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CH2MHILL

July 2, 2010

Mr. Marc Fugler
Regulatory Project Manager
US Army Corps of Engineers
1325 J Street, Room 1480
Sacramento, CA 95814-2922
(916) 557-5255

Sent via electronic mail

Subject: Reponses to Information Requests for Formal Consultation for the Mariposa Energy Project, Alameda County, California (USACE Identification No. SPK-2009-01261) (USFWS Reference No. 81420-2009-TA-1306-1)

Dear Mr. Fugler:

Mariposa Energy has prepared the attached Technical Memorandum in response to the information request prepared by the U.S. Fish and Wildlife Service (USFWS) dated May 19, 2010. We believe that this Technical Memorandum provides the requested information and appropriate clarifications to enable USFWS to initiate formal consultation under Section 7 of the Endangered Species Act for the Mariposa Energy Project (MEP).

In addition to providing responses to the information request, this memorandum provides updated project information, including the need to permanently impact seasonal wetland SWL-1, comprised of two small seasonal pools (0.018 acres total) on either side of an existing road immediately north of the proposed MEP site.

We will follow up directly with Ms. Kim Squires of USFWS to confirm her questions were sufficiently addressed and to schedule a meeting with the involved agencies to discuss 1) any additional questions relating to the Project impacts, and 2) mitigation planning for the project.

Please feel free to contact me at (916) 286-0348 (doug.urry@ch2m.com) or Todd Ellwood at (408) 839-2402 (todd.ellwood@ch2m.com) with any additional questions.

Sincerely,

Doug Urry
CH2M HILL Project Manager

Enclosure:
Technical Memorandum – Reponses to Information Requests for Formal Consultation for the Mariposa Energy Project, Alameda County, California

cc: Kim Squires, USFWS
Craig Hoffman, CEC
Sara Keeler, CEC
Marcia Grefsrud, CDFG
Todd Ellwood, CH2M HILL
Bo Buchynsky, Mariposa Energy, LLC

Reponses to Information Requests for Formal Consultation for the Mariposa Energy Project, Alameda County, California

(USFWS Ref. # 81420-2009-TA-1306-1)

PREPARED FOR: U.S. Fish and Wildlife Service on behalf of the U.S. Army Corps of Engineers

PREPARED BY: CH2M HILL

DATE: July 2, 2010

The Mariposa Energy Project (MEP or Project) is a proposed 200 megawatt (MW) natural gas-fired, simple cycle electrical generating facility in northeastern Alameda County, California. Mariposa Energy prepared a Biological Assessment (BA) in April 2010 to address Project-related effects to federally endangered longhorn fairy shrimp (*Branchinecta longiantenna*), threatened vernal pool fairy shrimp (*Branchinecta lynchi*), threatened California red-legged frog (*Rana draytonii*) and its critical habitat, threatened California tiger salamander (*Ambystoma californiense*) and endangered San Joaquin kit fox (*Vulpes macrotis mutica*). In a letter dated May 19, 2010, the USFWS stated that not all necessary information was received in the Project's BA to initiate formal consultation under Section 7 of the Endangered Species Act. This technical memorandum provides responses to the comments and information requests of USFWS.

This memorandum also includes supplemental clarifications and updates to the BA based on continued project design and construction planning efforts. Mariposa Energy proposes two changes to the Project relative to the description presented in the BA, as discussed below.

1. Mariposa Energy proposes to increase the temporary work area corridor along the 1.8-mile water line route from a 15-foot wide construction corridor described in the BA to 20 feet wide along the entire route. The expanded work area now includes 10 feet of pavement (north bound lane) and 10 feet of disturbed gravel shoulder and ruderal vegetation (adjacent roadside right-of–way area) along the east side of Bruns Road within the existing right-of-way (marked by a fence line). Overall, this change equates to an increase in the water line work corridor, from 3.30 acres (15-foot wide) to 4.36 acres (20-foot wide). In respect to potential species affects, the change equates to an increase in impacts to terrestrial habitats (annual grassland, roadside ruderal, and agricultural) from 0.80 acres (BA Table 6-1) to 2.6 acres[1].

[1] The previous impact acreage determination was based on the assumption that all construction activities would be performed on the paved road surface, with the exception of trenched crossings. The updated habitat impact acreage of 2.6 acres is based

2. The other proposed change to the Project is related to temporary construction impacts adjacent to the north end of the MEP site, including direct effects to suitable listed Branchiopod habitat. Construction equipment and vehicle access will be required at the north end of the site (current access route to the site) to access the site (prior to construction of the permanent access road), to access the transmission line corridor, and to perform the major earthwork and grading necessary at the northern portion of the project site. This addition temporary construction disturbance area is approximately 0.6 acres of annual grassland habitat and existing unpaved roads. A seasonal wetland (SWL-1) located near the northern MEP site boundary cannot be avoided during these activities. At the closest point, SWL-1 is approximately 25 feet from the proposed detention basin berm. Earthmoving equipment will require access across this area during site grading operations and for construction of the detention basin. As a result, SWL-1 totaling 0.018 acres, of which the northern portion is known to support unidentified fairy shrimp species, will be removed by the Project.

Figure 1 located at the end of this memorandum shows all suitable California red-legged frog, California tiger salamander, and listed Branchiopod aquatic habitat within 250-feet of the Project. This figure clarifies the responses to Question/Comment #2 and #4 below. Representative photographs of the proposed water line route along Bruns Road, showing roadside habitat conditions, are also located at the end of this memorandum. A photograph of Seasonal Wetland 1 (SWL-1) is also included.

