Appendix D

Biological Technical Report

Biological Resources Assessment of the Proposed PG&E Gas Operations Technical Training Center in the City of Winters

Prepared for:

Abbott & Kindermann, LLP
2100 21st Street
Sacramento, CA 95818
Contact: Kate Hart
(916) 456-9595

Prepared By:

Estep Environmental Consulting
3202 Spinning Rod Way
Sacramento, CA 95833
Contact: Jim Estep
916-921-2515

October 2014

Introduction

Pacific Gas & Electric (PG&E) is proposing to construct a Gas Operations Technical Training Center in the City of Winters (City), located in southwestern Yolo County along the border with Solano County (Figure 1). The proposed site, located in the far eastern portion of the City of Winters was included in an earlier and broader assessment conducted pursuant to the California Environmental Quality Act (CEQA) in October 2011 for purposes of correcting inconsistencies in General Plan and Land Use designations, rescission of an outdated master plan, and promotion of economic development (Mitigated Negative Declaration, City of Winters 2012). However, the proposed project is not intended to rely on the earlier CEQA assessment, but instead will undergo a separate and full CEQA review. This report, which references and incorporates information from the earlier 2011 MND, describes the biological setting of the proposed project, provides a comprehensive summary of natural communities, habitats, and terrestrial wildlife and plant resources, including special-status species, and provides a preliminary assessment of potential impacts and recommendations for project mitigation. Results from this assessment are intended to be incorporated into the CEQA document for the proposed project.

Project Location and Setting

The approximately 38-acre project site is located on the eastern edge of the City of Winters and is bounded by the Interstate 505 southbound onramp on the east, Putah Creek on the south, and Grant Avenue (State Route 128) on the north. The project site can be generally characterized as agricultural land within an agricultural/urban interface. The site, which is open agricultural land is adjacent to two rural residences and near medium-density residential development on its western boundary. Commercial development and rural residences are present along the north side of Grant Avenue. Putah Creek forms the southern border of the site, which supports mature riparian woodland. Open agricultural land extends north, east, and south of the site (Figure 2).

Project Description

The proposed PG&E Gas Operations Technical Training Center includes a variety of teaching and training functions related to the construction, operation, and maintenance of natural gas facilities. The approximately 38-acre project site includes the following elements:

- Teaching facilities
- Equipment and excavation training facilities
- Construction training facilities
- Gas transmission training facilities
- Field training facilities

Figure 1
Regional Location Map

Figure 2
Project Site Map

- Gas flow and welding labs
- Commercial driver training area
- Service yard
- Parking

The project design also includes an approximately 100-foot wide drainage easement along the western border of the project site and a storm water retention pond area along the southeastern boundary near the Putah Creek open space buffer, adjacent to I-505. Primary access to the facility will be a paved access road (Timber Crest Road) extending south from East Grant Avenue. A security fence will be installed around the perimeter of the facility.

Objective

The purpose of this biological resources assessment is to describe and evaluate the biological resources and use of the project site. Based on a reconnaissance-level survey, the assessment describes the presence and distribution of natural communities and habitats, the occurrence or potential for occurrence of special-status species, and the general wildlife use of the area. This information will help determine the scope of any subsequent environmental review with regard to biological resources and will be used to assess impacts to biological resources from implementation of the proposed project pursuant to CEQA guidance.

Methods

Pre-survey Investigation

Prior to conducting the site visit, available information regarding biological resources on or near the project area was gathered and reviewed. Sources included:

- California Natural Diversity Data Base;
- Yolo County General Plan;
- City of Winters General Plan;
- Yolo Natural Heritage Plan species accounts and maps;
- Other environmental documents from the vicinity of the project area; and
- Estep 2008 (Distribution, Abundance, and Habitat Associations of the Swainson's Hawk in Yolo County)

Aerial photographs and land use/vegetation maps of the project site and surrounding area were also reviewed.

Field Surveys

A reconnaissance-level biological resources survey of the project site was conducted on January 7, 2014. A previous survey and assessment was conducted on October 26, 2011 (Estep, City of Winters 2011), and is incorporated to this assessment by this reference. This survey, like the one conducted in October 2011, was designed for complete coverage of the entire approximately 38-acre project site and immediately adjacent land and to record land uses, natural communities and wildlife habitats, occurrences of sensitive wildlife resources or their habitat, and general wildlife use of the area. The survey was conducted by walking the perimeter of the active agricultural field, walking transects across the inactive agricultural field, and evaluating ruderal and edge habitats. All vegetation, land uses, and habitat types were noted, mapped, and evaluated. All irrigation channels, fence rows, and other physical and topographic features were inspected and evaluated. Binoculars and spotting scope were used to identify wildlife occurrences. Representative photographs were taken from several vantage points.

Note that as with the 2011 survey, the January 7, 2014 reconnaissance-level survey was not conducted during the breeding season and therefore, wildlife breeding use of the project site was not confirmed. This is particularly relevant for certain special-status species, such as Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), and burrowing owl (*Athene cunicularia*), that may require additional mitigation or avoidance measures if they are found breeding on or adjacent to the project site.

On January 23, 2014, a survey of elderberry shrubs within the riparian area associated with Putah Creek was conducted. The location of each shrub was recorded using a hand-held global positioning system (GPS) unit. Each shrub was examined to record stem sizes and searched for evidence of VELB presence. (A copy of the January 23, 2014 survey has been submitted to the City.)

Impact Analysis

Impacts were assessed based on CEQA guidance and definitions pertaining to significance determinations and thresholds of significance, as follows:

During the CEQA review process, environmental impacts are assessed and a significance determination provided based on pre-established thresholds of significance. Thresholds are established using guidance from CEQA, particularly Appendix G of the State CEQA guidelines and CEQA Section 15065 (Mandatory Findings of Significance). CEQA guidance is then refined or defined based on further direction from the lead agency.

Consistent with Appendix G of the State CEQA guidelines, a biological resource impact is considered significant (before considering offsetting mitigation measures) if the lead agency determines that project implementation would result in one or more of the following:

- Substantial adverse effects, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or the U.S. Fish and Wildlife Service (USFWS);

    - A substantial adverse effect on a special-status wildlife species is typically defined as one that would:

        - Reduce the known distribution of a species,
        - Reduce the local or regional population of a species,
        - Increase predation of a species leading to population reduction,
        - Reduce habitat availability sufficient to affect potential reproduction, or
        - Reduce habitat availability sufficient to constrain the distribution of a species and not allow for natural changes in distributional patterns over time.

- Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or interference with the use of native wildlife nursery sites.

    - Substantial interference with resident wildlife movement is typically defined as obstructions that prevent or limit wildlife access to key habitats, such as water sources or foraging habitats, or obstructions that prohibit access through key movement corridors considered important for wildlife to meet needs for food, water, reproduction, and local dispersal.

    - Substantial interference with migratory wildlife movement is typically defined as obstructions that prevent or limit regional wildlife movement through the project area to meet requirements for migration, dispersal, and gene flow that exceed the defined baseline condition.

Consistent with CEQA Section 15065 (Mandatory Findings of Significance), a biological resource impact is considered significant if the project has the potential to:

- substantially degrade the quality of the environment;
- substantially reduce the habitat of a fish or wildlife species;
- cause a fish or wildlife population to drop below self-sustaining levels;
- threaten to eliminate a plant or animal community;
- substantially reduce the number or restrict the range of an endangered, rare or threatened species.

Results

General Characteristics

Physiography

The topography on the project site is entirely flat with no discernable topographical features. Elevation ranges from approximately 120 to 130 feet above mean sea level with a gradual and indiscernible declining slope eastward. There are no hydrological features including natural drainages, permanent irrigation canals, or wetland features within the boundary of the project site. However, Putah Creek, a perennial stream, borders the southern edge of the project site. A permanent drainage feature also occurs along the eastern border of the project site within the Interstate 505 right of way. The climate is mild with average annual maximum temperature of 73.6 degrees Fahrenheit and average annual minimum temperature of 49.0 degrees Fahrenheit, with winter rains and dry summers, and an average annual rainfall of approximately 20 inches.

Land Use

The project site consists of two fields, the largest of which (approximately 26 acres) is an active agricultural field. This field was unplanted but prepared for spring planting at the time of the survey (Figure 2). To the east and separated by a dirt road is the smaller field (approximately 12 acres), which is an idle agricultural field consisting of annual grasses and ruderal vegetation. The only other feature on the project site is a small, fenced sewer lift station located in the idle field and operated by the City of Winters (Figure 2). Underground water and sewer mains cross the northern portion of the project site.

Surrounding Land Uses

Two farm residences, totaling approximately two acres, are adjacent to the western boundary of the site. Medium density residential development begins approximately 300 feet west of the western boundary. Land to the north includes rural residences and commercial development, and elsewhere by open space and active agricultural land (Figure 2). Putah Creek creates the southern boundary of the site. Beyond the creek are orchards and more agricultural land. Yolo and Solano counties are primarily agricultural landscapes with a diverse matrix of crop types and agricultural uses. The majority of agricultural land south and east of the project site consists of walnut orchards, while most of the agricultural land north and east consists of row and field crops. Rural residences and processing facilities also occur across the agricultural landscape.

Biological Communities and Wildlife Habitats

Active Agricultural Land

Because the active agricultural field was bedded and prepared for spring planting, it supported no vegetation during the time of the survey (Plates 1 and 2). This field has been farmed in the tomato-wheat rotation typical of Yolo County and appears to have been prepared for spring tomato planting. Providing little wildlife value in its current condition, once the field is planted and the crop matures, it will support small rodents and a variety of insects and provide foraging habitat for raptors and other birds.

Plate 1. Active agricultural field looking east from western boundary of project site.

Plate 2. Looking north along dirt road separating active field (left) and idle field (right). Note commercial development and rural residence along Grant Avenue in background.

Inactive (idle) Agricultural Land

The idle field appeared not to have been cultivated in the last several years. During the time of the survey, it contained nonnative annual grasses including wild oat (*Avena fatua*) and hare barley (*Hordeum murinum*).and a variety of nonnative weeds dominated by yellow star thistle (*Centaurea solstitialis*), yellow foxtail (*Setaria pumila*), and mustard (*Sisymbrium altissimum*) (Plate 3). A 20- to 30-foot swath of the idle field along the eastern fence line had been disked and consisted mostly of bare ground (Plate 4).

Plate 3. Idle field looking northeast from dirt road dividing the idle field and active field. Note the fenced sewer lift station in the foreground and commercial development along Grant Avenue and bridge crossing I-505 in the background.

Plate 4. Idle field looking north from southeast corner of project site. I-505 right-of-way fence line is on the right.

Edge Habitats

Edge habitats are found along the perimeter of the project site. They occur as linear habitats along roadsides or field borders, or as trees and shrubs around rural residences or farmyards. Because the majority of the project site is agricultural land, edge habitats are generally areas of higher wildlife occurrence and productivity.

Riparian. Putah Creek is a perennial watercourse that extends along the southern border of the project site (Figure 2). Putah Creek is a large, deeply incised creek approximately 250 feet from bank to bank. It supports a relatively dense, mature riparian community from the top of the bank to the waters edge. Adjacent to the project site, Putah Creek is steeply-sloped and supports a complex riparian forest with an overstory dominated by non-native eucalyptus (*Eucalyptus* sp) trees along with black walnut (*J. hindsii*), valley oak (*Quercus lobata*), and cottonwood (*Populus fremontii*) trees. The understory consists primarily of willow (*Salix* sp.), elderberry (*Sambucus* sp.), and walnut saplings. Much of the understory is open with a grassy herbaceous cover. The top of the slope, dominated by a variety of nonnative grasses and weeds, is immediately adjacent to the cultivated field (Plate 5).

Plate 5. Putah Creek eucalyptus and valley oak-dominated riparian woodland, looking east from northwest corner of project site. Note the dense vegetation, steep slope, and proximity to cultivated habitats.

