days prior to initiation of Project-related ground disturbance. A Service-approved conservation easement will be recorded on the 415.2-acre property. The conservation easement will be held by an entity approved by the Service and managed according to the Upper Jamison Management Plan. An endowment shall be established to fund long term management, maintenance and monitoring activities on the site. The conservation easement will be recorded prior to the initiation of Project-related ground disturbance.

Avoidance and Minimization Measures for VPFS

1. Avoidance During Construction. Sixteen features within the Project site are presumed to be occupied by VPFS. Four of these features will be completely or partially filled as part of Project activities. The remaining twelve features will not be filled but will be within 250 feet of ground disturbing activities. During Project development, no Project construction or earth-moving equipment will be allowed within these twelve pools and exclusion fencing and worker training will be used to keep workers and vehicles from entering the pools. These twelve pools will be subject to a Stormwater Pollution Prevention Plan requiring erosion control materials and other methods be used to protect these pools from erosion and runoff during Project development. Only wildlife-safe erosion control materials will be used, as described above in the avoidance and minimization measures for CTS. The Designated and Monitoring Biologists will be authorized to stop any work which may threaten to damage the pools in question, but no translocation of fairy shrimp will be undertaken.

2. Preservation of Vernal Pool Fairy Shrimp Habitat. The Project Proponent will purchase one and three tenths (1.3) acres of vernal pool fairy shrimp preservation credit from the Kennedy Table conservation bank or another Service-approved bank prior to the start of ground disturbance.

Action Area

The Action Area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the Project, the Action Area includes the 1,555.5-acre Tesoro Viejo site and 44 acres of Reclamation-owned canal properties running through the Tesoro Viejo site. The Action Area also includes a vernal pool, which has been documented to contain VPFS, located 110 feet from the Project's southern boundary on the eastern side of the Project footprint. It is expected that the development of the Project and subsequent changes in hydrologic input will result in adverse impacts to this pool; therefore, the Action Area includes this 0.055-acre vernal pool. Lastly, the Action Area includes the 415.2-acre Upper Jamison Ranch property.

Analytical Framework for the Jeopardy Determination

ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed Federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the Action Area, the factors responsible for that condition, and the relationship of the Action Area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the Action Area on the species.

Analytical Framework Adverse Modification

Section 7(a)(2) of the ESA requires that Federal agencies insure that any action they authorize, fund, or carry out is not likely to destroy or to adversely modify designated critical habitat. A final rule revising the regulatory definition of "destruction or adverse modification" (DAM) was published on February 11, 2016 (81 FR 7214). The final rule became effective on March 14, 2016. The revised definition states:

> "Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features."

The DAM analysis in this biological opinion relies on four components: (1) the *Status of Critical Habitat*, which describes the range-wide condition of the critical habitat in terms of the key components (i.e., essential habitat features, primary constituent elements, or physical and biological features) that provide for the conservation of the listed species, the factors responsible for that condition, and the intended value of the critical habitat overall for the conservation/recovery of the listed species; (2) the *Environmental Baseline*, which analyzes the condition of the critical habitat in the Action Area, the factors responsible for that condition, and the value of the critical habitat in the Action Area for the conservation/recovery of the listed species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the key components of critical habitat that provide for the conservation of the listed species, and how those impacts are likely to influence the conservation value of the affected critical habitat; and (4) *Cumulative Effects*, which evaluate the effects of future non-Federal activities that are reasonably certain to occur in the Action Area on the key components of critical habitat that provide for the conservation of the listed species and how those impacts are likely to influence the conservation value of the affected critical habitat.

For purposes of making the DAM determination, the Service evaluates if the effects of the proposed Federal action, taken together with cumulative effects, are likely to impair or preclude the capacity of critical habitat in the Action Area to serve its intended conservation function to an extent that appreciably diminishes the rangewide value of critical habitat for the conservation of the listed species. The key to making that finding is understanding the value (i.e., the role) of the critical habitat in the Action Area for the conservation/recovery of the listed species based on the *Environmental Baseline* analysis.

Status of the Species

Central California Tiger Salamander

For the most recent comprehensive assessment of the range-wide status of the central CTS, please refer to the *Draft Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander* (*Ambystoma californiense*) (Draft Recovery Plan; Service 2016). No change in the species' listing status was recommended in the latest CTS 5-year review (*5-Year Review: Summary and Evaluation U.S. Fish and Wildlife Service* (Service 2014)). Threats evaluated during that review and discussed in the Draft Recovery Plan have continued to act on the species since the 2014 5-year review was finalized, with loss of habitat being the most significant effect. Hybridization between central CTS and non-native barred tiger salamanders poses a significant threat to central CTS in the western portion of their range, with hybrid occurrences concentrated in Monterey, San Benito, and Santa Clara Counties. However, hybridization has not been shown to be a significant threat to central CTS in the eastern portion of their range, where the Project will occur. While there have been continued losses of CTS habitat throughout the various recovery units defined in the Draft Recovery Plan, including the Southern San Joaquin Valley Recovery Unit where the Project is located, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species.

Vernal Pool Fairy Shrimp

For the most recent comprehensive assessment of the range-wide status of the VPFS, please refer to the *Vernal Pool Fairy Shrimp (Branchinecta lynchi) 5-Year Review: Summary and Evaluation* (Service 2007a). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in the final document have continued to act on the species since the 2007 5-year review was finalized, with loss of habitat being the most significant effect. While there have been continued losses of VPFS habitat throughout the various vernal pool regions identified in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005a), including the Madera Core area of the Southern Sierra Foothills Vernal Pool Region where the Project is located, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species.

Status of Critical Habitat

Central California Tiger Salamander

The Service designated approximately 199,109 acres of critical habitat for the central CTS on August 23, 2005 (70 FR 49380) (Service 2005b). The critical habitat designation includes 31 units throughout four geographic regions. The four regions containing critical habitat are: (1) The Central Valley Region; (2) the Southern San Joaquin Valley Region; (3) the East Bay Region (including Santa Clara Valley area); and (4) the Central Coast Region.

Based on our current knowledge of the life history, biology, and ecology of central CTS, and the habitat requirements for sustaining the essential life-history functions of the species, the Service determined that the following PCEs are essential to the conservation of the species:

(1) Standing bodies of fresh water (including natural and manmade (e.g., stock)) ponds, vernal pools and other ephemeral or permanent water bodies which typically support inundation during winter rains and hold water for a minimum of 12 consecutive weeks in a year of average rainfall;

(2) Upland habitats adjacent and accessible to and from breeding ponds that contain small mammal burrows or other underground habitat that central CTS depend upon for food, shelter, and protection from the elements and predation; and

(3) Accessible upland dispersal habitat between occupied locations that allow for movement between such sites.

For a comprehensive assessment of critical habitat for CTS, please refer to the *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Tiger Salamander, Central Population; Final Rule* (70 FR 49380) (Service 2005b). While there has been loss of CTS critical habitat since its designation, to date no project has proposed a level of effects for which the Service has issued a biological opinion of adverse modification for CTS critical habitat.

Succulent Owl's-clover

The Service designated approximately 175,873 acres of critical habitat for the succulent owl's-clover in a final rule to designate critical habitat for four vernal pool crustaceans and eleven vernal pool plants on August 6, 2003 (68 FR 46684) (Service 2003). This designation was revised on August 11, 2005 (70 FR 46924) (Service 2005c) and species by unit designations were published in a final rule on February 10, 2006 (71 FR 7118) (Service 2006). The critical habitat designation for succulent owl's-clover includes a total of 175,873 acres within six overall critical habitat units (SUCCL-1, SUCCL-2a-b, SUCCL-3a-b, SUCCL-4a-c, SUCCL-5a-b, and SUCCL-6a-b). These units are dispersed throughout portions of Fresno, Madera, Mariposa, Merced, San Joaquin, Stanislaus, and Tuolumne Counties.

Based on our current knowledge of the life history, biology, and ecology of the succulent owl's-clover, and the habitat requirements for sustaining the essential life-history functions of the species, the Service determined that the following PCEs are essential to the conservation of the species:

(1) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing surface water in the depressional features including swales connecting the pools described in PCE 2, providing for dispersal and promoting hydroperiods of adequate length in the pools; and

(2) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

For a comprehensive assessment of critical habitat for succulent owl's-clover, please refer to the *Final Rule; Administrative Revisions, Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants* (71 FR 7118) (Service 2006). While there has been loss of succulent owl's-clover critical habitat since its designation, to date no project has proposed a level of effects for which the Service has issued a biological opinion of adverse modification for succulent owl's-clover critical habitat.