USFWS Question/Comment:

1. Please describe how the vegetation removal as noted in section 2.1.4.3 will be accomplished.

Response to #1:

The project area is characterized as grazed non-native annual grassland. Therefore, vegetation removal can be accomplished by removing the vegetation and topsoil concurrently using heavy machinery such as graders, scrapers, bulldozers, or excavators. Larger equipment (scrapers and graders) will likely be used at the 10-acre plant site (including main access road) and adjacent 9.2-acre temporary laydown area for clearing and grubbing. Topsoil stripped from these work areas will be stockpiled onsite for later use during post-construction restoration of temporarily disturbed areas including the laydown area and MEP cut and fill slopes. Any surplus topsoil (mixed with grubbed grasses and forbs) will be hauled off site to an approved waste disposal facility.

Along the Project's gas line and soil areas of the water line, only grassland vegetation and topsoil within the trench line will be removed. With the exception of drainage crossings, topsoil from the water line trenching within the Bruns Road right-of-way will not be segregated due to the highly disturbed nature of this roadside area and space constraints of this work corridor. During open-cut trenching, a smaller machine such as an excavator or backhoe will remove the vegetation and topsoil, stockpiling it separately from the remainder of the excavated soil. Construction access and staging adjacent to the trench line within the approved work corridor will be overland, resulting in vegetation disturbance, not

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on the need for construction access, material stockpiling, and in some areas pipeline trenching within the roadside right-of-way area.

removal. Construction access and staging along the Project's transmission line corridor will be similar as just described for the gas and water lines. Only a small amount of vegetation and topsoil will be removed at each transmission line pole site to prepare the work area for excavation and a concrete foundation.

USFWS Question/Comment:

2. Section 2.1.4.6 describes construction access and states that all nearby wetlands will be avoided. How will they be avoided and by what distance? Does this avoidance include indirect effects of construction, runoff, and contaminants into the wetlands, as well as, the direct effects of vehicle traffic and road construction? Contrastingly, Table 6-1 states that 0.5 acre will be temporarily affected. Please clarify.

Response to #2:

There are wetlands and other waters within 250 feet of the Project that are considered suitable habitat for California red-legged frog, California tiger salamander, and listed Branchiopods. Each aquatic area shown in Figure 1 was assigned an identification number, which corresponds to the habitat description provided in Table 1 (Branchiopods) and Table 2 (California red-legged frog and California tiger salamander), located at the end of this memorandum.

With the exception SWL-1 (see Table 1, #12 and #13), wetlands and waters suitable for California red-legged frog, California tiger salamander, and listed Branchiopods will be avoided. Construction perimeter fence (e.g., orange snow fence) and/or wildlife exclusion fencing will be installed at the greatest distance feasible from these wetlands to discourage site workers, vehicles, and construction machinery from straying offsite into the aquatic habitats. An onsite biological monitor will also be present to advise all site workers to stay inside approved work areas at all times.

Because the aquatic habitats are within 250 feet of project work areas, there is a potential for indirect effects to water quality from contaminated runoff or airborne dust. This potential will be avoided by the implementation of standard erosion and/or sedimentation control devices, fugitive dust management, and other Best Management Practices (BMPs) prescribed by the Project's approved Stormwater Pollution Prevention Plan (SWPPP) and Fugitive Dust Mitigation Plan. When feasible, ground disturbance within 250 feet of wetlands and waters will occur during dry weather to significantly minimize the potential for the indirect effects from runoff. If this seasonal avoidance cannot be achieved, silt fence or other appropriate construction BMPs will be installed between the work activity and aquatic feature to provide a barrier to offsite discharge of pollutant-laden stormwater. As-needed dust control measures (e.g., wetting dry ground) will minimize airborne transmission of soil particles into nearby aquatic habitats. Equipment fueling, maintenance, and repairs (other than emergency repairs), in addition to storage of hazardous materials (fuels and lubricants) will occur offsite or greater than 250 feet from nearby wetlands and waters, including in the temporary laydown area. Other hazardous materials handling BMPs, including but not limited to secondary containment and not topping off fuel tanks will be enforced to prevent soil contamination.

All temporarily disturbed areas will be restored to pre-project conditions when project work has been completed in that area. Construction debris and materials will be removed and

disturbed soil areas will be recontoured to match adjoining grades. Finally, post construction BMPs (as prescribed in the SWPPP) will be installed including reseeding the area to facilitate timely restoration.

USFWS Question/Comment:

3. Tables 5-2 and 6-1 contain conflicting information with text in the biological assessment. Please clarify the temporary and permanent effects of all portions of the project on all of the above mentioned listed species.

Response to #3:

Table 3 below summarizes the total project action area including existing developed areas not considered habitat for the listed species. Table 4 lists the temporary and permanent effects of the Project on Branchiopods, California red-legged frog, California tiger salamander, and San Joaquin kit fox suitable habitats. Tables 3 and 4 also account for the expanded work area corridor being proposed along the 1.8-mile water line route and the permanent loss of SWL-1, considered suitable for listed Branchiopods.

Table 5 provides proposed mitigation ratios and resulting offsite compensation values for the Project. No habitat compensation is being proposed for temporarily affected habitat being restored within 12 months of disturbance. However, offsite compensation will occur for both long-term temporary affects and permanent affect to species habitats. Additional information regarding the basis for long-term temporary habitat loss is provided below in Response to #5 and Response to #7.

USFWS Question/Comment:

4. Please describe the actions and the effects of those actions that will occur within 250 feet of listed branchiopod habitat as mentioned in section 5.1.5.

Response to #4:

Please also refer to Response #2 above for a description of the actions and effects of those actions that will occur within 250 feet of listed Branchiopod habitat. Figure 1 shows the locations of all suitable Branchiopod habitat that could be directly or indirectly affected by the Project.