Water Conveyance Canals and Ditches. The canal that borders the eastern edge of the project site is within the right-of-way of I-505 (Figure 2). The canal is used mainly to convey storm water runoff and drains into Putah Creek at the southeastern corner of the project site. This canal supports primarily herbaceous vegetation, but also supports

several small valley oak trees and scattered shrubs along its length (Plate 6). A smaller ditch, supporting primarily herbaceous vegetation occurs along the northern edge of the project site and is used to convey storm water runoff along Grant Avenue. This ditch connects with the aforementioned canal near the northeast corner of the project site. Temporary agricultural ditches are also used around the perimeter of agricultural fields for irrigation purposes.

Plate 6. Canal bordering the eastern edge of the project site within the I-505 right-of-way. Looking north from the southeast corner of the project site.

Field Borders. Other trees and shrubs occur around the perimeter of the project site. Several small valley oak and walnut trees, several cottonwood trees, small patches of Himalayan blackberry bramble, and other shrubs occur within the I-505 right of way along the eastern border of the project site between the idle field and aforementioned I-505 canal (Plate 7). Several mature cottonwood trees and numerous shrubs that were identified during the 2011 survey were removed along the canal where it turned westward bordering Grant Avenue at the northeast corner of the project site. The canal appears to have been undergrounded at this location. Ornamental trees from the adjacent rural residences and the nearby residential area also near the western edge of the project site (Plate 8).

Plate 7. Small valley oak trees bordering the eastern edge of the project site, looking northeast from the edge of the idle field.

Plate 8. Residential area with ornamental trees near the western boundary of the project site, looking northwest from Putah Creek.

Rural Farm Residences and Farmyards.

Two farm residences occur along the northwestern border of the project site (Figure 2). The northernmost property was occupied (Plate 9) and the southernmost property was abandoned (Plate 10) at the time of the survey. Each is surrounded by mature valley oak, walnut, and ornamental trees.

Plate 9. Occupied Rural farm residence within approximately 250 feet of the northwest corner of project site, looking northwest from interior of active agricultural field.

Plate 10. Abandoned rural farm residence immediately south of the occupied residence (Plate 6). Active agricultural field is on the right.

Wetlands

No wetlands, vernal pools, or other sensitive natural communities were identified within the project site during the reconnaissance-level surveys.

Wildlife Occurrence and Use

The project site is characteristic of Yolo County rural agricultural lands. While providing relatively low value habitat, some species are well-adapted to agricultural lands and occur regularly depending on the crop type and the availability of edge habitat. Agricultural lands are used for foraging and cover by a variety of birds and can also be used as nesting habitat by some bird species. During the survey, several common species were observed using the active and idle fields, including rock pigeon (*Columba livia*), American kestrel (*Falco sparverious*), cliff swallow (*Petrochelidon pyrrhonota*), western scrub jay (*Aphelocoma californica*), yellow-billed magpie (*Pica nuttalli*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), and golden-crowned sparrow (*Zonotrichia atricapilla*).

The idle fields and grassy edges also provide nesting habitat for some ground-nesting birds, such as western meadowlark (*Sturnella neglecta*), and are home to several common reptiles such as gopher snake (*Pituophis catenifer*), valley garter snake (*Thamnophis sirtalis fitchi*), and western fence lizard (*Sceloporus occidentalis*).

The agricultural habitats are also essential to several breeding and wintering raptors, particularly as foraging habitat. Several important raptor prey species or their sign were detected during surveys, including pocket gopher (*Thomomys bottae*), meadow vole (*Microtus californicus*), and black-tailed jackrabbit (*Lepus californicus*). Agricultural lands provide essential foraging habitat for locally breeding or wintering raptors such as Swainson's hawk, red-tailed hawk (*Buteo jamaicensis)*, white-tailed kite, northern harrier (*Circus cyaneus)*, and American kestrel.

The presence of edge habitats also contributes to the occurrence and abundance of wildlife in agricultural areas. The presence of trees, shrubs, grasses and other herbaceous vegetation in adjacent riparian habitats and along field borders and roadsides attracts birds and small and medium-sized mammals that may also use the agricultural lands for foraging and cover. Because they are less disturbed by cultivation or other management, edge habitat can be fairly productive wildlife habitat depending on the size (length and width) and vegetation composition.

The mature trees and shrubs, and the dense and structurally complex vegetation that occur in riparian habitats, such as Putah Creek, and the mature trees and shrubs along field borders, support potential nesting habitat for many bird species, including nesting raptors. These habitats also provide denning and cover habitat for coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), opossum (*Didephis virgininanus*), western gray squirrel (*Sciurus griseus*) and

many other small and medium-sized mammals; and important habitat for many reptiles, amphibians, and invertebrates.

As noted above, there are no unique or distinctive topographical features or biologically important habitat features on the project site. The project site does not support important wildlife movement corridors or habitats, such as wetlands, that would attract larger concentrations of wildlife. The most important wildlife movement corridor in the area is Putah Creek, which borders the southern edge of the project site. In general, the project site supports a combination of urban- and agricultural-associated wildlife.

Special-status Species

Special-status species are generally defined as species that are assigned a status designation indicating possible risk to the species. These designations are assigned by state and federal resource agencies (e.g., California Department of Fish and Game [DFG], U.S. Fish and Wildlife Service) or by private research or conservation groups (e.g., National Audubon Society, California Native Plant Society). Assignment to a special-status designation is usually done on the basis of a declining or potentially declining population, either locally, regionally, or nationally. The extent to which a species or population is at risk usually determines the status designation. The factors that determine risk to a species or population generally fall into one of several categories, such as habitat loss or modification affecting the distribution and abundance of a species; environmental contaminants affecting the reproductive potential of a species; or a variety of mortality factors such as hunting or fishing, interference with man-made objects (e.g., collision, electrocution, etc), invasive species, or toxins.

For purposes of CEQA environmental review, special-status species are generally defined as follows:

- Species that are listed, proposed, or candidates for listing under the federal Endangered Species Act (50 CFR 17.11 – listed; 61 FR 7591, February 28, 1996 - candidates);
- Species that are listed or proposed for listing under the California Endangered Species Act (Fish and Game Code 1992 Sections 2050 et seq.; 14 CCR Sections 670.1 et seq.);
- Species that are designated as Species of Special Concern by CDFW;
- Species that are designated as Fully Protected by CDFW (Fish and Game Code, Section 3511, 4700, 5050, and 5515;
- Species included on Lists 1B or 2 by the California Native Plant Society;
- Species that meet the definition of rare or endangered under CEQA (14 CCR Section 15380)

Table 1 lists the special-status species with potential to occur in the vicinity of the project site based on their local and regional distribution and indicates whether or not they occur or have potential to occur on the project site or immediately adjacent lands based on

reported observations and/or the availability of suitable habitat. Each of these species is also described in more detail below. Figure 3 illustrates the locations of reported special-status species occurrences in the vicinity of the project site.

Table 1. Special-status species with potential to occur in the vicinity of the project site.

Species	Status State/federal/CNPS	Habitat Association	Habitat Availability on the Project Site	Occurrence on the Project site
Vernal pool fairy shrimp *Branchinecta lynchi*	-/T	Vernal pools and other seasonal wetlands	None	No
Vernal pool tadpole shrimp *Lepidurus Packardi*	-/E	Vernal pools and other seasonal wetlands	None	No
Conservancy fairy shrimp *Branchinecta conservatio*	-/	Vernal pools and other seasonal wetlands	None	No
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	-/T	Elderberry shrubs	None on the project site, but elderberry shrubs present along Putah Creek.	No
Western pond turtle *Actinemys marmorata*	CSC/-	Streams, ponds, water conveyance channels	None, but present on Putah Creek.	No
White-tailed kite *Elanus leucurus*	FP/-	Riparian trees, woodlands, roadside trees, grasslands, agricultural lands	Suitable nesting along Putah Creek and edge habitats and suitable agricultural foraging habitat	Potential
Northern harrier *Circus cyaneus*	CSC/-	Grasslands, seasonal marshes, some agricultural habitats	Marginal nesting habitat and suitable agricultural foraging habitat	Potential
Swainson's hawk *Buteo swainsoni*	T/-	Riparian trees, woodlands, roadside trees, grasslands, agricultural lands	Suitable nesting along Putah Creek and edge habitats and suitable agricultural foraging habitat.	Potential
Mountain plover *Charadrius montanus*	CSC/-	Plowed agricultural fields during winter	Agricultural fields could provide suitable habitat during winter	Potential
Burrowing owl *Athene cunicularia*	CSC/-	Ruderal habitats, field edges with ground squirrel activity	Low value habitat along field edges and idle field, but minimal ground squirrel activity noted	Potential

Species	Status State/federal/CNPS	Habitat Association	Habitat Availability on the Project Site	Occurrence on the Project site
Loggerhead shrike *Lanius ludovicianus*	CSC/-	Grasslands, agricultural lands	Suitable nesting in trees and shrubs, suitable foraging in active and idle fields	Potential
Tricolored blackbird *Agelaius tricolor*	CSC/-	Emergent marshes, blackberry thickets, silage, pastures, some agricultural habitats	No nesting, marginal foraging.	Potential
Pallid Bat *Antrozous pallidus*	CSC/-	Shrublands, grasslands, agricultural lands, woodlands; caves, mines, hollow trees, buildings.	Potential foraging in agricultural fields. Possible roosting along Putah Creek outside of project area.	Potential
Townsend's Big-eared Bat *Corynorhinus townsendii townsendii*	CSC/-	Most low to mid-elevation habitats; caves, mines, and buildings for roosting.	Potential foraging in agricultural fields; no roosting.	Potential
Rose mallow *Hibiscus lasiocarpus*	-/-/2	Riparian and marsh habitats	None in the project area, but suitable habitat may occur along Putah Creek	None
Dwarf downingia *Downingia pusilla*	-/-/2	Grasslands and wetlands	None	None
Round-leaved filaree *Erodium macrophyllum*	-/-/2	Grasslands	None	None
Fragrant fritillary *Fritillaria liliacea*	-/-/1B	Grasslands	None	None
Adobe lily *Fritillaria pluriflora*	-/-/1B	Grasslands	None	None
Brewer's western flax *Hesperolinon breweri*	-/-/1B	Grasslands	None	None

T=threatened; E=Endangered; CSC=California species of species concern; FP=state fully protected; 1B=CNPS rare, threatened, endangered in California and elsewhere; 2=CNPS rare, threatened, endangered in California but more common elsewhere.

Aquatic Invertebrates

Several special-status invertebrates are known to occur in vernal pool and other seasonal wetland habitats in Yolo County including vernal pool tadpole shrimp (*Lepidurus packardi*) and conservancy fairy shrimp (*Branchinecta conservatio*), both federally listed endangered species, and vernal pool fairy shrimp (*Branchinecta lynchi*), a federally listed threatened species. Collectively, these species occur within a range of specific