Environmental Baseline

The Project is located in southeastern Madera County, approximately 13 miles east of the city of Madera along Avenue 15, and approximately 9 miles north of the city of Fresno along State Highway 41 (Figure 2). It is located in Sections 15, 21, 22, 23, 26, and 27 of Township 11 South, Range 20 East, on the U.S. Geologic Survey (USGS) 7½' "Lanes Bridge" and "Friant" quadrangles. Access to the Project site is via Road 204, a paved two-lane road that runs east from Highway 41. A system of dirt roads allows access to the majority of the Project site. The northernmost portion of the Project site is currently accessible by two existing timber bridges across the Madera Canal.

The Project site is situated at the eastern edge of the Great Central Valley, at the base of the Sierra Nevada Foothills. The Action Area is bordered by the unincorporated community of Sumner Hill to the east, and Little Table Mountain to the north. The western edge of the property is bordered by Highway 41, beyond which lies a mix of agriculture and suburban development associated with the cities of Fresno and Madera. Immediately south of the site is a mix of cultivated agriculture and grazing land, including preserved vernal pool grasslands.

The Project site is transected by the Madera Canal and Lateral 6.2 Canal (Figure 3). These are irrigation canals which distribute water from Millerton Lake. The Madera Canal is concrete-lined and above-grade. The Lateral 6.2 Canal is clay-lined and below-grade. The habitats along the canal rights-of-way include a mix of ruderal grasslands and vernal pools, as well as graded dirt access roads.

A majority of the Project site is intensively cultivated, comprising almost all of the property aside from the stream corridors and the steepest, rockiest hill slopes (Figure 3). Approximately 74% of the Project site is currently planted in either perennial or annual crops and two large, artificial ponds are maintained on the Project site as part of agricultural operations. Annual grassland is the most dominant natural habitat on the Project site, covering 238.5 acres. However, unlike most annual grasslands in the region, the onsite habitat is not grazed by livestock. The lack of grazing or any other natural disturbance has enabled a variety of weedy grasses and forbs to become established among the open grassland habitats. Growing among characteristic introduced rangeland grasses such as slender wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), and Italian rye grass (*Festuca perennis*), are noxious species such as milk thistle (*Silybum marianum*), horehound (*Marrubium vulgare*), Johnsongrass (*Sorghum halepense*), and several members of the mustard family (e.g., *Raphanus* spp., *Sinapis arvensis*). Growing among the grasses and forbs are a number of widely spaced horticultural street trees include palms (*Phoenix* spp.), oaks (*Quercus* spp.), and cottonwoods (*Populus* spp.). Approximately 60.9 acres of the annual grasslands occurs in relatively small, narrow strips between agricultural fields and far from any large, open expanses of uncultivated habitat.

The Project site also contains a network of interconnected streams, some of which support patchy to extensive stands of riparian woodland, which drain the hill slopes of the northern and eastern portions of the Project site (Figure 3). In addition, a small area at the far eastern edge of the Project site encompasses riparian and wetland habitats associated with the San Joaquin River. Several of the

Figure 2. Tesoro Viejo and Upper Jamison Ranch Regional Vicinity Map

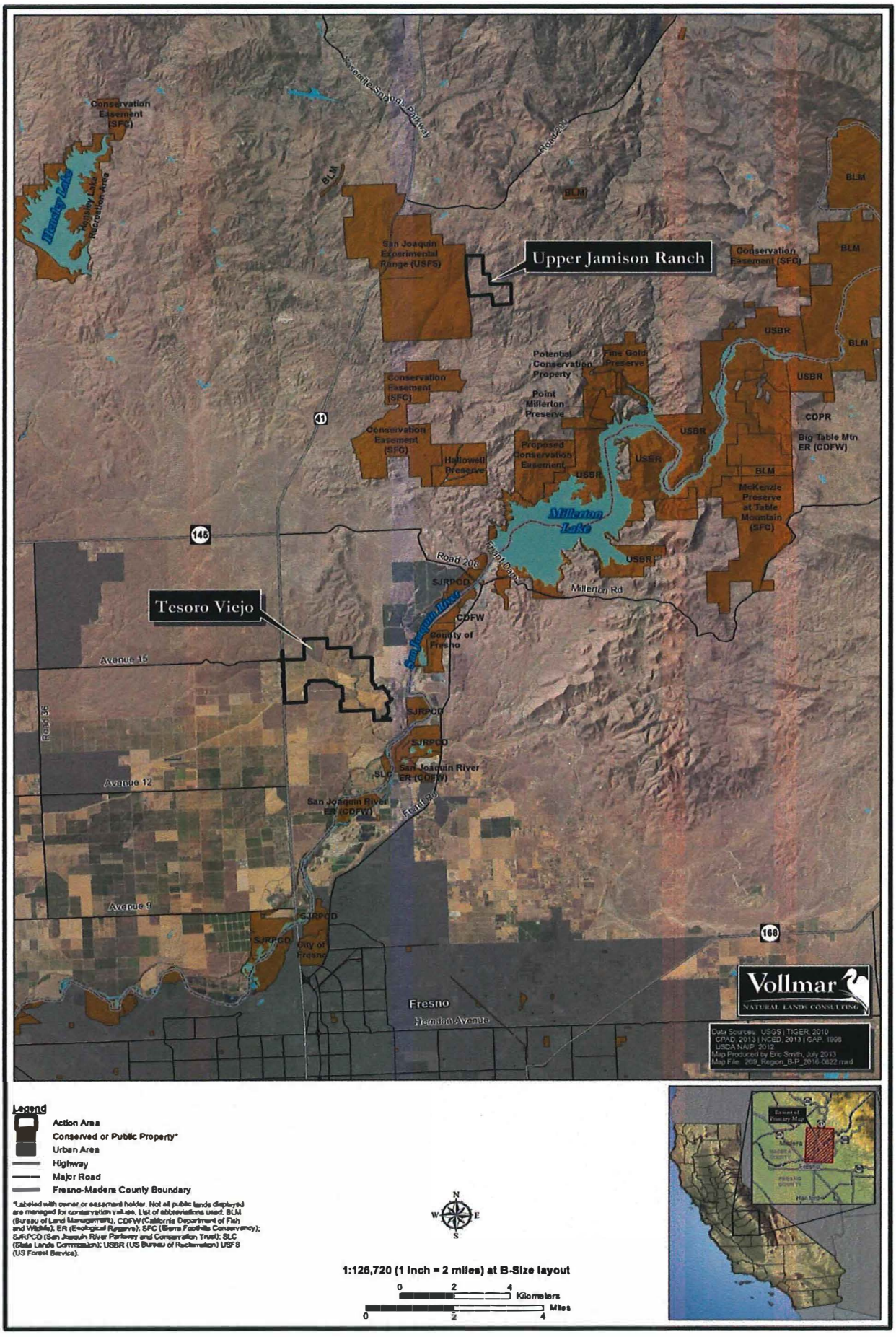
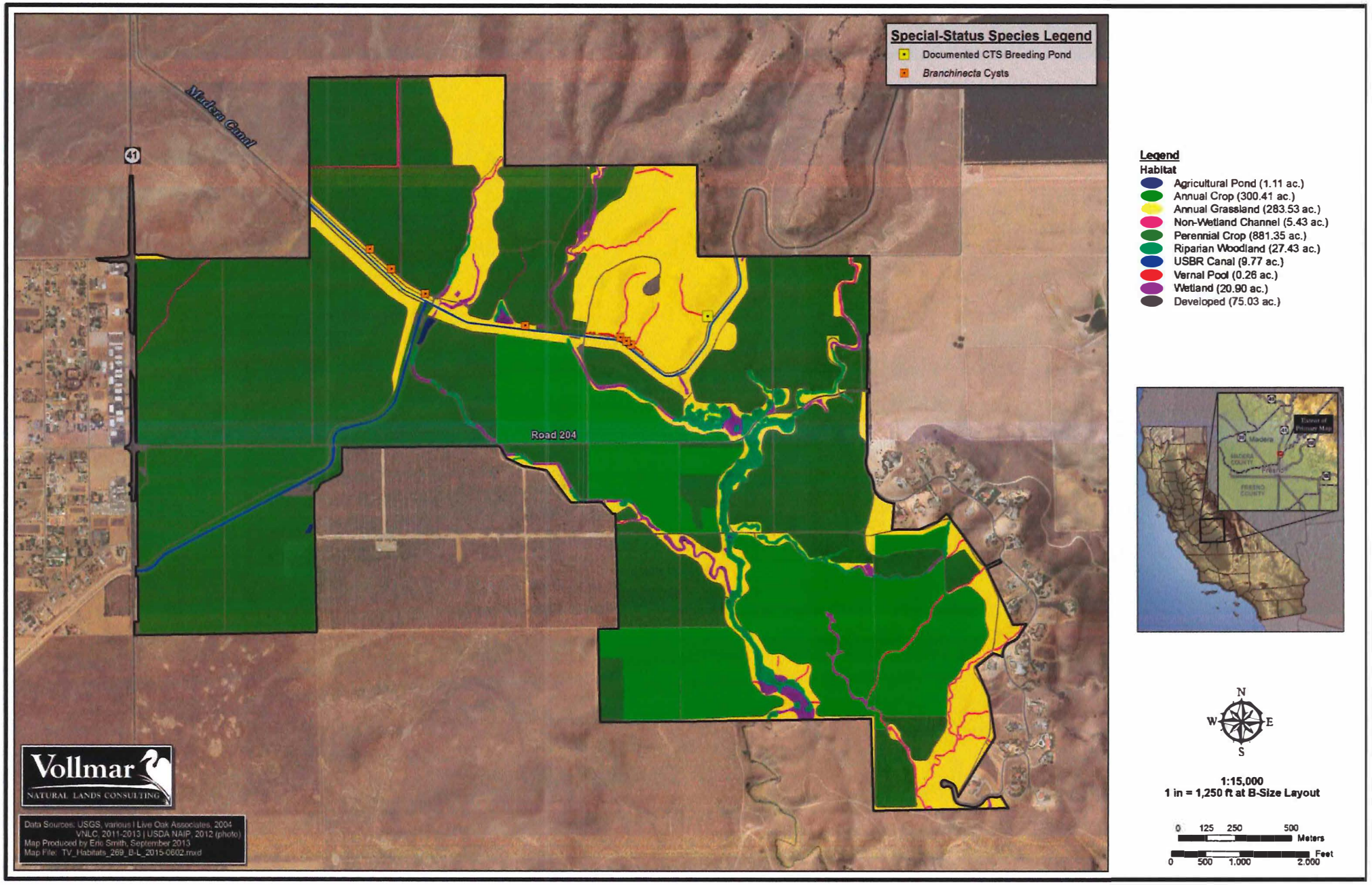