In summary, construction of the approximately 10-acre facility site and transmission line will occur within 250 feet of suitable branchiopod habitat (Figure 1). Disturbances will include initial clearing and grubbing of annual grassland vegetation, grading to level work areas as-needed, cut and fill across the MEP site to establish the facility grade, major sub-excavations for underground facilities including but not limited to pipelines, electrical conduits, and concrete foundations, and construction new above ground facility infrastructure. During construction of the project transmission line, utility line trucks, boom trucks, cranes, and light-duty trucks will drive and park within 250 feet of branchiopod habitat daily along the route. Soil disturbance along the transmission line will occur at the new monopole locations only when concrete foundations are installed. Otherwise, overland travel within the transmission line work corridor will be the predominant disturbance type. Water and gas pipeline construction activities were previously described in Response #1.

Indirect effects of the actions described above could occur if the appropriate avoidance and/or minimization measures are not enforced during the action. Indirect effects could be in the form of changes in water quality of Branchiopod habitat and/or alterations in hydrology of the buffer land between the action and the habitat. During wet weather, stormwater laden with sediment, lubricants, fuels, and other deleterious materials could discharge offsite into Branchiopod habitat. Non-stormwater discharges, including but not limited to groundwater dewatering, water used for dust control, lubricant, fuels, and concrete washouts could impact branchiopod habitat if the appropriate measures are not implemented. These indirect effects will be avoided by the implementation of the conservation measures outlined in the BA.

USFWS Question/Comment:

5. Sites that are temporarily affected should be restored and function within the same year. The areas proposed as temporarily affected are stated to regain habitat value less than one year following restoration but does quantify the time between start of construction and fully restored functional habitat. Please clarify the time the habitat will be unsuitable for listed species. Other than ripping and replacing topsoil, how does the project propose to ensure the affected areas will be fully restored?

Response to #5:

The overall Project construction period is expected to be January 1, 2011 to July 1, 2012. Within this timeframe, the new power plant will be built and the associated offsite facilities will be installed. The estimated construction schedule for the project's temporary work areas is shown in Table 6.

The proposed temporary work areas are predominantly characterized as non-native annual grassland supporting a prolific population of California ground squirrels. Because California red-legged frog and California tiger salamander likely use some, but not all of the burrows found within the Project area during any given year, avoiding concentrations of burrows during construction will make them immediately available as habitat following post-construction restoration. Burrow avoidance will be implemented along the Project's offsite linear work corridors. Contrastingly, all burrows found within the laydown area, cut and fill area, and temporary construction access area north of the MEP site will likely be impacted.

Functional habitat is considered to be annual grassland with a varied density of ground squirrel burrows. Although the Project will impact burrows, or the upper portions of larger burrow complexes in the direct path of disturbance, as many as feasible will be avoided in the temporary work areas (primarly the linear corridors), protecting them for potential future use by California red-legged frog, California tiger salamander, and San Joaquin kit fox. Concentrations of burrows will be marked for avoidance by installing exclusion fence around them, or by placing plywood over the burrows protecting them from being crushed by machinery and vehicles or from being filled by trenching spoils. Grassland vegetation and topsoil removed during trenching operations will be set aside from the remainder of the spoils, and replaced in the open trench in reverse order during backfilling. This process, in additional to as-needed reseeding, will facilitate timely restoration of disturbed areas. As shown in Table 6, habitat value is expected to be regained along the gas line, transmission line, and water line within a year of initial disturbance.

Mariposa Energy will endeavor to restore the temporary laydown area, temporary construction access area, and MEP cut and fill areas back to functional habitat within a 12-month period following initial disturbance. Following use of the laydown area, this grassland area will be restored by ripping to reduce compaction, replacement of topsoil, and reseeding. This area will be temporarily irrigated to expedite revegetation. Likewise, the temporary construction access area and cut and fill slopes will be reseeded and temporarily irrigated. Although these work areas will likely be restored to annual grassland within approximately 12 months of initial disturbance, displaced ground squirrels may or may not create new burrows or reestablish existing burrows within the same time frame. A study by Gilson and Salmon (1990) suggests that recolonization by ground squirrel of a disturbed site could occur in a matter of months despite significant burrow destruction.

Mariposa Energy will implement a 3-year monitoring program to track the success of post-construction restoration of grassland refugia habitat. Restored grassland areas will be monitored by a qualified biologist annually for up to 3 years or until the restoration area(s) meet the final success criteria. Timing of the post-restoration surveys will coincide with the peak growing season of annual grassland species (May) and the height of the activity period of California ground squirrel. Ground squirrels are most active during their breeding season, which in the Central Valley is typically February through April. Therefore, post-restoration surveys will be conducted late April to early May each year.

Adequate vegetative cover will be determined using the following performance criteria:

- Year 1 – 60 percent of vegetative cover measured at undisturbed reference site adjacent to project site;
- Year 2 – 80 percent of vegetative cover measures at undisturbed reference site adjacent to project site; and
- Year 3 – 90 percent of vegetative cover measures at undisturbed reference site adjacent to project site.

Revegetation reference sites will be selected in areas that will not be disturbed by the Project. The areas selected as references sites will have the similar cover, density, and species composition as the areas to be impacted.

The 3-year monitoring program will also track the success ground squirrel have digging new burrows and/or reestablishing existing burrows in the laydown area, temporary construction access area, and cut/fill area. No published data were identified that suggest quantitative burrow density requirements for upland refugia. Jennings and Hayes (1994) refers to "sufficient" burrow density as a qualitative standard; therefore, the annual results will be analyzed by a qualified biologist and discussed with USFWS and CDFG to determine mutually if the site provides functional upland refugia.

If performance criteria for restoration of upland refugia are not met, Mariposa Energy proposes to implement the following remedial measures:

- Areas that do not meet revegetation criteria will be reseeded. If necessary, the seed mix will be modified to substitute other grass species to improve success;

- Temporary erosion control measures including silt fences, erosion control blankets, and fiber rolls will be installed as necessary to prevent any observed erosion until remedial seeding measures are fully implemented; and
- If an the end of 3 years a sufficient number of upland refugia is not achieved, Mariposa Energy will work with the USFWS and CDFG on the appropriate remedial measures, with may include creation of artificial burrows, additional offsite compensation, or other appropriate measures.