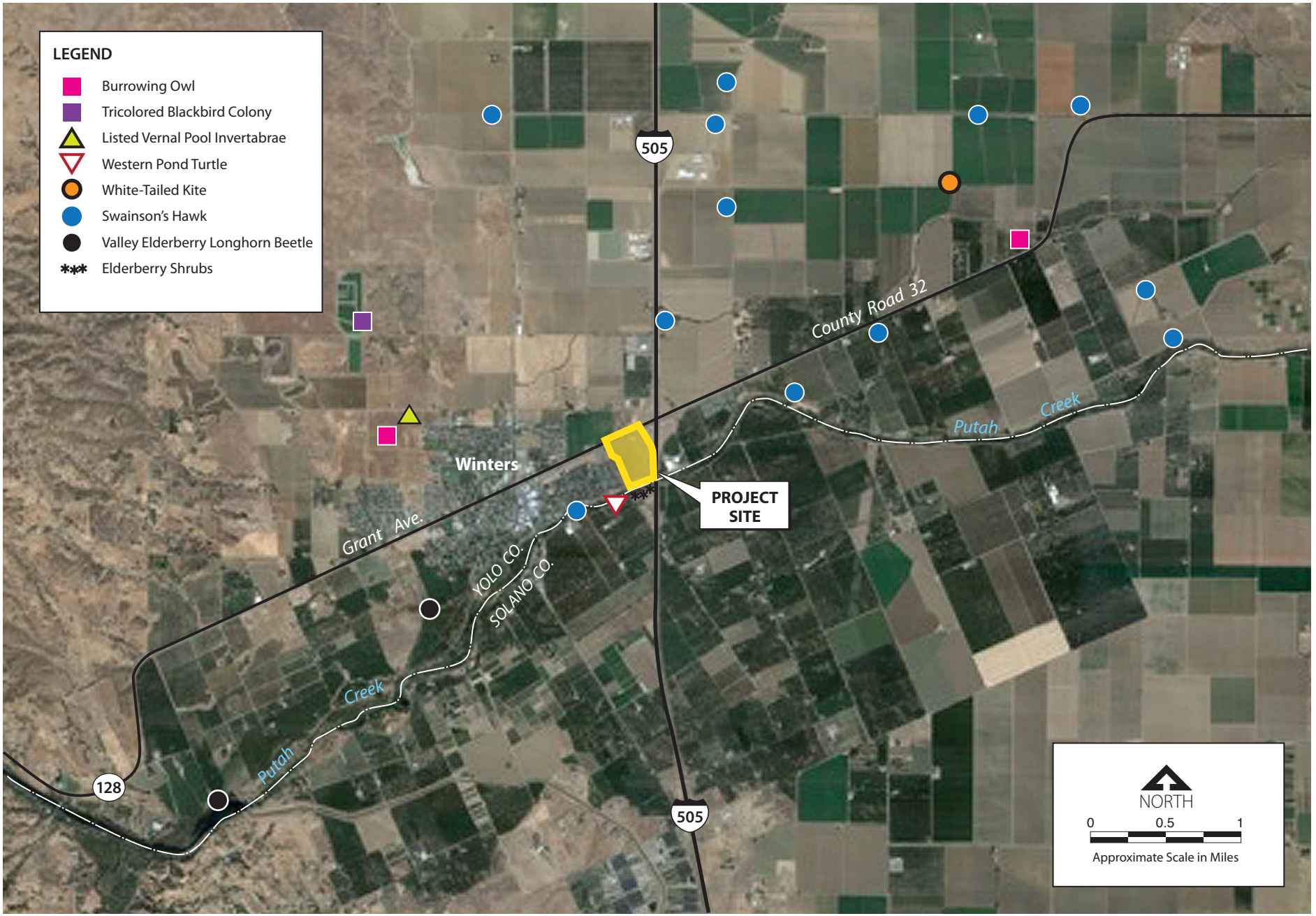


Figure 3
Special Status Species Occurrences in the Vicinity of the Project Site

environmental conditions unique to certain vernal pool communities that include soil type, vegetation characteristics, water depth, water temperature, inundation duration, and water quality (Ericksen and Belk 1999). As a result of the substantial loss of vernal pool habitats in the Central Valley from urbanization and agricultural conversion, populations of these species have declined throughout their range (U.S. Fish and Wildlife Service 1994). There are no vernal pools or other seasonal wetland habitats on the project site and therefore no potential for these species to occur. Nearest reported occurrences are approximately 1 mile west of the project site (Figure 3).

Valley Elderberry Longhorn Beetle

The Valley Elderberry Longhorn Beetle (VELB) (*Desmocerus californicus dimorphus*) is a federally-listed threatened species. VELB is a medium-sized woodboring beetle, about 0.8 inches long. Endemic to California's Central Valley and watersheds that drain into the Central Valley (Barr 1991), this species' presence is entirely dependent on the presence of its host plant, the elderberry shrub.

VELB is a specialized herbivore that feeds exclusively on elderberry shrubs, the adults feeding on leaves and flowers, and the larvae on the stem pith. Habitat for VELB consists of elderberry shrubs with stems greater than 1 inch in basal diameter. Elderberry grows in upland riparian forests or savannas adjacent to riparian vegetation, but also occurs in oak woodlands and savannas and in disturbed areas. It usually co-occurs with other woody riparian plants, including Fremont cottonwood, California sycamore (*Platanus racemosa*), various willows, wild grape (*Vitus californica*), blackberry (*Rubus* spp.), and poison-oak (*Rhus diversiloba*) (U.S. Fish and Wildlife Service 1984, Collinge et al 2001), but can also occur as an isolated shrub in open grasslands or along fence rows or field borders in grassland and agricultural areas.

There are no elderberry shrubs present on the project site and therefore no potential for VELB to occur on the project site. However, several elderberry shrubs were found along Putah Creek during the reconnaissance survey as close as approximately 30 feet from the edge of the active agricultural field (Figure 3). The search of CNDDB records (CNDDB 2013) also indicated locations of two reported VELB occurrences, one approximately 1.6 miles southwest of the project site along Dry Creek, and one approximately 3.4 miles southwest of the project site along Putah Creek at Lake Solano (Figure 3).

Northern Harrier

The northern harrier is designated as a state species of special concern (Shuford and Gardali 2008). It is a medium-sized hawk with a slight build and relatively long tail and wings (3.5 foot wingspan). Adult males are pale gray, while juveniles and females are brown. All plumages show a distinctive white rump patch in flight (Sibley 2000).
In California, this species is a permanent resident of the northeastern plateau, coastal areas, and the Central Valley. It is also a widespread winter visitor and migrant in suitable habitat. While declines in the California population have been noted for many years (Grinnell and Miller 1944, Remsen 1978), the species can be locally abundant

where suitable habitat remains free of disturbance, especially from intensive agriculture. Breeding populations have declined from destruction of wetland habitats, native grasslands, and moist meadows, and in agricultural areas from burning and plowing of nest sites during early stages of the breeding cycle (Remsen 1978, MacWhirter and Bildstein 1996).

The northern harrier is a ground-nesting raptor, constructing rudimentary nest sites on the ground in marsh, grassland, and some agricultural habitats, particularly grain fields. They forage in seasonal wetland, grassland, and agricultural habitats for voles and other small mammals, birds, frogs, and small reptiles, crustaceans, and insects. They also roost on the ground, using tall grasses and forbs in wetlands, or along wetland/field borders for cover (MacWhirter and Bildstein 1996).

No northern harriers were observed during the field survey and no nests are currently present on the project site; however, the species is relatively common in the agricultural lands of Yolo County and the active and idle fields provide suitable foraging habitat and potential low value nesting habitat.

White-tailed Kite

The white-tailed kite is designated a state fully protected species. The white-tailed kite is a highly specialized and distinctively marked bird of prey; smaller than most hawks with a wingspan of just over three feet, white underneath and light gray above, black shoulder patches, and white tail (Dunk 1995). The species name is derived from its distinctive hunting behavior, kiting, hovering in the air while hunting for prey.
The white-tailed kite is known primarily from the Central Valley and coastal areas of California; however, breeding has also been documented in parts of Oregon and Washington, southern Texas, Florida, and south from northern Mexico to South America.

In the Central Valley, white-tailed kites nest in riparian forests and woodlands, woodlots, and occasionally in isolated trees. They forage in grasslands, seasonal wetlands, and agricultural fields. Like most raptors, its distribution is determined more by prey abundance and vegetation structure than by specific plant associations. They appear to be more sensitive to intensive farming practices and while they are found in agricultural areas, populations have likely declined as a result of conversion from native grassland and seasonal wetland habitats to agriculture. White-tailed kites prey mainly on small rodents, especially California vole, but also take small birds, reptiles, and insects (Dunk 1995, Erichsen 1995).

No white-tailed kites were observed during field surveys. Trees along field borders and riparian habitat along Putah Creek support suitable nesting habitat for kites. Active and idle agricultural fields are suitable foraging habitat. The species is resident in Yolo County and occurs throughout the valley floor and foothill grasslands, but is a relatively uncommon nesting species. The nearest recently reported white-tailed kite nest is approximately 2.5 miles northeast of the project area (Estep 2008) (Figure 3).

Swainson's Hawk

Swainson's hawk is a state-listed threatened species. It is a medium-sized hawk with long (3.5 to 4 feet) narrow wings, dark breast and head, and with several distinctive plumage variations on the underwing coverts and belly (England et al. 1997). Swainson's hawk is an open country species found throughout the plains and deserts of the western United States. Associated primarily with open grassland habitats, throughout much of its range it is currently known to also occur in agricultural habitats, which has displaced much of the grassland habitat throughout North America. Formerly occurring throughout the lowland areas of California, as a result of habitat loss and conversion to agriculture, populations are now restricted mainly to the Central Valley and Great Basin portions of the state.

In the Central Valley, Swainson's hawks nest in riparian forests, remnant oak woodlands, isolated trees, and roadside trees. They forage primarily in agricultural habitats, particularly those that optimize availability of prey (e.g., alfalfa and other hay crops, some row and grain crops), but also use irrigated pastures and annual grasslands (Estep 1989, 2009). The principal prey item of Swainson's hawks in the Central Valley is the California vole, but other small mammals, birds, reptiles, and insects are also taken (Estep 1989, England et al. 1997).

Yolo County is within the core breeding area for Swainson's hawks in the Central Valley. Supporting as many as 300 nesting pairs, the breeding density in Yolo County is the highest reported anywhere within the range of the species (Estep 2008). This species occurs throughout the lowland agricultural region of Yolo County and forages widely in irrigated cropland, pastures, and grassland landscapes.

No Swainson's hawk nest sites have been reported from or in the immediate vicinity of the project site; however, the riparian, field border, and rural residential/farmyard trees adjacent to the project site support suitable nesting habitat. The active and idle agricultural fields are suitable Swainson's hawk foraging habitat. The nearest recently reported nest is approximately 0.4 miles west of the project site along Putah Creek (Figure 3). At least 13 reported nest sites occur within 5 miles of the project site. (Estep 2008, CNDDB 2013).

Mountain Plover

The mountain plover (*Charadrius montanus*) is designated as a state species of special concern. The mountain plover is a small, plainly-plumaged, brown and white plover slightly larger than the snowy plover. Mountain plovers are short to medium-distance migrants that nest primarily in the western Great Plains of the United States and winter in California, Arizona, New Mexico and northern Mexico (Knopf and Wunder 2006). Unlike most other plover species, the mountain plover is an upland species, often found far from water.

The mountain plover does not breed in California, but does occur during the winter. The species arrives on its wintering grounds in California from November through December where it remains through March (Hunting and Edson 2008).

The wintering habitat of mountain plovers in the Central Valley has been described as pastureland nearly devoid of vegetation (Stoner 1942), sparsely vegetated fields (Manolis and Tangren 1975), grazed grasslands and disked agricultural fields (Hunting et al. 2001, Hunting and Edson 2008). The species occurs only in areas either devoid of or with very sparse and short vegetation.

Mountain plovers are regular, but uncommon, winter visitors to Yolo County. Small flocks have been observed in recently-plowed agricultural fields near Woodland and Davis, especially along County Roads 16, 25, 27, and 102, and in unflooded portions of the Yolo Bypass. The species has not been reported from the project site or surrounding area; however, the agricultural fields in the project area may represent potential winter habitat for mountain plovers.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia*) is designated as a state species of special concern. The burrowing owl is a small ground-dwelling owl with a round head, yellow eyes, and long legs (Haug et al. 1993).

The burrowing owl occurs throughout most of western United States and northern Mexico. They also occur in southern Florida and on some Caribbean islands (Haug et al. 1993). In California, burrowing owls occur in open habitats throughout most of the state with the exception of the northwestern corner. Burrowing owls are found in open, dry grasslands, agricultural and range lands, and desert habitats. In the Central Valley, they are associated with remaining grassland habitats, pasturelands, and edges of agricultural fields. They also occur in vacant lots and remnant grassland or ruderal habitats within urbanizing areas. Historically nesting in larger colonies, due to limited nesting habitat availability most of the more recent occurrences are individual nesting pairs or several loosely associated nesting pairs.

The burrowing owl is a subterranean-nesting species, typically occupying the burrows created by California ground squirrels *(Spermophilus beecheyi)*. They also occupy artificial habitats, such as those created by rock piles and occasionally in open pipes and small culverts. They forage for small rodents and insects in grassland and agricultural habitats with low vegetative height.