Figure 3. Tesoro Viejo Biological Resources Map



The Upper Jamison Ranch property is located east of Highway 41, along Road 211 in southeastern Madera County (Figure 2). It is situated in the Millerton Lake West 7½ minute USGS Quadrangle, Township 09S and 10S, Range 21E, and Sections 5 and 32. This location places the Upper Jamison Ranch in the lower Sierra Nevada foothills. The surrounding land use consists largely of cattle ranching, though Upper Jamison Ranch is bordered by the U.S. Forest Service San Joaquin Experimental Range to the west.

Habitats on Upper Jamison Ranch consist largely of upland annual grassland and oak-pine woodland, in addition to ephemeral drainages, a stock pond, and two springs. Upper Jamison Ranch has been historically managed for cattle grazing, a use which is compatible with CTS habitat in that it maintains low levels of thatch and provides aquatic habitat for breeding.

Central California Tiger Salamander

Project Site

CTS were documented breeding in a wetland within the Project site in 1993 and again in 2004 (Figure 3; CNDDB 2016). Protocol CTS surveys were not conducted in the Project site because of these prior documentations; however, CTS larvae were incidentally observed in the previously-documented breeding pool during the course of other surveys conducted by VNLC in 2013. The documented breeding pool exists within an area of undeveloped annual grassland in the northern portion of the Project site. This breeding pool is bordered on one side by the Madera Canal but is otherwise adjacent to annual grassland providing suitable upland habitat; this grassland is contiguous with large and open annual grasslands north of the Project site.

In addition to the documented breeding pool, there are two agricultural ponds and one perennial wetland within the Project site that provide potential, although less optimal, CTS breeding habitat (Figure 3). The agricultural pond in the southwestern portion of the Project site is bordered on all sides by active agriculture and is separated from suitable upland habitat by approximately 0.27 mile of orchards. The second agricultural pond, located in the central portion of the Project site, is bordered to the north by the Madera Canal and to the east by Lateral 6.2; the steep walls of these canals likely constitute an impassable barrier to CTS, even when water is not being delivered through them. This pond is separated from suitable upland habitat to the south by approximately 0.75 mile of orchards. The perennial wetland, also located within the central portion of the Project site, is heavily vegetated, bordered to the south by the Madera Canal, and bordered on all other sides by active agriculture. This wetland is separated from suitable upland habitat to the west by 0.06 mile of orchards. All three of these features have been documented to support bullfrogs; while the presence of bullfrogs in potential breeding ponds does not necessarily preclude use by CTS, it does reduce the potential for successful breeding and metamorphosis of CTS larvae into adults (Fisher and Shaffer 1996; Shaffer et al. 1993). Despite the lack of contiguous upland habitat and the presence of predators, these three features have sufficient hydro-periods to provide CTS breeding habitat. In addition, while these features are separated from suitable upland habitat by active orchards, it should be noted that agricultural lands do not necessarily constitute barriers to the dispersal of CTS (Service 2005b). All other water features on the Project site were found to lack a sufficient hydro-period to support CTS.

Including the known breeding pool, and the three other perennial ponds/wetlands, the Project site provides approximately 0.14 acre of documented CTS breeding habitat and 1.73 acres of potential CTS breeding habitat.

Annual grassland within the Project site that is contiguous with off-site vernal pool grasslands and/or provides direct access to CTS breeding ponds is likely to be used by CTS as upland habitat. Habitat of this type represents approximately 222.7 acres in the Project site and includes the area of annual grassland surrounding the documented CTS breeding pond, and patches of grassland on the northern and southern edges of the Project site which are contiguous with vernal pool grasslands to the north or south (Figure 3). Small patches of annual grassland which are surrounded by agricultural areas and do not provide access to large, contiguous habitat patches or breeding ponds could potentially be used by CTS as upland habitat, but such a scenario is less likely. These disconnected grasslands are scattered throughout the Project site, representing approximately 60.9 acres (Figure 3). The remainder of the Project site is composed of annual and perennial cropland which is subject to frequent disturbance and does not provide suitable upland habitat for CTS.

Outside of the Project site, CTS have been documented from vernal pool grasslands within three miles in every cardinal direction. The closest of these offsite occurrences is located approximately 0.25 mile to the south, where CTS larvae were detected in a vernal pool within a vernal pool grassland landscape. An additional CTS larvae occurrence was reported approximately 1 mile south, located southwest of the above mentioned record. Two occurrences are located 0.89 and 1.25 miles northeast of the Project site, where CTS larvae were observed in an artificial agricultural pond and a vernal pool, respectively. Numerous additional occurrences are recorded in the region; however, these are not described as they are more than 1.3 miles from the Project site, outside of the known migration distance for the species (Trenham and Shaffer 2005).

Individuals from either of the southern offsite breeding areas could use the agricultural ponds or upland habitats located within the Project site as they are within 1.3 miles. However, these individuals could not feasibly travel to the known CTS breeding pond or the perennial wetland within the Project site due to the location of the Madera Canal. Individuals from either of the northeastern offsite breeding areas could feasibly migrate to the documented breeding pool, perennial wetland, or surrounding upland habitat in the northern portion of the Project site.