Monitoring reports documenting restoration of the Project restoration areas will be submitted to the USFWS and CDFG upon completion of the restoration implementation and by December 31 of each year following the monitoring period. All monitoring reports will include the following information:

- Names, titles, and affiliations of all persons who prepared the report and conducted field work.
- Summaries of all monitoring data, including percent cover estimates, sign of ground squirrel use, and location and distribution of new and reestablished small mammal burrows.
- Electronic or color-copies of photo-documentation to illustrate monitoring results.
- Maps showing the monitoring area.
- Remedial action recommendations, as needed.

Following the completion of Year 3 monitoring (or sooner if performance criteria have been met), Mariposa Energy will submit a final monitoring report and notify the agencies whether or not the Project has successfully met the final performance criteria. This report will describe how and when all performance criteria were met and will request a confirmation of project completion from the USFWS and CDFG.

USFWS Question/Comment:

6. Sections 5.2.6, 5.3.6, and 5.4.6 state that there are 13.9 acres of temporary effects. This number is not explained in the text. Please clarify the amount and describe the effects to area. Depending on the activity and compaction, these areas might not be able to be restored to functional habitat within one year from start of construction.

Response to #6:

In the BA, 13.9 acres represented the total temporary effects to upland habitat occurring along the gas line, transmission line and water line work corridors, as well as the cut and fill area around the MEP site (the laydown are was not included in this total). The maximum construction disturbance area for each offsite facility is reflected by its total length and corridor width. Table 4 presents a breakdown of the temporary disturbances to upland habitat. The total temporary habitat disturbance area for all project areas (linear corridors, laydown area, temporary access area, and cut/fill slopes) is 24.2 acres. Of this 24.2 acres, 12.1 acres (water line, transmission line, and natural gas line corridors) will be restored to functional habitat within one year from start of construction. The remaining 12.1 acres

(laydown area, cut and fill slopes, and temporary access area) are being considered "long-term temporary" effects, as discussed further in response to Comments #3 and #7.

Overland access and equipment/materials staging will be the predominant disturbance type within the offsite facilities work corridors. No vegetation removal or grading will be required to facilitate access, staging/storage of materials and/or equipment, or construction of the facility. As described above, California ground squirrel burrows occurring within the work corridors will be avoided to the fullest extent feasible. Following completion of the work, all construction materials and debris will be removed and the site restored to pre-existing conditions. Any exposed soil areas will be reseeded.

USFWS Question/Comment:

7. The biological assessment cites personal communication with Kim Squires of my staff stating that a temporary effect greater than one year is considered a permanent effect and should be compensated as a permanent effect. Sections 5.2.6, 5.3.6, and 5.4.6 have compensation for permanent effects at a 3:1 ratio but have compensation temporary effects greater than one year at a 1:1 ratio. Please describe why this is different.

Response to #7:

Understanding the Service's concerns regarding long-term temporary habitat loss, Mariposa Energy has reassessed the construction schedule for all of the Project's temporary work areas (see Table 6). The current schedule has these areas restored within 13 months or less of initial ground disturbance. No offsite compensation is being proposed for temporary habitat loss due to the gas line, transmission line, and water line because these work areas are expected to provide functional habitat within 12 months of initial ground disturbance. However, it's uncertain whether the laydown area, temporary construction access area (immediately north of MEP), and cut/fill areas will provide functional habitat within 12 months, because of the potential length of construction operations in these areas and the extent of disturbance. In the laydown and cut and fill areas, not only with all grassland vegetation and topsoil be stripped from these work areas, but all small mammal burrows will be disturbed. The temporary access area will experience heavy overland construction vehicle and heavy equipment use during earthwork. Small mammal burrows will be avoided in this area where feasible. Thus, habitat loss due the laydown area, temporary access area, and cut/fill area is considered a long-term temporary effect.

Full restoration of functional upland habitat is expected to occur in approximately one year or slightly longer, depending on the construction schedule, initial revegetation success rate, and ground squirrel recolonization rate. Mariposa Energy proposes a 1:1 (offsite habitat preservation) compensation ratio for the potential long-term temporary habitat loss because of the uncertainty in how quickly these areas will return to functional upland habitat. In additional to ripping to relieve any over-compaction in the laydown area, replacing salvaged topsoil, reseeding, and installation of permanent erosion/sedimentation control BMPs, a 3-year monitoring program will be implemented to document and verify restoration and subsequent achievement of functional habitat in these areas.

USFWS Question/Comment:

8. The specific off-site compensation should be determined prior to initiation of consultation. Additionally, the project proponent should coordinate with the Service and California Department of Fish and Game on all of the minimization measures including off-site compensation as the California tiger salamander and San Joaquin kit fox are both state and federally listed species.

Response to #8:

Mariposa Energy has identified the proposed Mountain House Mitigation Bank for their Project mitigation needs. Mr. Robert Fletcher, an experienced mitigation bank developer in the greater San Francisco Bay Area, owns this newly proposed mitigation bank property. The 144-acre property is located immediately west of the MEP site, with Bruns Road as its eastern border. The property supports suitable habitat for San Joaquin kit fox, California red-legged frog, California tiger salamander, burrowing owl, and potentially Branchiopods (Fletcher, 2010; CNDDB, 2010). It is unknown whether the property will be approved as a mitigation bank by the USFWS and CDFG prior to construction of the Project. Mariposa Energy will continue to communicate with Mr. Fletcher, USFWS, and CDFG regarding the expected approval date, and mechanisms to bridge any schedule gap between the initiation of project construction and final approval and use of the mitigation bank.