In Yolo County, the largest concentrations of burrowing owls occur in the grassland and pasture habitats of the southern panhandle and in the Davis area. Additional occurrences have been reported from the Dunnigan Hills, the agricultural lands between Davis and Woodland, and the grasslands northwest of Winters. The nearest recently reported occurrence is approximately 1 mile west of the project site (Figure 3)

No burrowing owls were detected on or in the immediate vicinity of the project site. No potential burrows were found and relatively little ground squirrel activity was noted during surveys. Burrowing owls do not currently occur on the project site; however, the agricultural fields represent potentially suitable foraging habitat, and the species could potentially nest or winter along field borders, edges, or in idle fields.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a state species of special concern. Tricolored blackbirds are small blackbirds, very similar in appearance to the closely related red-winged blackbird (*Agelaius phoeniceus*). They differ from species by the slightly thinner bill, darker red shoulder patches, and broad white (not yellow) median coverts (Sibley 2000).

Tricolored blackbirds are largely endemic to California, and more than 99% of the global population occurs in the state. In any given year, more than 75% of the breeding population can be found in the Central Valley. Small breeding populations also exist at scattered sites in Oregon, Washington, Nevada, and western coastal Baja California (Beedy and Hamilton 1999). This species has suffered dramatic population declines throughout its range due to the loss of protected wetland nesting habitats.

Tricolored blackbirds breed in colonies from several dozen to several thousand breeding pairs. They have three basic requirements for selecting their breeding colony sites: open accessible water; a protected nesting substrate, including either flooded or thorny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony (Beedy and Hamilton 1999).

Nesting colonies have been reported in freshwater marshes dominated by cattails and bulrushes, or in willows, blackberry bramble, thistles, or nettles. While freshwater marsh was once considered the primary breeding habitat type for tricolored blackbirds, an increasing percentage of tricolored blackbird colonies in the 1980s and 1990s were reported in Himalayan blackberries, and some of the largest recent colonies have been in silage and grain fields (Beedy and Hamilton 1999).

Foraging habitats in all seasons include annual grasslands; wet and dry vernal pools and other seasonal wetlands; agricultural fields (e.g., large tracts of alfalfa with continuous mowing schedules and recently tilled fields); cattle feedlots; and dairies. Tricolored blackbirds also forage occasionally in riparian scrub habitats and along marsh borders (Beedy and Hamilton 1999).

There is no potential breeding habitat for tricolored blackbirds on the project site and none in the immediate vicinity of the project site. The nearest reported breeding colony is from the Winter Wastewater Treatment Facility approximately 1.5 miles northwest of the project site (Figure 3); however, this colony has not been reported as active since the 1990s. The nearest recently reported breeding colony is approximately 6 miles north of the project site (Tricolored Blackbird Portal [tricolor.ice.ucdavis.edu/]). The active and

idle agricultural lands on the project site are considered suitable foraging habitat for this species.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus)* is designated as a state species of special concern. Loggerhead shrike is a permanent resident and winter visitor in foothills and lowlands throughout California, where it is considered a fairly common resident (Small 1994). It is a medium-sized (9 inches), stout, short-winged passerine that is often seen perched on barbed wire fences. The underparts and back are grey, with black tail, wings and facemask (Sibley 2000).

Shrikes prefer open habitats with scattered trees, shrubs, posts, fences, utility lines, or other perches. It nests in small trees and shrubs and forages for small rodents and insects in pastures and agricultural lands.

No shrikes were observed during the reconnaissance survey. The species occurs throughout lowland Yolo County and could potentially nest in the trees and shrubs along field borders and forage in the agricultural fields on the project site.

Western Pond Turtle

The western pond turtle (*Clemmys marmorata*) is designated as a state species of special concern. The western pond turtle is a moderate sized turtle with drab brown coloring. The carapace lacks any prominent markings (Holland 1991). In California, the western pond turtle is distributed throughout the state from sea level to mid-elevation Sierra Nevada (Jennings and Hayes 1994).

Western pond turtles are closely associated with permanent water bodies, such as lakes, ponds, slow moving streams, and irrigation canals that include basking sites as down logs or rocks, and that support sufficient aquatic prey. Western pond turtles also require upland habitat that is suitable for building nests and to overwinter. Suitable upland habitat must have the proper thermal and hydric conditions in which to build nests (Jennings and Hayes 1994). Nests are constructed in sandy banks immediately adjacent to aquatic habitat or if necessary, females will climb hillsides and sometimes move considerable distances to find suitable nest sites. Females deposit their eggs in the nest from March to August depending on local conditions.

Western pond turtles are omnivorous and opportunistic feeders. Their diet includes slow-moving aquatic invertebrates and carrion. Aquatic vegetation may also be consumed, especially by females who have recently laid eggs. Hatchlings and juveniles feed primarily on zooplankton (Jennings and Hayes 1994).

There is no aquatic habitat present on the project site; however the species is known to occur along Putah Creek (Figure 3) (CNDDB 2013). Nesting or overwintering turtles

could occur along the slopes of the creek and could potentially occur immediately adjacent to the active and idle fields.

Special-status Bats

Two special status bats potentially occur in the project area, including pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), both state species of special concern. Pallid bat occurs primarily in shrublands, woodlands, and forested habitats, but also can occur in grasslands and agricultural areas (Pierson and Rainey 1998). Townsends's big-eared bat occurs in a variety of woodland and open habitats, including agricultural areas (Fellers and Pierson 2002). Both species roost in mines, caves, rocky crevices, large hollow trees, and occasionally in large open buildings that are usually abandoned or infrequently inhabited.

Potential roosting habitat for these bat species occurs in the riparian habitat along Putah Creek. They could also forage above the creek and the active and idle fields on the project site.

Special-status Plants

Six special-status plant species have potential to occur in the vicinity of the project site. Rose mallow (*Hibiscus lasiocarpus*) occurs in marshes and riparian habitats. Dwarf downingia (*Downingia pusilla*) potentially occurs in the grassland and wetland habitats; round-leaved filaree (*Erodium macrophyllum*), fragrant fritillary (*Fritillaria liliacea*), Adobe lily (*Fritillaria pluriflora*), and Brewer's western flax (*Hesperolinon breweri*) potentially occur in annual grassland habitats. None of these species has been reported from the project site and there is no suitable habitat for any of these species within the project site boundary. Rose mallow could potentially occur along Putah Creek.

Impacts of the Proposed Project

Natural Communities, Vegetation, and General Wildlife

The project site supports active and idle agricultural fields. Surrounding edge habitats consist of riparian woodland along Putah Creek, trees and shrubs along adjacent canals and field borders, native and ornamental trees around two adjacent rural residences, and ornamental trees within nearby residential developments. The project site does not support any unique or otherwise protected biological communities such as wetlands, riparian woodland, or vernal pools. However, Putah Creek, which is contiguous with the southern border of the project site, supports a dense and diverse riparian forest and other edge habitats also support trees and shrubs that provide nesting and cover habitat for a variety of wildlife species.

The presence of these edge habitats attracts wildlife species that also use the adjacent agricultural fields. The removal of trees and shrubs along field borders within and

adjacent to the project site will reduce opportunities for wildlife occurrence and the removal of the agricultural fields will reduce open foraging habitat and thereby reduce the value of remaining edge habitats on and adjacent to the project site. The removal of trees and shrubs occupied by nesting birds would potentially be a violation of the federal Migratory Bird Treaty Act (MBTA) (Title 16, United States Code [USC], Part 703, 50 CFR 21, 50 CFR 10).The MBTA sets seasons and bag limits for hunted species and protects migratory birds, their occupied nests and their eggs.

The City's General Plan requires a 100-foot development setback along the north side of Putah Creek from Railroad Avenue to Interstate 505 in order to protect the resources along Putah Creek (City of Winters General Plan 1992). This designated open space area, which extends 100 feet from the top of the slope of the drainage, has been incorporated into the design plans for the proposed project. This area, which currently consists of the active agricultural field and to a lesser extent the idle agricultural field, will be planted with native trees and other shrubs and herbaceous vegetation. Therefore, riparian habitat along Putah Creek is not expected to be negatively affected, and may be enhanced through the restoration of native vegetation within the designated buffer area.

Other trees adjacent to but outside of the project site boundary, such as those within the I-505 right-of-way and those in adjacent rural residential areas, would not be removed by project activities.

The project will remove approximately 38 acres of agricultural land, approximately 8 acres of which will be retained and restored as habitat within the Putah Creek buffer/drainage corridor. While this loss of agricultural land will negatively affect the wildlife use of the project site, because of the extent of this habitat in the vicinity of the project site and throughout Yolo County, it is not expected to substantially affect the distribution and abundance of general wildlife. Because the project is contiguous with existing development within the City of Winters and because there are no important movement corridors or use areas within the project site, it is also not expected to have a substantial affect on wildlife movement. Therefore, while removal of agricultural habitats will affect use of the area by local wildlife, this impact is not considered significant according to applicable CEQA guidelines.

Construction and Operational Disturbances

Construction-related disturbances and post-construction operational disturbances, including noise, presence and operation of construction equipment, and presence of workers, could affect nesting success of birds that nest in the adjacent riparian habitat along Putah Creek and in trees and shrubs along the eastern and western borders of the project site. The 100-foot-wide open space buffer noted above will minimize this potential impact to a level of less-than-significant for non-listed bird species that nest along Putah Creek. There will, however, be temporary construction (30 to 60 days) disturbances within the buffer for purposes of constructing the storm drainage channel. If this construction occurs during the breeding season (February 15 through August 30), recommended avoidance measures described below will apply. This open space buffer,

along with those established for potentially occurring special-status species (see discussion below) are also consistent with PG&E's internal nesting bird protection guidance (Draft Avian Conservation Strategy for Bird Protection and Mitigation [ICF and HT Harvey 2013]).

Special-Status Species

Based on the examination of habitat availability, nine of the wildlife species listed on Table 1 have potential to occur on the project site, and two additional special-status species have potential to occur in adjacent riparian habitat along Putah Creek.

Tricolored Blackbird and Mountain Plover

While they do not nest on the project site, the agricultural lands represent suitable foraging habitat for mountain plover and tricolored blackbird. However, the agricultural lands on the project site are not considered high value foraging habitat for tricolored blackbirds, and while they could and likely occasionally do forage on the project site, this habitat is abundant throughout Yolo County. While none have been reported and thus there is no reported traditional use of the project site, mountain plovers could potentially use the agricultural fields during the winter; however, the site does not support any unique characteristics that distinguish it from surrounding agricultural lands. If there is occasional winter use of the site by mountain plovers, it is expected that use would shift to similar adjacent agricultural fields. Therefore, the loss of approximately 38 acres of land in agricultural use (or approximately 0.01% of the agricultural land in Yolo County) is not considered a significant impact to these species.

Northern Harrier, White-tailed Kite, Northern Shrike

These species potentially nest on or adjacent to the project site. Northern harrier is a ground-nesting species and could use the active and idle lands for nesting. White-tailed kite and northern shrike could nest in adjacent riparian or other edge habitats that support suitable trees. All three species use agricultural habitats for foraging.

The removal of approximately 38 acres of agricultural land will also remove foraging habitat for northern harrier, white-tailed kite, and northern shrike. Because agricultural habitats are abundant in Yolo County, the removal of approximately 38 acres of agricultural foraging habitat is unlikely to affect the distribution or abundance of these species in Yolo County, and thus this impact is considered less than significant for these species.

Disturbances potentially resulting in nest abandonment of these species during construction activities would violate Fish and Game Code and would be inconsistent with PG&E's internal guidance for protection of nesting birds (ICF and HT Harvey 2013). In the event an active white-tailed kite or loggerhead shrike establishes a nest in one of the trees on site prior to removal, or a northern harrier establishes a nest in the cultivated

habitats prior to grading, active nests will be protected and disturbances to active nests will be avoided (See Mitigation below).

Burrowing Owl

The burrowing owl does not currently occur on the project site, but there is limited potential for the species to inhabit field borders, fence rows, or roadside edges. However, the general lack of burrowing activity from ground squirrels and regular farming activities further limits this potential. While the removal of approximately 38 acres agricultural foraging habitat would not be considered a significant impact to burrowing owls, destruction of occupied nesting or wintering burrows or disturbances that potentially result in nest abandonment could violate Fish and Game Code and could be inconsistent with PG&E's internal guidance for protection of nesting birds (ICF and HT Harvey 2013).