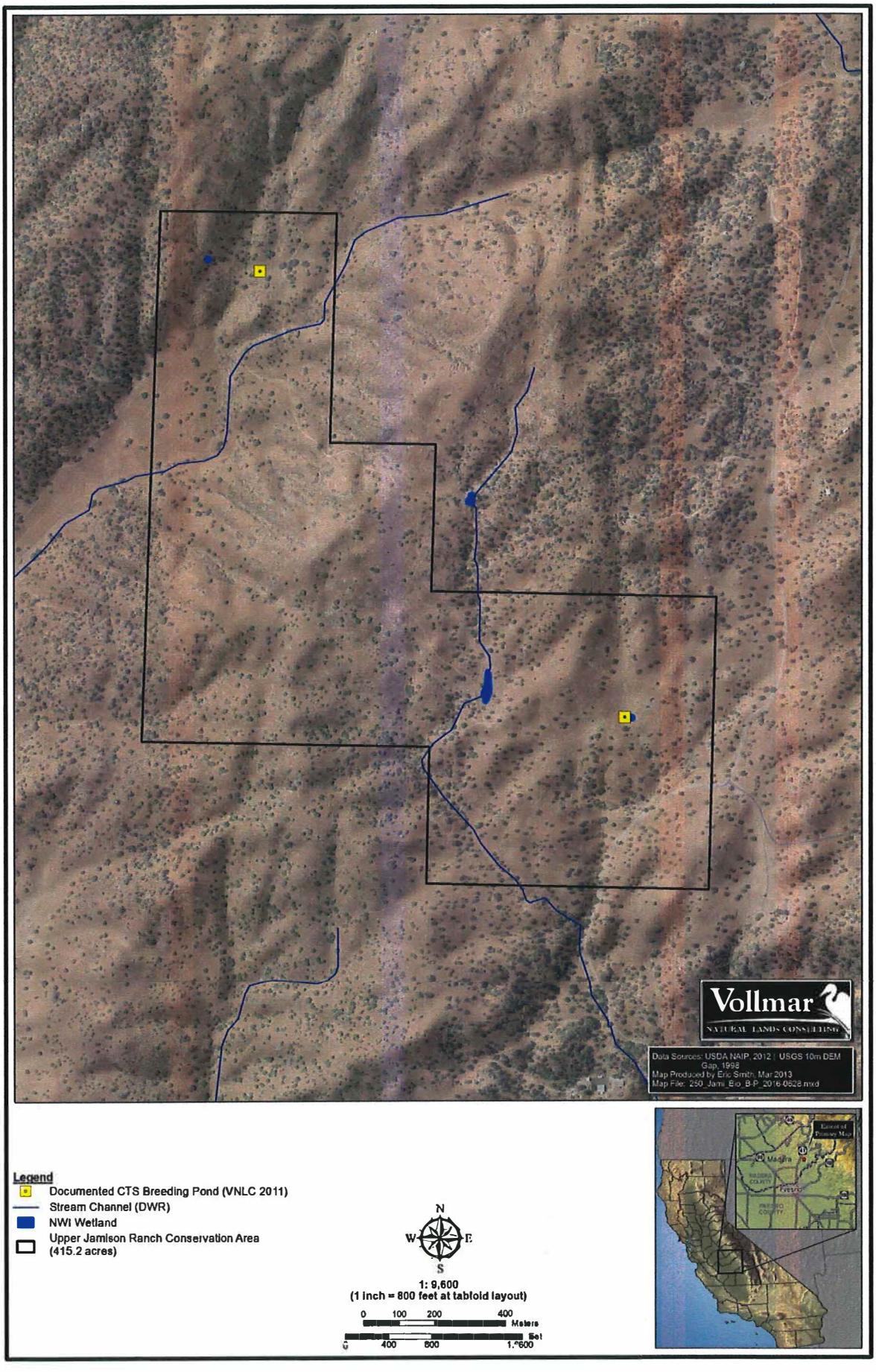
In summary, CTS have been documented to occur within a single wetland on the Project site and are known to occur on adjacent properties within contiguous vernal pool grasslands and throughout the Southern San Joaquin Valley Recovery Unit within available, suitable habitat. However, on a regional scale, habitat within the Project site provides limited value to CTS because the annual grassland onsite has been fragmented by conversion to vineyards and orchards; these land uses do not provide the appropriate physical and biological features that would support CTS. Furthermore, the Madera Canal represents a significant physical barrier to movement and genetic exchange between salamanders on either side of the canal and across the Project site.

Threats that require special management considerations for CTS include agricultural conversion, and urban development and associated infrastructure, including road construction, which could destroy or degrade aquatic habitat essential for breeding and rearing; destroy, degrade, or fragment upland habitat essential for growth, feeding, resting, and aestivation; or destroy, degrade, or fragment habitat essential for dispersal and connectivity.

Upper Jamison Ranch Preserve

Non-protocol level, reconnaissance surveys conducted by VNLC identified CTS larvae in the two springs on the property in 2011 and 2013 (Figure 4). CTS have not been documented to occur in the stock pond; however, this feature does provide potential, although less optimal, breeding habitat. The stock pond is surrounded by suitable upland habitat and has a hydro-period which provides CTS breeding habitat; however, this pond is occupied by bullfrogs.

Figure 4. Upper Jamison Ranch Biological Resources Map



The entirety of the Upper Jamison Ranch property is within 1.3 miles of the documented onsite CTS breeding ponds, and has direct connectivity to those sites. In addition, the CNDDB lists eight occurrences of CTS in the USGS Millerton Lake West quadrangle, two of which are within 1.3 miles of the property. One of these occurrences was recorded in 1983 and is located on Road 211, approximately 0.5 mile northeast of the property, and the other occurrence is on Forest Service land immediately west of the property. Based on the multiple breeding locations on and around Upper Jamison Ranch and the presence of suitable habitat throughout the site, it can be assumed that the entire 415.2-acre property provides upland habitat essential for growth, feeding, resting, dispersal, and aestivation for CTS. The property also provides aquatic habitat essential for CTS breeding and rearing.

Vernal Pool Fairy Shrimp

Sixteen water features (totaling 0.3787 acre) within the Project site are considered suitable habitat for VPFS. All of these features are located within or adjacent to Reclamation property along the northern side of the Madera Canal, and currently lie within or abut dirt roads on that property and/or on the Project site (Figure 3). These vernal pools and wetlands have formed due to water draining from the hillside to the north which collects at the roadside of the cement canal berm, and within active farm roads on the Project site.

VNLC conducted protocol wet-season surveys for large branchiopods in all suitable habitat in the Action Area in 2013. No special-status fairy shrimp were observed in any of the pools during 2013 aquatic surveys, although California fairy shrimp were observed in one pool (VNLC 2013b). In 2014, VNLC conducted dry sampling of soils in all vernal pools and wetlands with potential suitable fairy shrimp habitat. Analysis of these samples documented *Branchinecta* eggs in seven basins (totaling 0.17 acre) within the Action Area (Figure 3). These eggs have not been identified to species level; however, the nature of the habitat, the presence of VPFS on surrounding properties, and the general lack of other documented *Branchinecta* occurrences in the Project vicinity make it most likely that the eggs belong to VPFS. Because of the presence of *Branchinecta* eggs in pools throughout the Action Area, all 0.3787 acre of suitable habitat is assumed to be occupied by VPFS.

Outside of the Project site there is a mix of natural, created, and restored vernal pools and swales to the south; some of these features are located within 250 feet of the Project's southern boundary. To the south of the western portion of the Project footprint, these features occur within the California Department of Transportation's (Caltrans) Madera Pools Mitigation Site, a 198-acre property used by Caltrans to mitigate impacts from transportation projects in the San Joaquin Valley. To the south of the eastern portion of the Project footprint there is a 0.055-acre vernal pool which has been documented to contain VPFS.

Threats that require special management considerations for VPFS include habitat loss and modification associated with urban development, infrastructure, and agricultural conversion, which have contributed greatly to the loss and fragmentation of vernal pool ecosystems. Direct losses of habitat generally represent an irreversible damage to vernal pools; the alteration and destruction of habitat disrupts the physical processes conducive to functional vernal pool ecosystems. Vernal pool hydrology may be altered by changes to the patterns of surface and subsurface flow due to the increase in runoff associated with infrastructure, and disruption of hardpan or other impermeable layer that forms the perched aquifer essential to ponding water.

No vernal pool fairy shrimp habitat is present within the Upper Jamison Ranch Preserve.