An alternate mitigation bank for listed Branchiopods is the Fitzgerald Ranch Conservation Bank, which is USFWS-approved and located in San Joaquin county. Although the Project is not within the bank's vernal pool service area, there are no known mitigation banks in the Livermore Vernal Pool Region where the Project affect occurs. The Fitzgerald Ranch bank service area ends at the San Joaquin – Alameda county line, located less than 3 miles east of the Project.

Mariposa Energy looks forward to the opportunity of having an interagency meeting with USFWS and CDFG at their earliest convenience to discuss the proposed Mountain House Mitigation Bank, and the conservation measures and compensation ratios being proposed for dually listed species affected by the Project.

References

California Natural Diversity Database (CNDDB). 2010. *Rarefind*. California Department of Fish and Game.

Fletcher, Robert. 2010. Personal telephone communication with Todd Ellwood/CH2MHill regarding the proposed Mountain House Mitigation Bank property. February 1.

Gilson, A., and T. Salmon. 1990. Ground Squirrel Burrow Destruction: Control Implications. Vertebrate Pest Conference Proceedings collection, University of Nebraska – Lincoln. Wildlife and Fisheries Biology, U.C. Davis. pp., 96-98.

Jennings, M.R., and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California.* California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

Tables

TABLE 1
Suitable Listed Branchiopod Habitat within 250 Feet
Mariposa Energy Project

Site Number	Habitat Description	Aquatic Site Area (Acres)	Approx. Distance from Project	Other Notes
#1	Depressional area inside an alkali swale.	0.029	155 feet	No Branchiopods observed during site surveys.
#2	Seasonal depression in a heavily grazed grassland pasture.	0.013	At project area boundary	No Branchiopods observed during site surveys.
#3	Seasonal wetland in a heavily grazed grassland pasture.	0.007	Inside project area	Identified as Seasonal Wetland 2 during a formal USACE delineation. No branchiopods observed during site surveys.
#4	Vernal Pool	0.033	237 Feet	No branchiopods observed during site surveys.
#5	Vernal Pool	0.018	178 Feet	No branchiopods observed during site surveys.
#6	Vernal Pool	0.007	130 Feet	No branchiopods observed during site surveys.
#7	Vernal Pool	0.026	164 Feet	No branchiopods observed during site surveys.
#8	Shallow seasonal depression in swale	0.006	201 Feet	No branchiopods observed during site surveys.
#9	Shallow seasonal depression in swale	0.007	113 Feet	No branchiopods observed during site surveys.
#10	Shallow seasonal depression in swale.	0.022	177 Feet	Unidentified Branchiopods species observed in 2009. Receives stormwater runoff from the Byron Cogen Power Plant.
#11	Constructed stormwater conveyance ditch.	0.027	200 Feet	Receives stormwater runoff from the Byron Cogen Power Plant.
	Total Area (Potential indirect effects)	**0.20**[a]		
#12	Seasonal wetland in a roadside swale.	0.011	Within construction footprint	This site is also called Seasonal Wetland 1 (SWL-1) considered jurisdictional by USACE. Unidentified Branchiopods species observed in 2009.
#13	Seasonal wetland in a roadside swale.	0.007	Within construction footprint	This site is also called Seasonal Wetland 1 (SWL-1) considered jurisdictional by USACE. No branchiopods observed during site surveys.
	Total Area (Direct effects)	**0.018**		

Notes:

[a] An error was discovered in the calculation of total branchiopod habitat surface area potentially susceptible to project-related indirect effects presented in the BA. In the BA, 0.5 acres (BA Table 6-1) was a miscalculation. The correct acreage of potential indirect effects is 0.20 acres. Also note that 0.20 acres does not include SWL-1 (0.018 acres), as SWL-1 will be permanently affected by the Project.

TABLE 2

Suitable California Red-legged Frog and California Tiger Salamander Aquatic Habitat within 250 Feet
Mariposa Energy Project

Site Number	Habitat Description	Approx. Distance from Project	Other Notes
#14	Intermittent creek	Immediately adjacent to Project	Creek delineated as Drainage 1 (D-1) during USACE wetland delineation. Creek will be avoided by pipe ramming under culvert. Prolonged inundation occurs here thus providing aquatic non-breeding habitat for California red-legged frog.
#15	Seasonal stock pond	62 Feet	Known as California tiger salamander breeding habitat. Located upgradient from the Project.
#16	Man-made pond	80 Feet	Located in intermittent creek delineated during USACE wetland delineation as D-3. Pond occurs upstream of work area on CDFG property. Known as California red-legged frog breeding habitat.
#17	Intermittent creek	Immediately adjacent to Project	Creek delineated during USACE wetland delineation as D-3. Creek will be avoided by pipe ramming of proposed water line. Prolonged inundation occurs here thus providing aquatic non-breeding habitat for California red-legged frog.
#18	Seasonal stock pond	80 Feet	Occurs in an intermittent creek delineated as D-3 during USACE wetland delineation. Creek will be avoided by pipe ramming under culvert. Pond is downstream of work area and suitable for frog and salamander breeding.
#19	Seasonal stock pond	184 Feet	Potentially suitable breeding habitat for California tiger salamander. Pond is upgradient from Project.
#20	Intermittent creek	Immediately adjacent to Project	Creek delineated as D-4 during USACE wetland delineation. Creek will be avoided by pipe ramming under culvert. Prolonged inundation occurs here thus providing aquatic non-breeding habitat for California red-legged frog.