Pallid Bat and Townsend's Big-eared Bat

Because similar agricultural lands are abundant throughout the region, the removal of approximately 38 acres would not constitute a significant loss of foraging habitat for pallid bat or Townsend's big-eared bat. Project activities are not expected to affect adjacent riparian habitats along Putah Creek, where these species could potentially roost.

Valley Elderberry Longhorn Beetle

On January 23, 2014 a survey of elderberry shrubs in the Putah Creek riparian area was conducted. Nine elderberry shrubs, or clusters of shrubs, were identified within the Putah Creek greenway at a distance greater than 100 feet from the project site's southern boundary. None of these shrubs showed evidence of VELB occurrence. Because these shrubs are located outside of the project site boundary, they will not be directly affected by construction activity. However, if ground disturbances occur within 100 feet of the shrubs, they could potentially be subject to indirect disturbances as per the U.S. Fish and Wildlife Service Conservation Guidelines (USFWS 1999). Disturbances resulting in destruction or damage to potentially occupied elderberry shrubs may be considered a take pursuant to the federal endangered species act and is a potentially significant impact.

Avoidance of VELB is accomplished by avoiding elderberry shrubs according to standard USFWS guidelines (USFWS 1999). To completely avoid elderberry shrubs, the guidelines recommend maintaining an undisturbed buffer of at least 100 feet. Reducing this distance to a minimum of 20 feet is possible based on site-specific conditions, project design, and the type of construction activities.

While none of the elderberry shrubs showed evidence of VELB occurrence, they will be further protected due to the project design, which incorporates the 100-foot-wide open space area extending from the upper slope of Putah Creek, and a minimum 30-foot distance to the nearest elderberry shrub from ground disturbing activities within the open space area. Further, ground disturbances within the open space area are not associated

with construction of facilities, but rather with the restoration of native vegetation and use for stormwater retention. Ground disturbances will include initial grading of the existing agricultural field, tree and shrub planting, and excavation of ponds. These activities are not expected to result in indirect impacts to elderberry shrubs or potential take of VELB given that surveys indicate there is no evidence that the shrubs are currently occupied and because impacts associated with construction and restoration activities (e.g., dust) are not expected to exceed that caused by the on-going farming operations on the site. As a result, while additional dust control measures will be implemented as needed (see Mitigation below), protection of the elderberry shrubs will be enhanced and they will no longer be affected by routine agricultural activities currently conducted on the parcel. Therefore, impacts to VELB are considered less than significant.

Western Pond Turtle

Western pond turtle may occur outside of the project site boundary primarily in aquatic habitats associated with Putah Creek. However, the species nests in adjacent upland habitat, sometimes up to several hundred feet from the water. Because the adjacent active field comprising the majority of the project site is regularly cultivated, it is unlikely that pond turtles would attempt to nest there; however, there is some limited potential for upland nesting in the smaller idle field.

Because aquatic and riparian habitats will not be disturbed and because the restoration of the 100-foot open space area to include storm water retention features and native vegetation will enhance the integrity of Putah Creek and upland habitat for the western pond turtle, impacts to this species are considered less than significant.

Swainson's Hawk

Swainson's hawks could nest in trees that are adjacent to the project site, such as along Putah Creek and around the adjacent rural residences. However, these trees will not be removed by the project.

The approximately 38 acres of agricultural land on the project site are considered suitable Swainson's hawk foraging habitat. Approximately 8 of these acres will be retained and restored within the Putah Creek buffer and will continue to provide habitat value for the Swainson's hawk and other wildlife. Loss of the remaining 30 acres of agricultural foraging habitat is not a substantial amount given the extent of foraging habitat throughout Yolo County and within the core Swainson's hawk breeding area of Yolo, Sacramento, Solano, and San Joaquin Counties. However, the loss does contribute to a significant cumulative regional loss of agricultural foraging habitat as addressed in the Yolo County General Plan EIR (LSA 2009). This project does not affect or change that analysis or conclusion.

In addition, construction-related disturbances potentially resulting in nest abandonment may be considered take pursuant to the California Endangered Species Act, could violate

Fish and Game Code, and could be inconsistent with PG&E's internal guidance for protection of nesting birds (ICF and HT Harvey 2013).

Recommended Mitigation

Contribute to the Yolo County Swainson's Hawk Interim Mitigation Program

The loss of approximately 38 acres of land in agricultural use will remove foraging habitat for the state-threatened Swainson's hawk and other agriculture-associated species. Approximately 8 of these acres will be retained and restored within the Putah Creek buffer and will continue to provide habitat value. To address the loss of the remaining 30 acres of Swainson's hawk foraging habitat, development projects that occur within this region are generally subject to mitigation due to their contribution to a broader cumulative loss of agricultural foraging habitat. To address this impact in a more comprehensive and consistent manner, the Yolo County Swainson's Hawk Interim Mitigation Program has been established to offset this cumulative loss of habitat. This program, managed through the Joint Powers Authority of the Yolo County Natural Heritage Program, of which the City of Winters is a member, is available to this project for purposes of mitigating impacts on Swainson's hawk foraging habitat. The standard mitigation procedure for projects that impact more than 40 acres includes providing mitigation lands at a 1:1 replacement ratio to offset loss of foraging habitat. A conservation easement approved by the CDFW would be placed on one or more offsite parcels within Yolo County and would require the land be maintained in agriculture under restrictions that would also maintain Swainson's hawk foraging habitat. Similarly, the applicant could purchase Swainson's hawk foraging habitat credits in a CDFW-approved mitigation bank. For projects impacting less than 40 acres, an applicant may alternatively elect to pay the applicable Swainson's Hawk mitigation fee.

Avoid Disturbance to Nesting Special-Status Birds

Removal of vegetation (i.e. trees and shrubs) should occur outside of the nesting season (September 1 to February 14) to reduce the potential of impacting nesting special-status birds on or adjacent to the project site. If vegetation removal must occur during the nesting season, conduct preconstruction nesting season surveys to determine presence of nesting Swainson's hawks, white-tailed kites, northern harriers, and loggerhead shrikes. These surveys should be conducted between approximately March 15 and August 31 and within 30 days of planned construction activity. If active nests are found, they should be protected by establishing the following no-disturbance set-backs until young have fledged.

- Swainson's hawk – 1,300 feet
- White-tailed kite – 1,300 feet
- Northern harrier – 300 feet
- Loggerhead shrike – 100 feet

Avoid Disturbance to Nesting Birds

Removal of vegetation (i.e. trees and shrubs) should occur outside of the nesting season (September 1 to February 14) to reduce the potential of impacting nesting birds on or adjacent to the project site. If vegetation removal must occur during the nesting season, conduct preconstruction nesting season surveys to determine the presence or absence of nesting birds. These surveys should be conducted between approximately March 15 to August 31 and within two weeks of planned construction activity. If nesting birds are found in locations within or adjacent to the project site, primarily in trees and shrubs along the southern, western, or eastern borders, no-disturbance set-backs will be established and vegetation removal will be postponed in accordance with PG&E's Avian Conservation Plan (ICF and HT Harvey 2013) guidance.

Avoid Disturbance to or Compensate for Impacts to Active Burrowing Owl Nesting and Wintering Burrows

Surveys should be conducted prior to construction to ensure avoidance of occupied burrowing owl burrows that may occupy the site prior to development. If active burrowing owl burrows are found, standard avoidance and mitigation measures recommended by CDFW shall be employed to offset impacts (California Burrowing Owl Consortium1993). They include the following:

- Conduct preconstruction surveys within 30 days prior to ground disturbing activity to determine presence or absence of occupied burrows. If no burrowing owls are found, no further mitigation is required.
- If active burrows are found, do not disturb active site by establishing a 50 meter (approximately 160 feet) no-disturbance buffer around occupied burrows during the non-nesting season (September 1 to January 31) and a 75 meter (approximately 250 feet) buffer around occupied burrows during the nesting season (February 1 through August 31). Buffer size is determined through a review of site-specific conditions including the type and extent of the impact, the timing and duration of the impact, visibility to the impact, and other environmental factors.
- During the non-nesting season (September 1 through January 31), passive relocation (e.g., one-way doors) can be used to exclude owls from active winter burrows and potential burrows within the project area when no other avoidance alternatives are available. This will also require the installation of artificial burrows that are beyond 50 meters of the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Relocation of owls should only be implemented during the non-nesting season.
- Compensate for loss of active burrows and associated foraging habitat. The extent of occupied habitat removed and subject to compensation is determined through a site-specific assessment of burrowing owl use. Compensation can be accomplished through an approved mitigation bank.

Avoid Disturbance to Elderberry Shrubs

As noted above, the establishment of a 100-foot-wide open space greenway area extending from the upper slope of Putah Creek into the active agricultural field will avoid direct and indirect disturbance and provide additional protection for the elderberry shrubs along the creek and facilitate the establishment of new elderberry shrubs. The restored greenway area, which is incorporated into the construction design, will include native trees, shrubs, and retention ponds. During these ground disturbing activities, additional precautions will be implemented, including dust control, temporary fencing, and if necessary temporary covering of the shrubs to further reduce the effects of dust.

Summary and Conclusion

The project site consists of agricultural land near medium density residential uses on the western boundary, Putah Creek riparian corridor and agriculture on the southern boundary, Interstate 505 on the eastern boundary, East Grant Avenue on the northern boundary, and beyond East Grant Avenue, a mix of rural residential, commercial and open agricultural land to the north. Thus, the project area can be largely characterized as agricultural/urban interface. Biological resources on the project site are similar to that found throughout the agricultural landscape of Yolo County. The project site includes active and idle agricultural fields with narrow edges of trees, shrubs, or herbaceous communities and is in close proximity to riparian habitat along Putah Creek. Wildlife use of the site consists of agriculture-associated species and species that use riparian or edge habitats for breeding and agricultural lands for foraging. Many urban-tolerant species are also present. No biologically important or unique communities or habitats occur within the project site boundary and the area is not within an important wildlife movement corridor or wildlife concentration area; however, several special-status species could potentially occur within or otherwise use the project area.

The removal of approximately 38 acres of agricultural land within the project site would affect the use of the project site by many wildlife species and would affect wildlife populations that require the adjacent edge habitats by removing adjacent open space foraging habitat. Protection and restoration of nearly 8 of these acres within the Putah Creek buffer will retain and enhance habitat value along the creek corridor. Development of the project site would also create additional disturbances to edge habitats and likely further reduce their use by local wildlife. While these impacts are not considered significant to general wildlife populations, development of the project site could result in significant impacts to several special-status species as described above. Recommended mitigation measures are designed to avoid or offset these impacts to less than significant levels. They are also consistent with the City of Winters Habitat Mitigation Program and the county-wide Swainson's Hawk Interim Mitigation Fee Program administered by the Joint Powers Authority of the Yolo County Natural Heritage Program.

Literature Cited

Barr, C. B. 1991. The distribution, habitat, and status of the valley elderberry longhorn beetle *Desmocerus californicus dimorphus* Fisher (Insecta: coleoptera: cerambycidae). U.S. Fish and Wildlife Service. Sacramento, CA.

Beedy, E. C., and W. J. Hamilton III. 1999. Tricolored Blackbird (*Agelaius tricolor*). *In* The Birds of North America, No. 423 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

California Burrowing Owl Consortium. April 1993. Burrowing owl survey protocol and mitigation guidelines.

City of Winters. 2012. Mitigated Negative Declaration for the I-5/Grant Avenue Planning Area Land Use Modification Project. Winters, CA.

Collinge, S. K., M. Holyoak, C. B. Barr, and J. T. Marty. 2001. Riparian habitat fragmentation and population persistence of the threatened valley elderberry longhorn beetle in Central California. Biological Conservation. 100: 103-113.

Dunk, J.R. 1995. White-tailed Kite (*Elanus leucurus*). *In* The Birds of North America, No. 178 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

England, A.S., M.J. Bechard, and C.S. Houston. 1997. Swainson's Hawk (*Buteo swainsoni*). In A. Poole and F. Gill (eds.), *The Birds of North America* No. 265.

Erichsen, A. L. 1995. The White-tailed kite (*Elanus leucurus*): nesting success and seasonal habitat selection in an agricultural landscape. Thesis. University of California at Davis, Davis, California.