Central California Tiger Salamander Critical Habitat

Portions of the Project site fall within designated critical habitat Millerton Unit in the Southern San Joaquin Region. This 6,811-acre unit is comprised of two subunits: Unit SSJ-1a (3,808 acres) and Unit SSJ-1b (3,003 acres). The Millerton Unit is essential to the conservation of the central CTS because it is needed to maintain the current geographic and ecological distribution of the species in the Southern San Joaquin Geographic Region. This unit represents the Southern Sierra Foothills Vernal Pool Region, one of two differing vernal pool regions in the Southern San Joaquin Geographic Region, and the southeastern portion of the species' distribution in the San Joaquin Valley. The Millerton Unit is the only unit within this vernal pool region in Madera County.

These subunits are located east of State Highway 41 and generally north of the San Joaquin River. The eastern boundary is approximately the western side of Millerton Lake, and the northern boundary is south of Berry Hill. Land ownership is private; Unit SSJ-1b contains the Caltrans Madera Pools Mitigation Site. Threats that require special management considerations for the Millerton Unit include urban development, agricultural conversion, and associated infrastructure, including road construction, which could destroy or degrade aquatic habitat essential for breeding and rearing; destroy, degrade, or fragment upland habitat essential for growth, feeding, resting, and aestivation; or destroy, degrade, or fragment habitat essential for dispersal and connectivity.

The Project site encompasses 131 acres of Unit SSJ-1a and 50.1 acres of Unit SSJ-1b. Portions of the Project site within both subunits currently provide the PCEs that are essential to the conservation of the species. Unit SSJ-1a includes a single seasonal wetland within the Project site that has been repeatedly documented to provide CTS breeding habitat (PCE 1). This wetland is directly adjacent to and accessible to and from annual grassland with mammal burrows (PCE 2), and this grassland is contiguous with large and open annual grasslands north of the Project site, which connect to other documented breeding locations (PCE 3). The portion of the Project site that falls within critical habitat Unit SSJ-1b does not provide suitable breeding habitat (PCE 1) or accessible upland dispersal habitat between occupied locations that allow for movement between such sites (PCE 3); however, Unit SSJ-1b does provide upland habitat along the southern boundary of the Project site which is accessible to and from a documented CTS breeding pond south of the Project site (PCE 2).

The two subunits are located less than one mile apart; however, the presence of the Madera Canal, which runs across the southern border of Unit SSJ-1a, is likely to limit dispersal between the two subunits within the Project site. The steep walls of this canal likely constitute an impassable barrier to CTS, even when water is not being delivered through it.

No critical habitat for central CTS is present within the Upper Jamison Ranch Preserve.

Succulent Owl's-clover Critical Habitat

A vast majority of the Project site falls within designated critical habitat subunit SUCCL-4c. This 38,039-acre subunit was proposed as critical habitat because it supports multiple occurrences of succulent owl's-clover within hardpan vernal pools on soils of alluvial fans and terraces. The unit boundary was drawn to include species occurrences and the vernal pool complexes in which they occur as mapped by Holland (1998) and as visible on satellite imagery, as well as elevation contours in the eastern foothill region and sub-watershed boundaries. This subunit is essential to the conservation of succulent owl's-clover because it represents large areas of contiguous habitat with relatively intact hydrology. In addition, it contains vernal pools and other ephemeral features and associated watersheds that maintain suitable periods of pool inundation, water quality, and soil

moisture for succulent owl's-clover germination, growth, reproduction, and dispersal. All of the designated critical habitat subunits for succulent owl's-clover, including SUCCL-4c, are located within the Southern Sierra Foothills Vernal Pool Region. SUCCL-4c is located in the southeastern portion of the species' distribution in the San Joaquin Valley.

This subunit is located almost entirely within Madera County, with less than 10 acres occurring in northern Fresno County. The subunit is bisected by State Highway 41 and is located north of the San Joaquin River. The eastern boundary is approximately the western side of Millerton Lake, and the northern boundary is south of Berry Hill. Most of the area within this subunit is on private land, although a large population of succulent owl's-clover within SUCCL-4c occurs on the Caltrans Madera Pools Mitigation Site. The integrity of vernal pool complexes and their associated watersheds in this subunit is threatened by agricultural conversion, intensive grazing, urban development, and associated infrastructure, including road construction, which could destroy or degrade aquatic habitat.

SUCCL-4c encompasses 1,595.7 acres of the 1,600-acre Project site. Within the Project site, a majority of subunit SUCCL-4c has been modified (i.e., leveled or disced) and is currently planted as vineyards and/or orchards. However, eleven small vernal pools (PCE 2; totaling 0.26 acre) are present in the Action Area near the edge of the Madera Canal, where the constructed canal berm and road intercept water conducted by the non-wetland channels that drain the hill slopes to the north. However, because these pools are small with short hydro-periods, do not have acid soils, and have not been documented to contain succulent owl's clover in two years of appropriately-timed floristic surveys, it is unlikely that they support the species. Based on field studies conducted in Merced County, the succulent owl's-clover typically occurs in medium to large pools with a maximum potential ponding depth of at least 5-6 inches (Dittes and Guardino 2002). The species also appears to have strong soil affinities, preferring older, gravelly, acidic soils of the high terraces, especially Redding and Amador soils (Dittes and Guardino 2002). The vernal pools within the Project site do not possess these characteristics and therefore have a low likelihood of supporting succulent owl's clover. Nonetheless, these pools provide PCE 2 as described in the critical habitat designation.

The portion of the Project site that falls within SUCCL-4c does not provide the topographic mound and intermound complex features with surrounding uplands as described in PCE 1.

No critical habitat for succulent owl's-clover is present within the Upper Jamison Ranch Preserve.

Effects of the Action

Central California Tiger Salamander

As noted previously in the Description of the Action section, the Project Proponent has proposed a set of Conservation Measures which include the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on CTS of the Project's permanent loss and degradation of habitat described below. This will include the placement of a conservation easement on the 415.2-acre Upper Jamison Ranch Preserve in order to permanently restrict the area from development and provide management in perpetuity. The Upper Jamison Ranch property contains 415.2 acres of CTS upland habitat, two springs in which CTS have been documented breeding, and one stock pond. The property will be managed in accordance with the Upper Jamison Management Plan.

The Upper Jamison Ranch Preserve provides breeding habitat for CTS and will protect a contiguous expanse of upland habitat that is of higher quality than the fragmented habitat that will be lost as a result of the Project. In addition, proposed management activities such as bullfrog control, will improve habitat conditions for this species on the property. The Upper Jamison Ranch Preserve is surrounded by contiguous grassland habitat and is within 1.3 miles of multiple off-site breeding ponds. The preservation of this property will help maintain the geographic distribution of the CTS and contribute to the recovery of the species by increasing the amount of habitat that is secure from development threats.

Project Site - During Development

Project implementation will result in the permanent loss of 162.4 acres of CTS upland habitat within the Project site. This loss of CTS habitat includes development of grasslands in the Project site into residential, commercial, and public uses and will result in the disruption of essential behaviors such as feeding, sheltering and dispersal. Project related activities including, but not limited to, grading, clearing and grubbing, excavating and paving will result in the death of an unknown number of individuals. Construction-related activities could result in the entrapment or crushing of CTS in burrows on the Project site. Individual CTS that are exposed on the surface during grading or excavation may be crushed or injured, or experience increased predation or desiccation. Individuals could also fall into pits, trenches, or other excavations and be killed via desiccation, predation, entombment, or starvation. CTS within and adjacent to development areas could also be subject to increased levels of harassment due to the use of artificial lighting during night-time construction activities (Wise and Buchanan 2002).

Project implementation will result in the permanent loss of 0.39 acres of potential CTS breeding habitat. This loss includes filling the agricultural pond in the southwestern portion of the Project site and modifications to the second agricultural pond, located in the central portion of the Project site. Modifications will include placement of a check dam, partial de-watering, filling a portion of the pond, and excavating in order to re-configure the shape of the pond. Both of these ponds could potentially be used by CTS for breeding, although the lack of contiguous upland habitat, surrounding active agriculture, and presence of bullfrogs make them sub-optimal habitat. Project related activities including, but not limited to, filling, excavating, dewatering, and use of heavy equipment will result in the loss of potential CTS habitat and injury or mortality to any CTS present in the ponds during construction.