TABLE 3
Total Project Action Area - Developed and Undeveloped Areas
Mariposa Energy Project

Work Area	Action Area Description	Total Action Area (Acres)	Existing Developed Area[a] (Acres)	Undeveloped Area[b] (Acres)
MEP Site[c]	Annual Grassland	12.6	0	12.6
MEP Access Road[d]	Gravel road and annual grassland	0.6	0.2	0.4
MEP Laydown Yard	Annual grassland	9.2	0	9.2
Natural Gas Line	Annual grassland	1.0	0	1.0
230-kV Transmission Line	Annual grassland	8.5	0	8.5
Water Supply Line	Annual grassland, Bruns Road right-of-way, existing BBID maintenance yard, agricultural road and Canal 45	5.4	2.8	2.6
	Total Area	**37.3**	**3.0**	**34.3**

Notes:

[a] Developed areas are not considered habitat for the listed species. They include the Bryon Cogen access road, paved surface of Bruns Road, and the 1-acre BBID maintenance yard.

[b] Undeveloped areas are considered suitable or potential suitable for the listed species. They include annual grassland, roadside ruderal, and agricultural lands.

[c] Includes 9.7-acre site, 2.3-acre cut and fill area and 0.6-acre temporary access along the north side of the MEP site.

[d] Includes existing 10-foot-wide Bryon Cogen gravel access road.

TABLE 4
Maximum Project Effects on Listed Species Habitat
Mariposa Energy Project

Habitat	Disturbance Type	Acreage of Temporary Affect	Acreage of Permanent Affect
Listed Branchiopod wetland areas within 250 feet of work areas	Potential indirect effects to water quality	**0.20**	**-**
Branchiopod pool (SWL-1)	Cut and fill grading, construction access	**0**	**0.018**[a]
	Total	**0.20**	**0.018**
California red-legged frog and California tiger salamander upland habitat; San Joaquin kit fox foraging habitat and potential denning	MEP Site	2.9[b]	9.7
	MEP Main Access Road	0	0.4[c]
	MEP Laydown Yard	9.2	0
	Natural Gas Line	1.0	0
	230-kV Transmission Line	8.5[d]	0.01[e]
	Water Supply Line	2.6[f]	0.006[g]
	Total	**24.2**	**10.1**

Notes:

[a] Direct fill of SWL-1 as a result of grading and excavation activities at MEP site.

[b] Cut and fill areas, temporary access areas adjacent to the northern portion of the MEP site, and portion of new access road. Note the total project cut/fill area is 3.6 acres, but to prevent double-counting, 1.3 acres of cut/fill overlapping with the 9.2 acre laydown area is not included in this tally.

[c] First 816 feet of 20-foot wide MEP access road overlaps with an existing 10-foot wide gravel road. Remaining 431 feet occurs in undisturbed annual grassland (0.4 acres = [816 feet x 10 feet] + [431 feet x 20 feet].

[d] The construction zone is 100 feet wide by 0.8 mile long; includes negligible area of Kelso Road.

[e] Footprint of eight new transmission line monopoles.

[f] The habitat acreage (2.6 acres) represented by: annual grassland (20 feet width x 1,000 foot length [this is conservative as the pipeline corridor will overlap with the access road]); roadside ruderal (10 feet width x 1.4 miles) and agricultural (20 feet wide x 1,000 foot length).

[g] Footprint of new 250 square foot pump house at Canal 45.

TABLE 5
Compensation Ratios and Offsite Compensation Acres
Mariposa Energy Project

Species	Ratio[a]	Long-term Temp. Affects [Comp. Acre]	Permanent Affects [Comp. Acre]
Listed Branchiopods	3:1	none	0.018 [0.054]
San Joaquin kit fox	3:1	NA	10.1 [30.3]
San Joaquin kit fox	1:1	12.1 [12.1]	NA
California red-legged frog	3:1	NA	10.1 [30.3]
California red-legged frog	1:1	12.1 [12.1]	NA
California tiger salamander	3:1	NA	10.1 [30.3]
California tiger salamander	1:1	12.1 [12.1]	NA

Note:

[a] No compensation is proposed for short-term temporary effects to species habitat, as the affected area will be functional within 12 months of disturbance. Long-term temporary effects (that may exceed 12 months of from initial disturbance to restored and functional) will be compensated at 1:1 in addition to onsite restoration. Permanent effects will be compensated at 3:1.

TABLE 6
Estimated Construction Schedule for Temporary Work Areas
Mariposa Energy Project

Temporary Work Site	Acreage	Date of Initial Disturbance	Construction Completion Date[a]	Restoration Completion Date[b]	Expected Date of Full Function[c]
MEP Laydown	9.2	May 1, 2011	May 1, 2012	June 1, 2012	TBD
MEP Site Cut and Fill Areas	2.9[d]	April 1, 2011	February 1, 2012	March 1, 2012	TBD
Gas Line Corridor	1.0	July 1, 2011	February 1, 2012	March 10, 2012	July 1, 2012
Transmission Line Corridor	8.5	August, 1, 2011	March 1, 2012	April 1, 2012	August 1, 2012
Water Line Corridor	2.6	January 1, 2011	May 1, 2011	June 1, 2011	December 1, 2011

Notes:

[a] Date when all major construction activities have been completed allowing restoration to begin.