Erikson, C.H. and D. Belk. 1999. Fairy shrimps of California's puddles, pools, and playas. Mad River Press, Inc. Eureka, CA. 196 pp.

Estep, J.A. 1989. Biology, movements, and habitat relationships of the Swainson's Hawk in the Central Valley of California, 1986-1987. Sacramento, CA; California Department of Fish and Game, Nongame Bird and Mammal Section.

Estep, J.A. 2008. The Distribution, Abundance, and Habitat Associations of the Swainson's Hawk (*Buteo swainsoni*) in Yolo County. Prepared for Technology Associates International Corporation and the Yolo County Habitat/Natural Community Conservation Plan JPA.

Estep, J.A. 2009. The influence of vegetation strucuture on Swainson's hawk (*Buteo swainsoni*) foraging habitat suitability in Yolo County, CA. Prepared for the Yolo Natural Heritage Program, Woodland, CA.

Fellers, G. M., and E. D. Pierson. 2002. Habitat use and foraging behavior of Townsend's big-eared bat (*Corynorhinus townsendii*) in coastal California. Journal of Mammalogy, 83(1):167-177.

Grinnell, J., and A. H. Miller. 1944. The distribution of the birds of California. Pac. Coast Avifauna No. 27. 608pp.

Haug, E.A., B.A. Millsap, and M.S. Martell. 1993. Burrowing Owl (*Speotyto cunicularia*). *In* The Birds of North America, No. 61 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

Holland, D.C. 1991. A synopsis of the ecology and status of the western pond turtle (*Clemmys marmorata*) in 1991. Prepared for the U.S. Fish and Wildlife Service, National Ecology Research Center, San Simeon Field Station.

Hunting, K., and L. Edson. 2008. Mountain Plover in Shuford, W. D., and Gardali, T., eds. 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Hunting, K. W., S. Fitton, and L. Edson. 2001. Distribution and Habitat Associations of the Mountain Plover (*Charadrius montanus*) in California. Trans. West. Sect. Wildl. Soc. 37: 37-42.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Sacramento, CA.

Knopf, F. L. and M.B. Wunder. 2006. Mountain Plover (*Charadrius montanus*). In The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Laboratory of Ornithology; Retrieved from The Birds of North America Online database: http://bna.birds.cornell.edu/BNA/account/Mountain_Plover.

ICF International and H.T. Harvey and Associates. 2013. Draft Avian Conservation Strategy: guidelines for bird protection and mitigation. Prepared for Pacific Gas and Electric Company, San Ramon, CA.

LSA Associates. 2009. Draft Yolo County 2030 Countywide General Plan Environmental Impact Report. Prepared for Yolo County, Woodland, CA.

MacWhirter, R.B. and K.L. Bildstein. 1996. Northern Harrier (*Circus cyaneus*). In: The Birds of North America, No. 210 (A. Poole and F. Gill [eds.]). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Manolis, T. and G. V. Tangren. 1975. Shorebirds of the Sacramento Valley, California. Western Birds 6: 45-54.

Pierson, E. D., and W. E. Rainey. 1998. Pallid bat, *Antrozous pallidus*. In Terrestrial Mammal Species of Special Concern in California, Bolster, B. C., editor. Draft Bird and Mammal Conservation Program Report No. 98-14, California Department of Fish and Game.

Remsen, J.V., Jr. 1978. Bird species of special concern in California. California Department of Fish and Game, Sacramento, CA.

Shuford W.D. and T.Gardali. 2008. California Bird Species of Special Concern. Studies of Western Birds No. 1. Western Field Ornithologists and California Department of Fish and Game and Game. Sacramento, CA.

Sibley, D.A. 2000. National Audubon Society: The Sibley guide to birds. Alfred A. Knopf, New York.

Small, A. 1994. California Birds: Their status and distribution. Ibis Publishing Company. Vista, CA. 342 pp.

Stoner, E. A. 1943. Mountain Plover in Solano County, California. Condor 43: 158.

U.S. Fish and Wildlife Service. 1994. Final Rule: determination of endangered status for the conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool tadpole shrimp; and threatened status for the vernal pool fairy shrimp. Federal Register Vol. 59, No. 180, September 19, 1994.

U.S. Fish and Wildlife Service. 1984. Recovery plan for the valley elderberry longhorn beetle. Portland, OR.

U.S. Fish and Wildlife Service. 1999. Conservation guidelines for the valley elderberry longhorn beetle. Sacramento, CA.

Yolo Audubon Society Checklist Committee. 2004. Checklist of the Birds of Yolo County, California. Revised April 2004. Yolo Audubon Society, Davis, CA.

OFFICE MEMO

TO: Nate Lishman, Senior Land Planner Peter Beesley, VELB Program Manager	**DATE:** 3/17/2014
FROM: Ryan Brown, Senior Terrestrial Biologist	**SUBJECT: 7082456 GOTTC** Biological Evaluation Memo - Potential VELB Impact

RE: Potential to Affect Valley Elderberry Longhorn Beetle due to PG&E development activities and Recommendation Against U.S. Fish and Wildlife Contact or Consultation for the Species

Introduction

Presently, PG&E is proposing to develop an approximately 50-acre Gas Operations Technical Training Center in Winters CA (**Figure 1 and 2**). The proposed facility will train PG&E gas operations staff technical information and task performance operations within classrooms and outdoor field areas.

Prior to development, environmental review including an evaluation of biological resources and potential impacts to those resources is being performed.

While it has been documented there are no elderberry (*Sambucus* sp.) shrubs within the development footprint, adjacent to the development site is a natural greenway area associated with the Putah Creek, containing approximately 25 elderberry shrubs in clusters or as solitary shrubs. These shrubs are located a variety of distances from development activities.

While no elderberry shrubs occur within the construction footprint, Guidance from the USFWS recommends consulting with the U.S. Fish and Wildlife Service (Service) if a 100-foot complete avoidance buffer cannot be maintained from live elderberry shrubs with stems greater than 1 inch in diameter.

There are several elderberry shrubs in the Putah Creek Greenway which are located within this 100 foot buffer from construction activity (**Attachment A**).

A no ground disturbance has been established in development plans and a buffer of a minimum of 30 feet from existing elderberry shrubs associated with the Putah Creek riparian area will be implemented (see **Figure 2**).

Construction planned within 100 feet but outside of 30 feet from existing elderberry shrubs includes grading, construction of stormwater retention ponds, construction of a pathway as part of a larger Putah Creek use project (ref), and installation of landscaping plants, many of which are native species intended to accentuate the Putah Creek Greenway.

As part of the environmental review and due diligence effort on PG&E's part, we are making a determination if the development activities will have an effect on the valley elderberry longhorn beetle and if it is warranted to consult with the U.S. Fish and Wildlife Service and evaluate the potential necessity of

Incidental Take Coverage as recommended by the Service's Guidance pertaining to the Valley Elderberry Longhorn Beetle.

Site Study

On January 23, 2014 PG&E Senior Terrestrial Biologist, Ryan Brown, and PG&E VELB Program Manager Peter Beesley, visited the project site, and inventoried existing elderberry shrubs in the Putah Creek Greenway.

Existing elderberry shrubs in the Putah Creek Greenway were geo-referenced with a Trimble Geo-XT GPS unit and plotted on a map (**Figure 2**). Additionally, stem counts and size classes of elderberry shrubs were noted, evidence of VELB occupancy was searched for (i.e. exit holes on stems), and whether the shrubs were located in the riparian area or not.

Subsequently, an overlay of construction activities was placed on the elderberry shrub map and distances were evaluated in regard to actual buffer distances achievable with design and project objective and requirements.

Results

Approximately 25 elderberry shrubs, solitary or in clusters, with varying stem sizes and numbers, were located in the PG&E property associated with the Putah Creek Greenway.

While several shrubs occur at the edge of the agricultural area comprising the majority of the planned development area, most shrubs are situated topographically downslope from the proposed project.

Upon review of the elderberry shrubs at the site, it was noted many of the largest shrubs had been cut down and most existing shrubs are the result of re-sprouting.

During the survey of the shrubs onsite, all shrubs were found to be in riparian habitat associated with Putah Creek.

While one older, rather uniform hole was observed on an elderberry shrub stem, no convincing evidence the beetle occupies any shrub was found. The single hole was found on a shrub which is located approximately 84.5 feet from proposed disturbance associated with development of the site.

The closest activity to existing elderberry shrubs will be hydroseeding, which will occur within 30 feet of the shrub nearest the development area.

A public trail and drain pipe installation will also occur within 35 feet of this same shrub. Other activities including the construction of stormwater retention ponds will occur within 100 feet of several shrubs, but greater than 30 feet away.

No shrub would be removed, nor directly impacted as part of any development activity.

Conclusion

The elderberry is a resilient plant to disturbance, and it is not foreseen that dust or ground disturbance, with potential to impact some roots of individuals closest to the development site, would kill or significantly compromise the health of any existing shrub.

As noted during our site survey, at some time in recent history, someone presumably tried to destroy the shrubs on the site by cutting them down. These shrubs have responded by re-sprouting and are thriving, although instead of large mainstems, they have many smaller stems.

While the VELB is documented in the CNDDB as occurring within the Putah Creek riparian area approximately 1.9 miles east of the development site, there is no conclusive evidence the beetle occupies any of the shrubs within PG&E's property.

While one hole on an elderberry stem appeared to have some potential to be a beetle exit hole, it was aged and ultimately inconclusive as to potential beetle presence within the property.

No other potential beetle exit hole was found on any other shrub in the greenway area surveyed, and it's unlikely the beetle occurs on the property.

Consultation in pursuit of Incidental Take Coverage from the USFWS seems unwarranted. Issuance of Incidental Take Permit would seemingly be unnecessary as the VELB is not known to occur onsite and inspected elderberry shrubs associated with the property show no convincing sign the beetle is present.

Additionally, with the 30 foot buffer proposed in the present development plan, there is a low potential that any elderberry shrub would be impacted or affected by the project. In addition to this 30 foot buffer, adequate fencing and signage shall be installed to protect existing shrubs in proximity to the development area.

Thus, it is my professional opinion, no "take" of the valley elderberry longhorn beetle or its habitat would occur as a direct result of the proposed development, and it is unwarranted to initiate a consultation or correspondence pertaining to a potential to affect the beetle or "Incidental Take" coverage with the Service.