Death and injury to/of CTS resulting from construction activities, as described above, will be minimized by attempts to excavate and relocate CTS out of the work area prior to construction. CTS will be relocated to designated areas within the on-site Open Space Preserve, that are within dispersal distance of a breeding pond and contiguous with off-site upland habitat, as specified in the CTS Mortality Reduction and Relocation Plan. Following excavation of all burrows and relocation of CTS, an exclusion barrier would be installed wherever the limits of grading for the work area border CTS habitat. The exclusion fencing will remain in place and in good repair for the duration of all development and construction activity within a given project-phase work area and will effectively prevent relocated CTS from re-entering the disturbance area, thereby reducing the risk of death and injury. Death and injury will be further minimized by Conservation Measures requiring material and equipment inspection, on-site biological monitoring during ground disturbing activities, worker education programs, restricted speed limits, and restricting work during rain events.

Excavating and relocating CTS and installing an exclusion barrier prior to ground disturbing activities will reduce the risk of injury and mortality to individuals during construction activities. However, individuals may be captured and subject to stress or injury during handling and relocation.

Relocated CTS could experience competition for burrows, attempt to disperse from relocation areas, or be reluctant to use new burrows; these individuals could be subject to increased predation, or could disperse into unsuitable habitat where their likelihood of survival would be reduced. Survivorship of relocated wildlife, in general, is lower because of intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, increased risk of contracting disease in a foreign environment, and the risk of predation. Furthermore, if individuals are relocated to occupied burrows, any CTS presently occupying those burrows may be subject to resource competition. CTS could also be crushed or otherwise injured or killed during the excavation process. CTS may also be injured or killed if they become trapped along the exclusion barrier; however, this will be minimized by a Conservation Measure requiring the barrier line to be inspected every morning during periods when CTS are likely to be migrating above-ground. Any CTS discovered along the barrier will be relocated by the Designated Biologist. Improper excavation technique, handling, lack of disease prevention measures, or improper transport of individuals will be prevented by use of a Designated Biologist(s) with species-specific experience, requiring proper excavation techniques, and limiting the duration of handling.

Project Site - Post Development

The Project will result in the development of up to 5,170 dwelling units and a population of up to 15,590 residents. Residential development within 1.3 miles of known and potential CTS breeding ponds or near occupied upland habitat could result in injury or mortality to individual CTS that may wander into developed areas of the Project site. These individuals could be crushed by vehicle traffic or otherwise injured or killed by humans, pets and vehicles moving within the developed portions of the Project site. Project implementation will include the construction of new roadways and will also cause increased traffic on existing roadways that CTS may traverse. Highways and roads can have adverse impacts on CTS, including but not limited to, vehicle strikes, habitat fragmentation and loss, and environmental contamination (Shaffer et al. 1993). CTS may also be adversely affected by the presence of stormwater catchment basins. These basins may be attractive to CTS that are moving overland during the breeding season and use of the ponds could result in predator-related mortality of individuals, exposure to chemical toxicants, and/or the ponds becoming a population sink. While the effects of lighting on CTS have not been documented, lighting within developed portions of the Project site may adversely affect CTS, which typically move at night, by exposing them to predators. This effect will be mitigated through a provision requiring that lights associated with residential tracts be directed away from CTS habitat areas to the extent practicable.

Project implementation will also result in the permanent presence of humans and pets, increasing the chances of encroachment into CTS habitat within the on-site Open Space Preserve. Fences will be in place to prevent entry into on-site Open Space Preserve which contain upland and/or breeding habitat for CTS; however, the increased human population on the Project site may nonetheless result in trespass, including off-road vehicle use, potentially resulting in injury or mortality to CTS or habitat degradation within these areas. Human activities could also disrupt vital CTS behaviors, including migration to and from breeding habitat; domestic pets may prey on CTS. Use of pesticides and poisons within the development areas may expose CTS within the on-site open space areas to toxic chemicals. Exposure to pesticides has been shown to slow *Ambystoma* species' larval growth, increase susceptibility to viral infections, and increase susceptibility to predation (Service 2016). Furthermore, the likelihood of introducing (or expanding areas occupied by) invasive exotic species such as predatory fish or bullfrogs within the on-site Open Space Preserve will increase with development and human habitation.

Certain types of management and maintenance activities that will take place within the on-site Open Space Preserve, as described in the Open Space Management Plan, may result in capture, death or injury of CTS. Such activities include, but are not limited to, mowing, fence repairs, trail maintenance, vegetation management, installation and maintenance of irrigation lines within existing road alignments, application of herbicides, use of motorized vehicles for management and monitoring activities, and maintenance and repair of drainage outfalls. The effects of these activities will be minimized by measures in the Open Space Management Plan prohibiting maintenance work from occurring within 50 feet of CTS breeding ponds while they are ponded, restricting the use of herbicides within 60 feet of CTS breeding habitat, and ensuring that ground disturbing maintenance activities either avoid small mammal burrows, or that burrows be excavated and CTS relocated prior to the onset of maintenance activities.

While the use of an open space designation around portions of CTS upland and breeding habitat may reduce the likelihood of direct conversion of this habitat, the surrounding residential development will substantially reduce the likelihood that these features will be used by CTS. Should individuals breed, or attempt to breed, in the documented breeding pond located within the on-site Open Space Preserve, the amount of accessible upland habitat available upon exiting the pool will be greatly reduced compared to existing conditions. The effects of fragmentation, combined with the effects of encroachment, chemicals, edge effects, and invasive species, will diminish the ecological function of the CTS habitat within on-site Open Space Preserve, thereby reducing habitat suitability for CTS and providing little or no conservation value to the species.

Upper Jamison Ranch Preserve

Certain types of management and maintenance activities that occur on the Upper Jamison Ranch Preserve, as described in the Upper Jamison Ranch Management Plan, may adversely affect CTS. Construction and installation of livestock infrastructure, including perimeter fencing, a corral, water troughs, wells, and connection pipelines may result in mortality or injury to CTS despite implementation of minimization measures. CTS could also be injured or killed by road maintenance activities, vehicles being operated on the preserve for management activities and livestock operations, or during pond maintenance activities requiring ponds to be cleaned out using heavy equipment, or repaired due to berm rupture. CTS may also experience injury or mortality during mowing activities or be exposed to chemicals used for habitat management.

Death and injury of/to CTS resulting from the activities described above will be minimized by measures described in the Upper Jamison Management Plan. Such measures will require coordination with a biological monitor prior to any new ground disturbance for well excavation or water pipeline trenching, and implementation of avoidance and minimization measures during ground disturbance. If the biological monitor determines that a specific water development presents a risk to CTS which cannot be mitigated, that development will be prohibited under the Upper Jamison Management Plan. The risk of injury or mortality to CTS due to vehicle strike will be minimized by restricting off-road motor vehicle use within the property, except as required for routine ranching activities, or emergency or law enforcement actions. Effects to CTS due to non-emergency road maintenance and mowing will be minimized by restricting these activities to periods when CTS are not expected to be active and above ground. To reduce the potential loss of CTS during pond maintenance, such activities will be undertaken only in ponds that are either completely dry, or if still ponded between August 31 and October 15 when CTS larvae and adults are not expected to occur. Emergency repairs due to berm failure may be conducted at any time, but the work will be monitored by a permitted CTS biologist if conducted outside of the August 31-October 15 window.

All of the activities described above are existing routine ranching activities that regularly occur on the property. The occurrence of these activities is therefore not interrelated or interdependent to the federal actions described in this biological opinion. On August 4, 2004, the Service published a final 4(d) rule for CTS which exempts exiting routine ranching activities (FR 69 47212). Under the 4(d) rule, take of CTS caused by existing routine ranching activities on private land would be exempt from section 9 of the Act. Therefore, take resulting from existing routine ranching activities on Upper Jamison Ranch Preserve is exempt under the 4(d) rule and will not be addressed further in this biological opinion.

The Upper Jamison Ranch Management Plan includes electrofishing as a management tool for controlling bullfrogs within the stock pond on the property. Any CTS occupying the stock pond at the time of electrofishing could temporarily stunned or impaired by the electric field. Adverse effects to CTS within the stock pond may also occur; however, data suggests that amphibians are less susceptible to electrofishing injury compared to fish (Alan and Riley 2012) and several studies which examined the effects of this method on amphibians reported little or no mortality (Williams et al. 1981, Alsup 2005, Bernini et al. 2000).