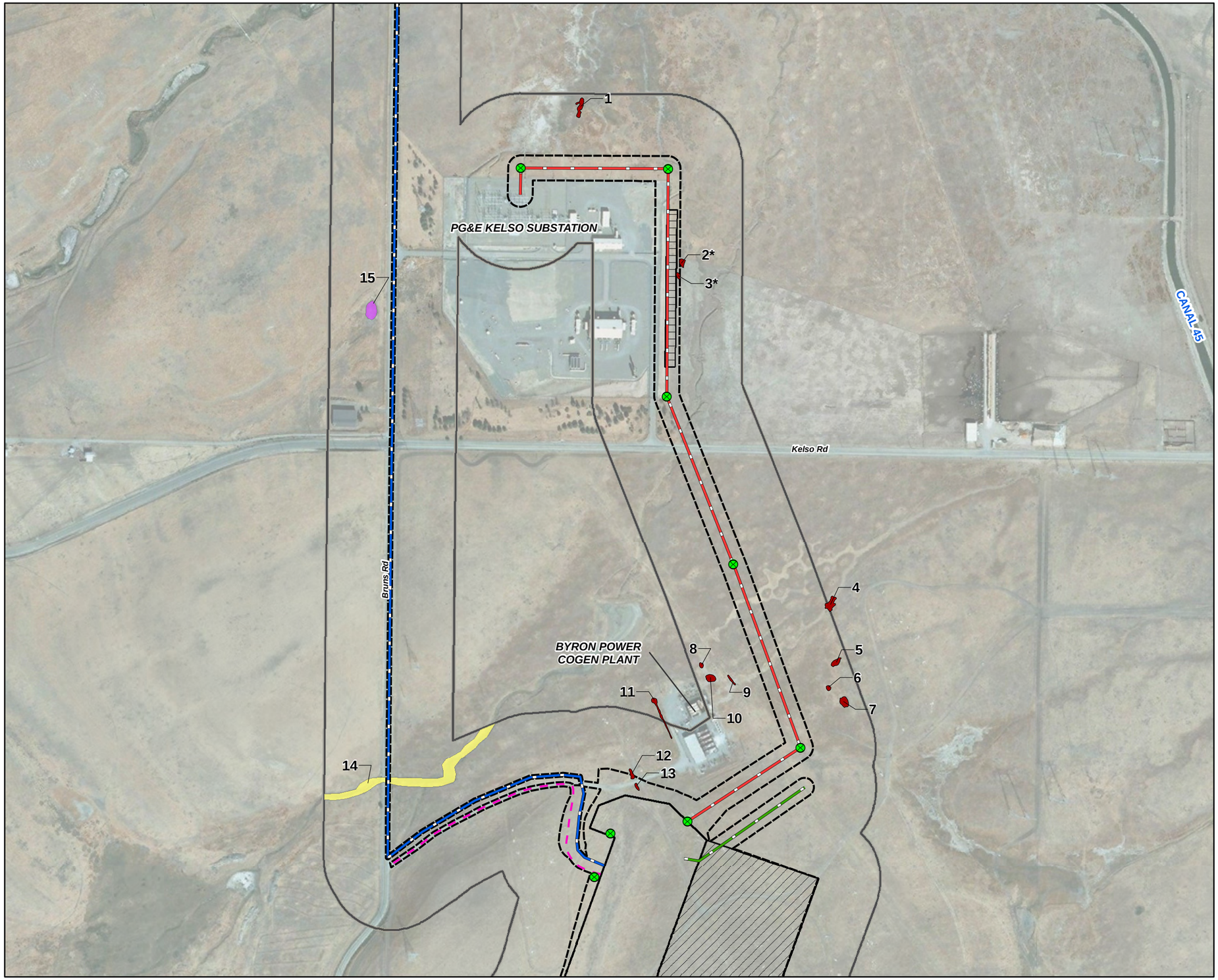
[b] Date when all construction related debris, materials, and equipment have been removed from the work site, and when recontouring and reseeding is complete.

[c] Date when the site is expected to match pre-construction condition. Preconstruction condition includes either California annual grassland, roadside ruderal habitat, and/or agricultural development.

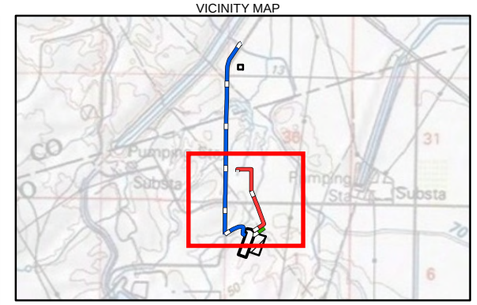
[d] This acreage also includes the temporary construction access required adjacent to the north end of the site for initial site access and earthwork construction.

TBD = To Be Determined during Post-Restoration Monitoring

Figures



VICINITY MAP



LEGEND

- NEW POWER POLE LOCATION
- ACCESS ROAD
- NATURAL GAS PIPELINE ROUTE
- TRANSMISSION LINE ROUTE
- WATER SUPPLY PIPELINE ROUTE
- DISTURBANCE AREA
- 250-FOOT PROJECT BUFFER
- CONSTRUCTION LAYDOWN/PARKING AREA
- TRANSMISSION LINE LAYDOWN AREA
- PROJECT SITE
- SUITABLE LISTED BRANCHIOPOD HABITAT
- SUITABLE AQUATIC NON-BREEDING HABITAT (CRLF ONLY)
- SUITABLE AQUATIC BREEDING HABITAT (CRLF AND CTS)

NOTE:

1. **Branchiopod habitat within 250 feet of Project Area may support longhorn fairy shrimp and vernal pool fairy shrimp.**
2. **Branchiopod Habitat areas 2 and 3 will be avoided during construction of the transmission line regardless that they show to be inside the work area cooridor.**
3. **CRLF = California Red-legged Frog**
   CTS = California Tiger Salamander