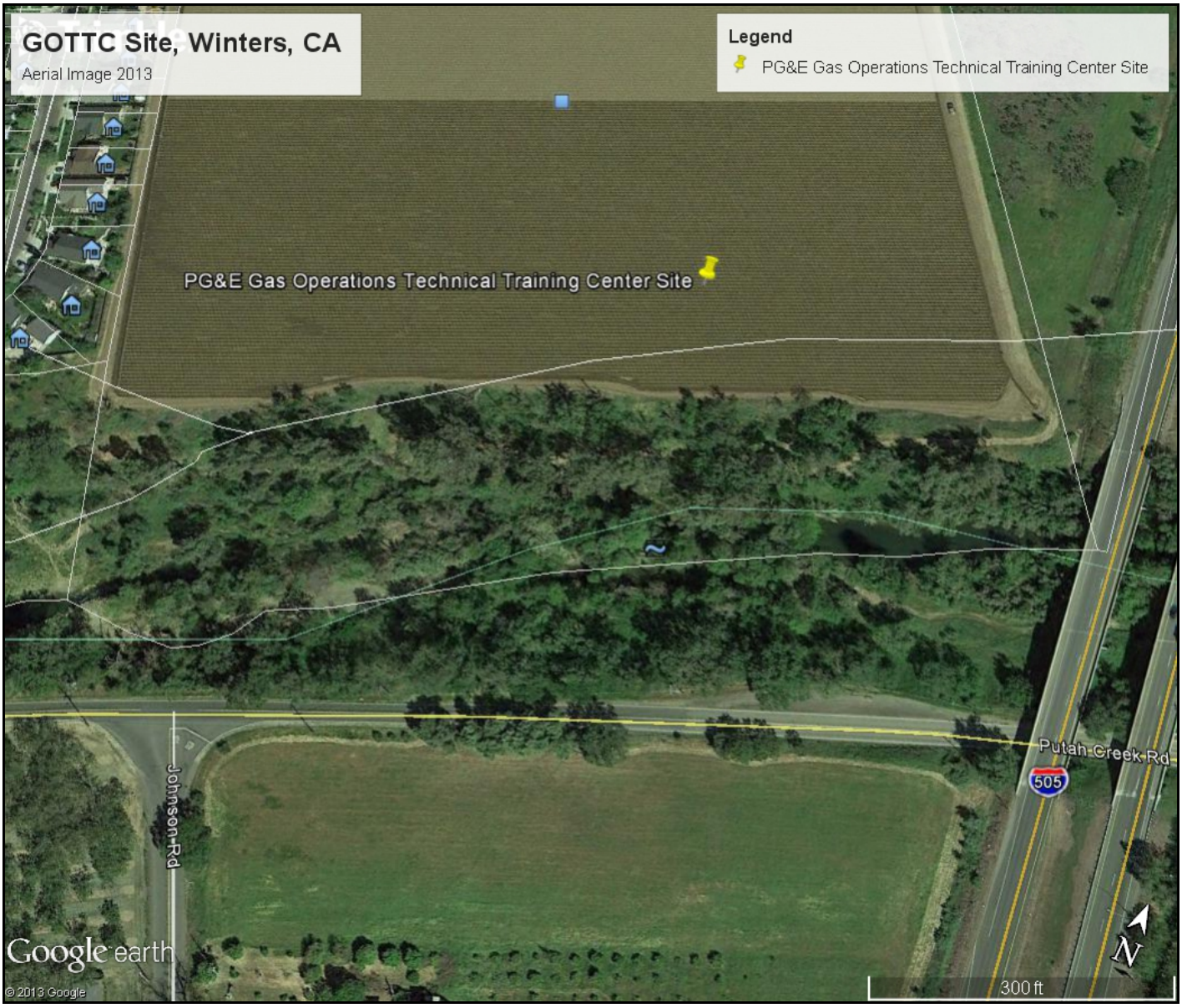


Figure 1. Aerial photo of a portion of the Project site including area of riparian habitat containing elderberry shrubs adjacent to Putah Creek.

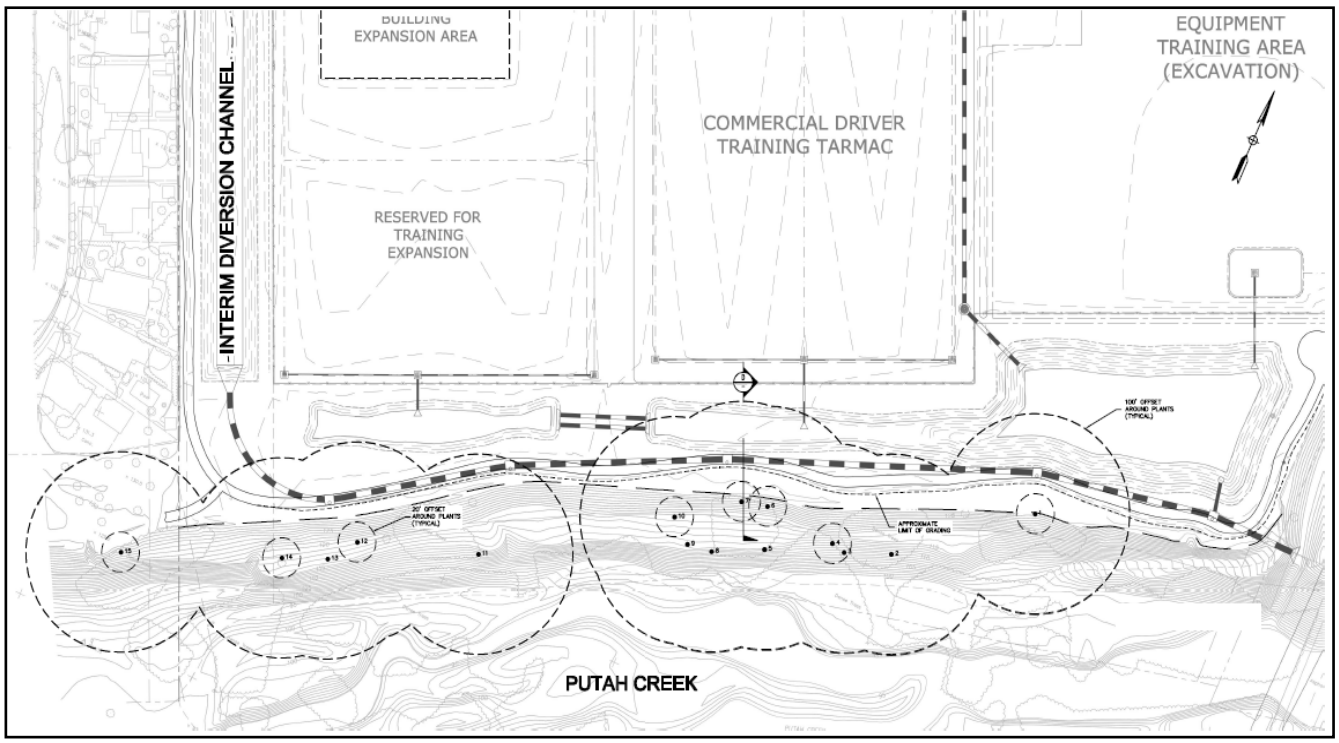


Figure 2. Overview of Project site adjacent to Putah Creek and Location of elderberry shrubs (numbered dots) with 20ft and 100ft buffers denoted by dashed-line circles.

Attachment A- Potential Valley Elderberry Longhorn Beetle (VELB) Habitat / Elderberry Locations (Table)

Winters Gas Operations Technical Training Center

Potential Valley Elderberry Longhorn Beetle (VELB) Habitat / Elderberry Locations

March 13, 2014

	Latitude			Longitude			Main Stem Size and Counts					
Location Number	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	1-3"	3-5"	>5"	Riparian (Y/N)	Exit Holes (Y/N)	Growth Habit (solitary shrub or clump of 2 or more shrubs)
1	38	31	32.98	-121	57	15.45	22	2	3	Y	N	Clump
2	38	31	31.99	-121	57	16.98	3	0	0	Y	N	Solitary
3	38	31	31.80	-121	57	17.56	3	0	1	Y	N	Solitary
4	38	31	31.83	-121	57	17.75	8	0	0	Y	N	Clump
5	38	31	31.48	-121	57	18.54	4	0	0	Y	N	Clump
6	38	31	31.88	-121	57	18.73	3	1	0	Y	N	Clump
7	38	31	31.81	-121	57	19.07	8	0	1	Y	N	Clump
8	38	31	31.23	-121	57	19.17	6	0	0	Y	N	Clump
9	38	31	31.19	-121	57	19.50	20	1	0	Y	Y	Clump
10	38	31	31.38	-121	57	19.80	3	0	0	Y	N	Solitary
11	38	31	30.19	-121	57	21.98	0	1	1	Y	N	Clump
12	38	31	29.77	-121	57	23.51	2	1	0	Y	N	Clump
13	38	31	29.49	-121	57	23.78	16	0	1	Y	N	Clump
14	38	31	29.30	-121	57	24.34	10	0	0	Y	N	Clump
15	38	31	28.65	-121	57	26.32	4	1	1	Y	N	Clump

Design Feature Description #1	Activity Proximity to Shrub(s) (feet from data point)	Potential Direct Impacts (e.g. pruning or removal of shrubs)	Potential Indirect Impacts (e.g. ground disturbance which may affect hydrology and/or root systems)	Design Feature Description #2	Activity Proximity to Shrub(s) (feet from data point)	Potential Direct Impacts (e.g. pruning or removal of shrubs)	Indirect Impacts (e.g. ground disturbance which may affect hydrology and/or root systems)
Public Water Quality Ponds[1]	48 feet	None	None Foreseen	**Hydroseeding**[2]	30 feet	None	None Foreseen
Public Water Quality Ponds[1]	97 feet	None	None Foreseen	**Hydroseeding**[2]	60.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	>100 feet	None	None Foreseen	**Hydroseeding**[2]	58.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	92 feet	None	None Foreseen	**Hydroseeding**[2]	50.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	97 feet	None	None Foreseen	**Hydroseeding**[2]	75.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	54 feet	None	None Foreseen	**Hydroseeding**[2]	33 feet	None	None Foreseen
Public Water Quality Ponds[1]	49 feet	None	None Foreseen	**Hydroseeding**[2]	32.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	100 feet	None	None Foreseen	**Hydroseeding**[2]	82.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	94 feet	None	None Foreseen	**Hydroseeding**[2]	71.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	68 feet	None	None Foreseen	**Hydroseeding**[2]	42.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	>100 feet	None	None Foreseen	**Hydroseeding**[2]	75 feet	None	None Foreseen
Public Water Quality Ponds[1]	95 feet	None	None Foreseen	**Hydroseeding**[2]	37 feet	None	None Foreseen
Public Water Quality Ponds[1]	>100 feet	None	None Foreseen	**Hydroseeding**[2]	48.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	>100 feet	None	None Foreseen	**Hydroseeding**[2]	47.5 feet	None	None Foreseen
Public Water Quality Ponds[1]	>100 feet	None	None Foreseen	**Hydroseeding**[2]	70 feet	None	None Foreseen

Design Feature Description #3	Activity Proximity to Shrub(s) (feet from data point)	Potential Direct Impacts (e.g. pruning or removal of shrubs)	Potential Indirect Impacts (e.g. ground disturbance which may affect hydrology and/or root systems)	Design Feature Description #4	Activity Proximity to Shrub(s) (feet from data point)	Potential Direct Impacts (e.g. pruning or removal of shrubs)	Indirect Impacts (e.g. ground disturbance which may affect hydrology and/or root systems)
Public 10' Trail[2]	30 feet	Potential for minor impact to roots	Potential to affect hydrology	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	60.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	58.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	50.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	75.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	33 feet	Potential for minor impact to roots	Potential to affect hydrology	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	32.5 feet	Potential for minor impact to roots	Potential to affect hydrology	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	82.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	71.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	42.5 feet	None	None Foreseen	**Interpretive deck**	91 ft	None	None foreseen
Public 10' Trail[2]	75 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	37 feet	Potential for minor impact to roots	Potential to affect hydrology	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	48.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	47.5 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen
Public 10' Trail[2]	70 feet	None	None Foreseen	**Interpretive deck**	>100 feet	None	None foreseen

Design Feature Description #5	Activity Proximity to Shrub(s) (feet from data point)	Potential Direct Impacts (e.g. pruning or removal of shrubs)	Potential Indirect Impacts (e.g. ground disturbance which may affect hydrology and/or root systems)	Potential Impact and Mitigation Analysis
Public Storm Drain Pipe[3]	33 feet	Potential for minor impact to roots	None Foreseen	Install orange construction fencing prior to construction activity with signs attached reading "Sensitive Environemental Area - Do Not Disturb"
Public Storm Drain Pipe[3]	80 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	80 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	71.5 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	80.5 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	42.5 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	33.5 feet	Potential for minor impact to roots	None Foreseen	Install orange construction fencing prior to construction activity with signs attached reading "Sensitive Environemental Area - Do Not Disturb"
Public Storm Drain Pipe[3]	84 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	76 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	48 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	73.5 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	38.5 feet	Potential for minor impact to roots	None Foreseen	Install orange construction fencing prior to construction activity with signs attached reading "Sensitive Environemental Area - Do Not Disturb"
Public Storm Drain Pipe[3]	59.5 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	66.5 feet	None	None Foreseen	No additional mitigation action foreseen
Public Storm Drain Pipe[3]	> 100 feet	None	None Foreseen	No additional mitigation action foreseen

PRELIMINARY DELINEATION OF WATERS OF THE UNITED STATES, INCLUDING WETLANDS, FOR THE

PG&E WINTERS GAS OPERATIONS TECHNICAL TRAINING CENTER (GOTTC)

SUBMITTED TO:

U.S. Army Corps of Engineers
Sacramento District, Sacramento Regulatory Office
1325 J Street, Room 1480
Sacramento, CA 95814
Contact: William Guthrie, Project Manager
(916) 557-5250

PREPARED FOR:

Pacific Gas and Electric Company
350 Salem Street
Chico, CA 95928
Contact: Ryan Brown
(530) 896-4261

PREPARED BY:

Garcia and Associates
435 Lincoln Way
Auburn, CA 95603
Contact: Susan Dewar
(530) 823-3151

February 2015

Pacific Gas and Electric Company®

Pacific Gas and Electric Company. 2015. *Preliminary Delineation of Waters of the United States, Including Wetlands, for the Winters Gas Operations Technical Training Center (GOTTC) Project*. February. (7082465). Winters, Yolo County, California. Prepared by Garcia and Associates, Auburn, California.