Adverse effects to CTS associated with electrofishing would be short term and would serve to provide a long term conservation benefit to the species. CTS are not currently known to breed within the stock pond, and occupation of this pond by CTS is likely limited by the presence of bullfrogs. Death and injury of CTS due to electrofishing would be minimized by timing electrofishing to occur after August, when metamorphs are expected to have departed natal ponds in search of upland habitat, and before the start of the rainy season when adults are expected to migrate to breeding ponds. Death and injury will also be minimized by measures in the Upper Jamison Management Plan requiring that management activities be conducted by a Designated Biologist(s) permitted to handle CTS, and requiring that electrofishing be conducted at a voltage that has been shown to minimize mortality or injury to amphibians.

Vernal Pool Fairy Shrimp

Sixteen features within the Project site are presumed to be occupied by VPFS. The construction of the Project will result in direct effects to four vernal pools (totaling 0.1098 acre) in which VPFS are assumed to be present. These pools are located on Reclamation property, and currently abut a dirt road on that property that is adjacent to annual grassland. These four pools will be completely or partially filled by the Project. Placement of fill and the use of earth moving equipment will result in the permanent loss of fairy shrimp habitat and the death of an unknown number of fairy shrimp individuals and their eggs. The placement of fill will likely crush or destroy VPFS eggs, or otherwise prevent the eggs from hatching.

The remaining twelve features (totaling 0.2689 acre) will not be filled but will be within 250 feet of ground disturbing activities. These pools will be subject to avoidance and minimization measures during construction activities; including the placement of exclusion fencing to exclude earth-moving equipment from these pools, and a Stormwater Pollution Prevention Plan requiring erosion control materials and other methods be used to protect from erosion and runoff. However, all these pools will be subject to indirect effects due to changes in the watershed as a result of habitat conversion, introduction of invasive species, and reduced seed and pollen input for vernal pool plants due to the fill of nearby pools. Furthermore, three of these features will exist within an approximately 40-foot wide trail alignment including mixed use trails. The trails themselves will avoid the features; however, the features will be subject to disturbance resulting from foot and bicycle traffic, presence of pets, and other indirect effects.

The Project will also result in indirect effects to 0.055 acre of offsite, occupied VPFS habitat. This vernal pool is located within 250 feet of the Project's southern boundary, on the eastern side of the Project footprint. There is a culvert under the road at the southern edge of the Project site which currently permits flow from the Project site into this pool; at present, the pool receives both natural storm flows and irrigation runoff. Development of the Project will result in reduced peak discharge rates, but increased overall flow at this outfall. Post development, the pool will continue to receive storm flows, but at a modified velocity, as well as treated artificial runoff from the development. These changes in hydrologic input and potential changes in water quality will diminish the suitability of this pool as habitat for VPFS.

There is a mix of natural, created, and restored vernal pools and swales located within 250 feet of the Project's southern boundary on the western side of the Project footprint. These features occur within the Caltrans Madera Pools Mitigation Site. VNLC mapped these features based on a wetland delineation, restoration plans, and available aerial imagery and found that approximately 0.75 acre of vernal pools/seasonal wetlands, 0.15 acre of seasonal wetland swale, and 0.72 acre of failed created pool exist within 250 feet of the Project site. There is a dirt road along the southern boundary of the Project site and an earthen berm stretches almost the entire length of the Project site boundary. This berm currently prevents any significant water flow from the Project site onto the Caltrans site. However, the one exception to this is a single culvert under the road, which permits flow from the Project site into the 0.15 acre swale. Based on a visual habitat evaluation by VNLC, this swale conveys water, but does not have surface ponding and is not likely to support VPFS. Therefore, a change in hydrology to this swale is unlikely to result in effects to VPFS. The existence of the berm and lack of other outfalls or hydrologic connectivity between the Project site and the Caltrans site indicate that the Project will not have a hydrologic effect on the other pools within the Caltrans Madera Pools Mitigation Site.

As noted previously in the Description of the Action section, the Project Proponents have also proposed a set of conservation measures, including the commitment to purchase one and three tenths (1.3) acres of vernal pool fairy shrimp preservation credit from the Kennedy Table conservation bank or another Service-approved bank prior to the start of ground disturbance. The purchase of these credits will minimize the effect on the vernal pool fairy shrimp of the proposed project's anticipated incidental take, resulting from the permanent loss of habitat described above. Conservation banks for the vernal pool fairy shrimp are designed to provide long-term management for the benefit of the species and habitat that will be protected in perpetuity.

Central California Tiger Salamander Critical Habitat

The Project site encompasses 131 acres (or 3.4%) of Unit SSJ-1a. This portion consists of the southern tip of the unit. Approximately 28 acres of this unit in the Project site does not currently support the PCEs that are essential to the conservation of the species (i.e. it has already been developed into roads, rural residential use, or agriculture). Of the 103 acres of the unit which does provide one or more of the PCEs, 74.1 acres (or 1.9% of the unit) would be developed by the Project, resulting in a permanent loss of PCEs 2 and 3; eliminating the ability for these PCEs to provide feeding, sheltering, and dispersal habitat for CTS. Twenty-five and one half acres (or 0.7%) of Unit SSJ-1A within the Project site that currently provide all three PCEs would be managed in perpetuity in accordance with the Open Space Management Plan. While the Project would not result in a direct loss of these PCEs, indirect effects within the on-site Open Space Preserve, including encroachment by humans or pets, increased levels of human-supported predators, exposure to pesticides, increased vehicle traffic on nearby roads, and exposure to night lighting, would reduce the ability for these PCE's to provide breeding, foraging, sheltering, and dispersal habitat for CTS. These effects will be minimized by measures outlined in the Open Space

Management Plan restricting public access to on-site open space areas containing CTS habitat, installing signage to inform the public of the presence of sensitive habitat, and biannual biological inspections to assess the overall habitat condition and function of CTS habitat within on-site Open Space Preserve. The remaining 3.4 acres of the unit are on Reclamation property within the Project site and would not be developed as part of the Project.

The Project site also encompasses 50.1 acres (or 1.7%) of Unit SSJ-1b. This portion consists of the northern tip of the unit. Approximately 10.9 acres of the unit within the Project site does not currently support the PCEs either because it has already been developed into roads or agriculture, or because it naturally consists of streams or riparian wetlands which are not considered CTS habitat. Of the 39.2 acres of the unit within the Project site that provide upland foraging and sheltering habitat (PCE 2), 7.5 acres would be developed by the Project, resulting in a direct loss of PCE 2 and the ability to provide feeding and sheltering habitat for CTS. The remaining portion of Unit SSJ-1B (31.8 acres or 1%) within the Project site that currently provides PCE 2 will be managed in perpetuity in accordance with the Open Space Management Plan. This portion of the unit will be subject to the same indirect effects and avoidance and minimization measures as described above for Unit SSJ-1a.

Project development would result in the direct loss of or degradation to a total of 103 acres of upland foraging, sheltering, and dispersal habitat (PCEs 2 and 3) and breeding habitat (PCE 1) within Unit SSJ-1a and 39.2 acres of upland foraging and sheltering habitat (PCE 2) within Unit SSJ-1b. However, this represents a total loss of only 0.07% of the total acreage of designated critical habitat for the central CTS. Relative to the size of each unit, the area of impact is small and therefore not likely to significantly affect the continued function of these units or the entire designated critical habitat. Critical habitat range-wide is expected to continue to be functional and serve its role in CTS recovery.

Succulent Owl's-clover Critical Habitat

The Project site encompasses 1,595.7 acres (or 24%) of Unit SUCCL-4C. However, of the 1,595.7 acres of the unit mapped within the Project site, the vast majority consists of converted agricultural land which lacks the PCEs that are essential to the conservation of the species. Approximately 0.26 acre of vernal pools occurs within the Project site, providing PCE 2. Four of these vernal pools will be completely or partially filled (0.110 acre of direct impact) as part of the Project, resulting in a direct loss of PCE 2 and the removal of suitable habitat for succulent owl's-clover. The remaining pools will not be filled but will be subject to various indirect effects due to changes in watershed, encroachment by humans, introduction of invasive species from conversion of the existing annual grassland to proposed agricultural uses, and a reduction in seed and pollen input due to the fill of the nearby pools. These indirect effects will eliminate or reduce the ability of these vernal pools (PCE 2) to provide habitat for succulent owl's-clover. However, because the pools within the Project site are small with short hydro-periods, do not have acid soils, and have not been documented to contain succulent owl's clover in two years of appropriately-timed floristic surveys, it is unlikely that they support the species. Based on field studies conducted in Merced County, the succulent owl's-clover typically occurs in medium to large pools with a maximum potential ponding depth of at least 5-6 inches (Dittes and Guardino 2002). The species also appears to have strong soil affinities, preferring older, gravelly, acidic soils of the high terraces, especially Redding and Amador soils (Dittes and Guardino 2002).