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

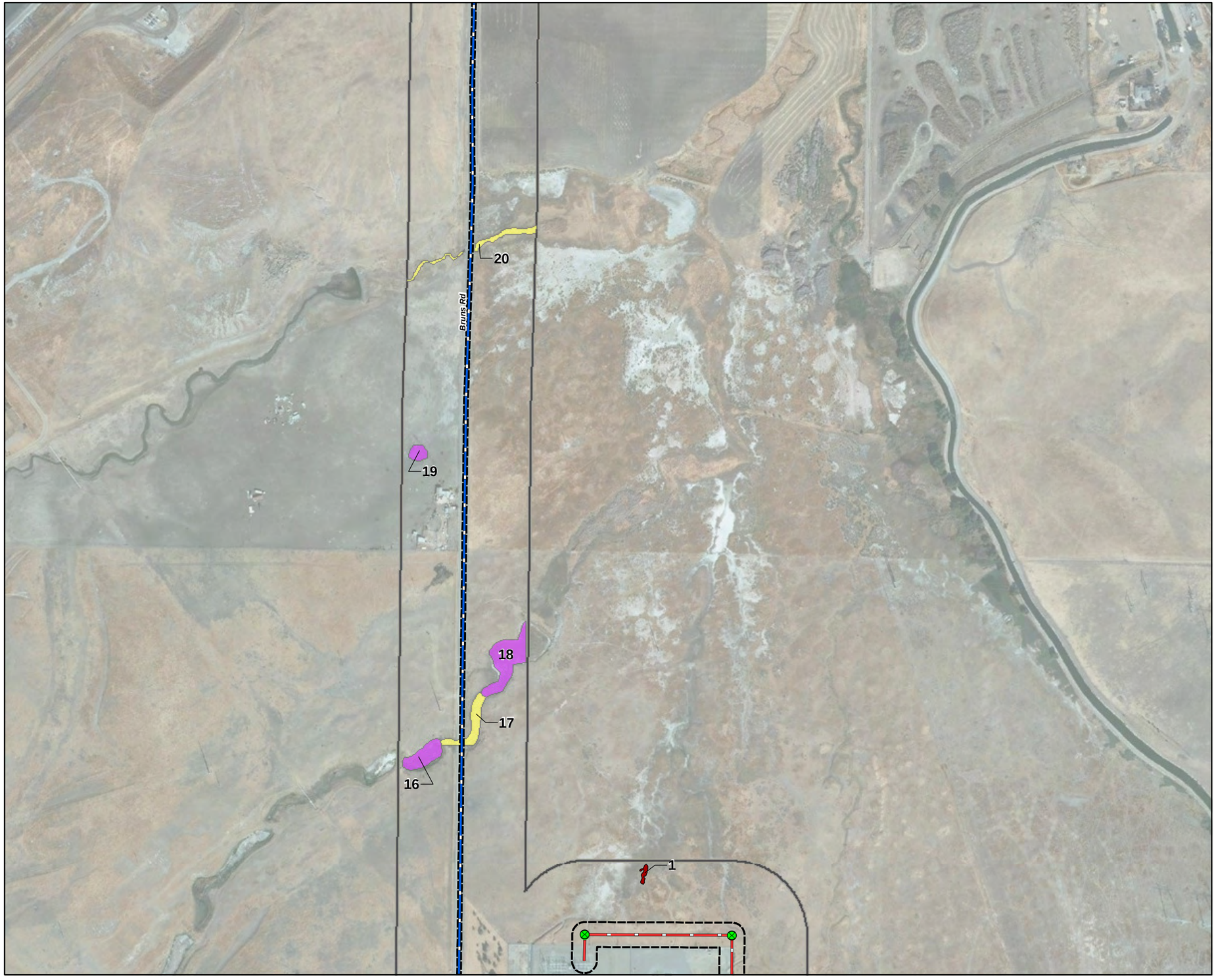
N

0 200 400
Feet

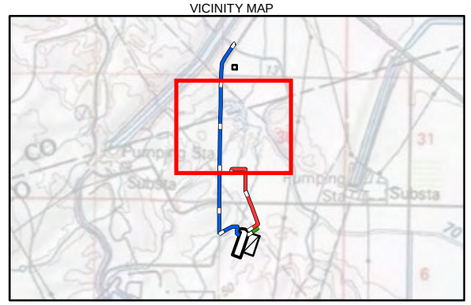
FIGURE 1
SUITABLE AQUATIC HABITATS FOR CALIFORNIA RED-LEGGED FROG, CALIFORNIA TIGER SALAMANDER AND LISTED BRANCHIOPODS WITHIN 250-FEET

MARIPOSA ENERGY PROJECT

ALAMEDA COUNTY, CALIFORNIA



VICINITY MAP



LEGEND

- NEW POWER POLE LOCATION
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- SUITABLE AQUATIC BREEDING HABITAT (CRLF AND CTS)

NOTE:

1. **Habitat within 250 feet of Project Area may support longhorn fairy shrimp and vernal pool fairy shrimp.**
2. *** = Branchiopod Habitat areas 2 and 3 will be avoided during construction of the transmission line regardless that they show to be inside the work area cooridor.**
3. **CRLF = California Red-legged Frog**
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This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 200 400

Feet

FIGURE 1
SUITABLE AQUATIC HABITATS FOR CALIFORNIA RED-LEGGED FROG, CALIFORNIA TIGER SALAMANDER AND LISTED BRANCHIOPODS WITHIN 250-FEET

MARIPOSA ENERGY PROJECT

ALAMEDA COUNTY, CALIFORNIA

Representative Photographs of the Bruns Road Right-of-Way (East Shoulder) (Photos 1-6) and Seasonal Wetland 1 (Photo 7).

#1. Proposed water line alignment near Drainage 1 (D-1), looking north. The barbed wire fence marks the right-of-way boundary where water line work will be confined to.

#2. Water line alignment north of Kelso Road, looking north.

#3. Water line alignment near Drainage 2 (D-2), looking north. The pipeline will be buried just right (east) of the culvert (indicated by the white marker) within the right-of-way.

#4. Water line alignment near Drainage 3 (D-3), looking north. The pipeline will be installed under the concrete box culvert by pipe ramming.

#5. Water line alignment at Drainage 4 (D-4), looking north. Pipeline will be installed under the D-4 culvert using pipe ramming.

#6. Water line alignment at near Alkali Seasonal Wetland 1 (ASW-1), looking south.

#7. Seasonal Wetland 1 (SWL-1) in February 2009. Existing Byron Cogen gravel access road divides the two pools of this seasonal wetland. Unidentified brachiopods were observed in the northern pool.