The vernal pools within the Project site do not possess these characteristics and therefore have a low likelihood of supporting succulent owl's clover; nonetheless, the strict definition of PCE 2 is met, and these vernal pools will be removed or degraded. However, when compared to succulent owl's-

clover critical habitat range-wide, the proposed action will result in a reduction of approximately 1% of designated succulent owl's-clover critical habitat. Range-wide, critical habitat is expected to continue to be functional and serve its role in succulent owl's-clover recovery.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the Action Area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the Action Area of the Project.

Conclusion

After reviewing the current status of CTS and VPFS, the environmental baseline for the Action Area, the effects of the proposed Tesoro Viejo Master Planned Community, and the cumulative effects, it is the Service's biological opinion that the Tesoro Viejo Master Planned Community, as proposed, is not likely to jeopardize the continued existence of the CTS and VPFS. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. The adverse effects to CTS and VPFS will be, in part, offset by the long-term preservation of habitat that provides feeding, breeding and sheltering opportunities.

After reviewing the current status of designated critical habitat for CTS and succulent owl's-clover, the environmental baseline for the Action Area, the effects of the Tesoro Viejo Master Planned Community, and the cumulative effects, it is the Service's biological opinion that the Tesoro Viejo Master Planned Community, as proposed, is not likely to destroy or adversely modify designated critical habitat. The Service reached this conclusion because the project-related effects to the designated critical habitat, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding the function of CTS and succulent owl's-clover critical habitat to serve its intended conservation role for the species. The effects to CTS and succulent owl's-clover critical habitat are small and discrete, relative to the entire area designated, and are not expected to appreciably diminish the value of the critical habitat or prevent it from sustaining its role in the conservation of the CTS and succulent owl's-clover.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action

is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Reclamation so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (1) fails to assume and implement the terms and conditions or (2) fails to require the Project Proponents to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Reclamation must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

Central California Tiger Salamander

It is infeasible for the Service to quantify the exact number of CTS that will be taken as a result of the proposed action because the number of individuals in the Action Area is unknown and estimates of population and/or burrow density in the Action Area are unavailable. Furthermore, the entire Action Area is within 1.3 miles of known or potential breeding habitat with small mammal burrows and other potential upland refugia throughout. When this amphibian is not in breeding ponds, or foraging, migrating, or conducting other surface activity, it inhabits the burrows of ground squirrels or other rodents; the burrows may be located a distance from the breeding ponds; the migrations occur during a limited period during or after rain events or during periods of high relative humidity in the fall, winter, or spring; and finding an injured or dead individual is unlikely because of their relatively small body size. Losses of this species also may be infeasible to quantify due to seasonal fluctuations in their numbers and random environmental events.

In instances in which the number of individuals that may be taken cannot be determined, the Service may quantify take in the amount of lost or disturbed habitat as a result of the Project action; since take is expected to result from these effects to habitat, the quantification of habitat becomes a direct surrogate for the species that will be taken. Therefore, the Service anticipates that within the Action Area, all CTS inhabiting the 222.7 acres of upland habitat within the Project site will be subject to incidental take in the form of harm, harassment, capture, injury, and mortality during construction and/or residential use of the Project site, and during excavation and relocation activities that may occur within the Project site. In addition, CTS that become trapped along the exclusion barrier may be subject to incidental take in the form of harm, harassment, capture, injury, and mortality. CTS within the 2.2-acre stock pond on the Upper Jamison Ranch property may be subject to harm, harassment, injury, and mortality as a result of electrofishing.

Since we cannot estimate the number of individual CTS that will be incidentally taken for the reasons listed above, we are providing a mechanism to quantify when take would be considered to be exceeded as a result of implementing the Project. In order to determine at what point consultation should be reinitiated, we analyzed a nearby recent project, the City of Fresno Raw Water Pipeline Project (Fresno site; located three miles southeast of the Project). We also made the assumption that the CTS population density at the Project site is likely to be similar to the Fresno site due to proximity and similarity of habitat conditions.

During burrow excavation for the Fresno site, one injured salamander was detected over an area approximately one tenth the size of the area what will be excavated as part of the Project. Assuming

a similar population density over the larger area of the Project, the Service anticipates that up to 10 dead or injured CTS may be detected on site during Project activities, at which point all work that may result in take of CTS must stop and consultation must be reinitiated by Reclamation. By setting a threshold of ten individuals detected, we have set an incidental take limit that is measurable and indicates that the CTS is being affected at a level where avoidance and minimization measures and project implementation need to be evaluated and possibly modified. We conclude that the incidental take of CTS will be considered exceeded if ten dead or injured adult or juvenile CTS are detected by biological monitors or other Project personnel.

Upon implementation of the following reasonable and prudent measures, incidental take of CTS associated with the Action Area will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Vernal Pool Fairy Shrimp

The Service anticipates that incidental take of VPFS will be difficult to detect due to the fact that it is not possible to know how many eggs are in the soil of any wetland features, or how many individuals or eggs will occupy any wetland feature later in time. Fill of 0.1098 acre of VPFS habitat and indirect effects to 0.2689 acre of vernal pools due to Project activities will result in the harm and mortality of all VPFS and eggs inhabiting the 0.3787 acre of vernal pools be filled or subject to degradation due to indirect effects.

Upon implementation of the following reasonable and prudent measures, incidental take of VPFS associated with the Action Area will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take of CTS and VPFS is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on CTS and VPFS resulting from implementation of this Project have been incorporated into the Project's proposed Conservation Measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of CTS and VPFS:

All Conservation Measures, as described in the biological assessment and restated here in the Project Description section of this biological opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the Terms and Conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation and the Corps must ensure compliance with the following Terms and Conditions, which implement the reasonable and prudent measure described above. These Terms and Conditions are nondiscretionary.

1. Reclamation and the Corps shall include full implementation and adherence to the conservation measures as a condition of any permit, authorization or contract issued for the project.

2. If requested, during or upon completion of construction activities, the applicant shall ensure the Service's access to the Project area. The Designated Biologist and/or a representative of the Project Proponents shall accompany Service personnel on an on-site inspection of the Project area(s) to review Project effects to listed species and their habitats.

3. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the Project is approached or exceeded, Reclamation shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded Reclamation must immediately reinitiate formal consultation as per 50 CFR 402.16.

    a) For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Reclamation will provide monthly updates to the Service with a precise accounting of the total acreage of habitat impacted. Updates shall also include any information about changes in project implementation that result in habitat disturbance not described in the Project Description and not analyzed in this Biological Opinion.

    b) For those components of the action that may result in direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death is anticipated, Reclamation shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the encounter. If an encounter occurs after normal working hours, Reclamation shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, Reclamation shall follow the steps outlined in the Salvage and Disposition of Individuals section below.

    c) For those components of the action that will require the capture and relocation of CTS, Reclamation shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the action. If capture and relocation need to occur after normal working hours, Reclamation shall contact the SFWO at the earliest possible opportunity the next working day.

Salvage and Disposition of Individuals:

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact person is Dana Herman, Biologist, San Joaquin Valley Division, or Patricia Cole, Chief, San Joaquin Valley Division at (916) 414- 6683 or (916) 414-6544, respectively.

CONSERVATION RECOMMENDATIONS

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

1. Reclamation and the Corps should continue to work with the Service to assist us in meeting the goals of the Recovery Plan for the fairy shrimp as outlined in the *December 2005, Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005).

2. The Service has published the *Draft Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander* (*Ambystoma californiense*) (Service 2016). Reclamation and the Corps should work with the Service to assist us in meeting the goals of the recovery plan once that plan is final.

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

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the Tesoro Viejo Master Planned Community. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and:

(a) If the amount or extent of taking specified in the incidental take statement is exceeded;

(b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;

(c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or

(d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Dana Herman (dana_herman@fws.gov) or Patricia Cole, Chief, San Joaquin Valley Division (patricia_cole@fws.gov), at the letterhead address or at (916) 414- 6683 or (916) 414-6544, respectively.

cc:
Steve Hulbert, California Department of Fish and Wildlife, Fresno, CA

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