Contents

Table

Figure Follows Page

Acronyms and Abbreviations

°F	degrees Fahrenheit
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
GANDA	Garcia and Associates
GIS	geographic information system
GOTTC	gas operations technical training center
GPS	global positioning system
I-	Interstate
NRCS	National Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
OHWM	Ordinary High Water Mark
PG&E	Pacific Gas and Electric Company
project	Winters GOTTC Project
redox	redoximorphic
REM	riverine emergent wetland
Rr	riverine artificial construction
RSS	riverine shrub–scrub
RUB	riverine unconsolidated bottom
SR	State Route
UPL	upland
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USACE	U.S. Army Corps of Engineers

Winters Gas Operations Technical Training Center (GOTTC) Project Preliminary Delineation of Waters of the United States, Including Wetlands

Summary

Pacific Gas and Electric Company (PG&E) is proposing the construction and operation of the Winters Gas Operations Technical Training Center (GOTTC) Project (project) in the City of Winters. The facility would be constructed at the southwest corner of Interstate 505 (I-505) and State Route (SR) 128 (Grant Avenue) in Yolo County, California. This facility would be a vocational training center for students (City of Winters 2014). The proposed project includes construction and operation of a Training Center (totaling 106,500 square feet) and associated infrastructure (City of Winters 2014).

A Delineation Area (approximately 69.1 acres) has been developed that encompasses the construction footprint and associated access, staging, and other potentially disturbed areas for the project. The purpose of this report is to document the location and extent of waters of the United States, including wetlands, within the Delineation Area, and to make a preliminary determination of whether these wetland and water features meet the definition of waters of the United States as defined by the Clean Water Act (CWA), pursuant to which the United States (U.S.) Army Corps of Engineers (USACE) may exert jurisdiction. The information in this report can be used to assist PG&E with planning efforts, including assessing potential impacts to waters, and identifying potential USACE jurisdiction pursuant to the CWA.

Existing information indicated that the Delineation Area encompasses a portion of a perennial stream named Putah Creek (U.S. Fish and Wildlife Service [USFWS] 2015; U.S. Geological Survey [USGS] 1978). Based on the field delineation, this riverine feature, including open water and associated emergent vegetation and shrub–scrub wetlands, was mapped within the Delineation Area.

The wetlands and water features in the Delineation Area are a part of, or have direct connectivity with, Putah Creek. Based on criteria described in 33 Code of Federal Regulations (CFR) 328.3, the creek and adjacent and connected wetlands and water features are likely waters of the United States subject to USACE jurisdiction. The ordinary high water mark (OHWM) of Putah Creek, in combination with the extent of adjacent wetlands, was used to establish the lateral extent of USACE jurisdiction of this riverine feature. This limit was recorded in the field based on observations of physical indicators such as changes in vegetation cover, shelving, and scour. The features potentially subject to USACE jurisdiction have total area of 0.565 acre and length of 1,234 linear feet (Table 1).

Table 1. Summary of Jurisdictional Features in the Delineation Area

Feature	USACE Jurisdictional Area
Wetland Features	0.114 acre
Water Features	0.451 acre and 1,234 linear feet
TOTALS	**0.451 acre and 1,234 linear feet**

Twenty segments of constructed stormwater ditches, including a lined concrete channel, were also present in the Delineation Area. These non-jurisdictional elements were examined and mapped during the field survey, and encompass 0.651 acre and 6,564 feet. Eighteen of the constructed stormwater ditch segments conduct water into Putah Creek; however, these ditches appear to run for only short periods during large precipitation events and presumably from historical irrigation drainage associated with localized agricultural fields, and therefore fit into the category of "non-tidal drainage and irrigation ditches excavated on dry land." Based on guidance provided by the USACE and U.S. Environmental Protection Agency (EPA), "*the agencies will generally not assert jurisdiction over the following features…Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water*" (U.S. EPA and Department of the Army 2008). Under 33 CFR 328.3 (a), the USACE generally does not consider "non-tidal drainage and irrigation ditches excavated on dry land" to be waters of the United States (Federal Register 1986). The remaining two of the non-wetland constructed stormwater ditches are isolated (do not have connectivity with Putah Creek). These features also are constructed in dry ground/uplands, flow for only short periods (less than three continuous months), and are likely not waters of the United States.

The constructed ditches are likely not waters of the United States that fall under USACE jurisdiction. The jurisdiction of the features and elements discussed in this report should be verified by the USACE.

Introduction

Pacific Gas and Electric Company (PG&E) proposes the construction and operation of the Winters Gas Operations Technical Training Center (GOTTC) Project (project) in the City of Winters. The facility would be constructed at the southwest corner of Interstate 505 (I-505) and State Route (SR) 128 (Grant Avenue) on eight parcels with total area of approximately 55.2 acres in Yolo County, California. This facility would be a vocational training center where students would be trained to construct, operate, and maintain natural gas pipelines; measure and control the natural gas network; detect leaks; locate and mark underground infrastructure; maintain natural gas storage facilities; and perform other similar natural gas transmission and distribution related functions.

Construction of the following facilities is currently proposed (City of Winters 2014):

1. Training Center Facilities (total 106,500 square feet) – planned facilities include a Learning Center and parking lot; Transmission and Distribution Construction Area; Gas Transmission Training Area; Crane Certification Area; Equipment Parking Areas; Equipment and Excavation Training Area; Commercial Driver Training Area; Utility Village; Equipment Fueling Area; Cathodic Protection Area; and Future Expansion Area.

2. Infrastructure – planned infrastructure improvements include a stormwater diversion channel; water quality detention pond; Putah Creek Parkway enhancements, including restoration of the Putah Creek area and recreational trail construction; public roadway Improvements, including sidewalks, curb ramps, and a bike path; public utility improvements of an sewer main and storm drain pipes; and other utility services.

This report documents the location and extent of waters of the United States, including wetlands, in areas that have potential to experience project impacts. A preliminary determination is made of whether these wetland and water features meet the definition of waters of the United States as defined by Section 404 of the CWA. The information in this report can be used to assist PG&E with planning efforts, and to identify potential USACE jurisdiction pursuant to the CWA. This report does not assess potential impacts to waters, including wetlands.

Contact Information

The project applicant is PG&E, represented by Ryan Brown. The delineation was prepared by Garcia and Associates (GANDA). The contact information for the project applicant and preparer follows:

Project Applicant

Pacific Gas and Electric Company
350 Salem Street
Chico, CA 95928
(530) 896-4261
Contact: Ryan Brown, Senior Biologist

Delineation Preparer

Garcia and Associates
435 Lincoln Way
Auburn, CA 95603
(530) 823-3151
Contact: Susan Dewar, Project Manager

Site Description and Location

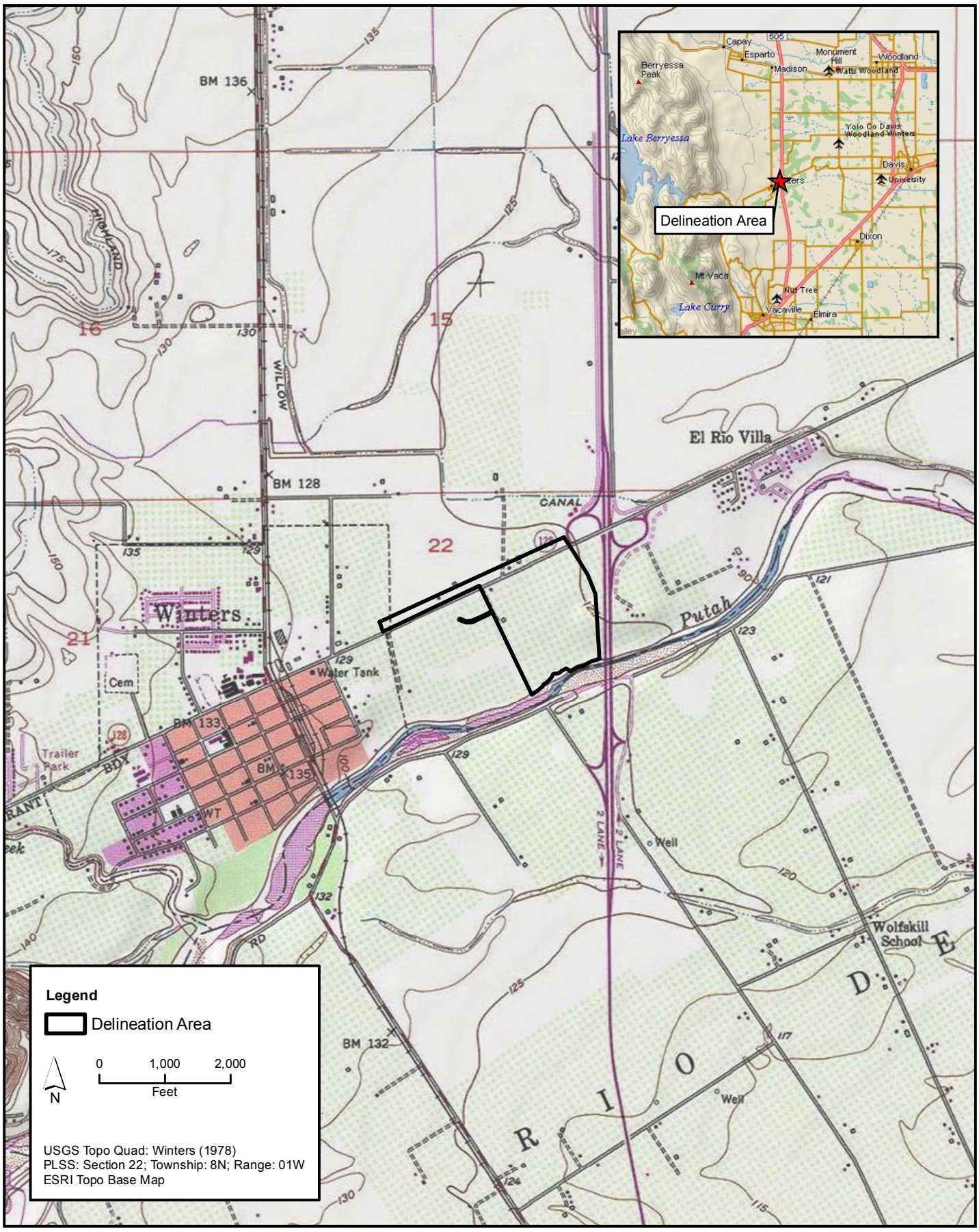
The proposed GOTTC is located in the City of Winters, California, in southern Yolo County (Figure 1), in the *Winters, California* USGS 7.5-minute topographic quadrangle (quad; USGS 1978) at approximately 125 feet elevation. PG&E proposes to build the project on parcels at the southwestern corner of the intersection of I-505 and SR 128.

The Delineation Area for the project consists of approximately 69.1 acres, including proposed training facilities and infrastructure, and associated access and staging areas (Figure 1, Appendix A). The Delineation Area primarily consists of an active farm field; it also includes some unoccupied frontage of I-505, a farm house and associated yard and outbuildings, a proposed sidewalk, a section of Putah Creek (approximately 1,180 linear feet), and a portion of SR 128 (East Grant Avenue, approximately 3,110 linear feet).

Driving Directions

The Delineation Area is located at the southwest corner of the intersection of I-505 and SR 128. The north side of the Delineation Area follows SR 128 (East Grant Avenue). From the City of Winters, travel east on SR 128; the Delineation Area is located along SR 128 and to the south (right) before reaching I-505.

Distance from Sacramento to the Delineation Area is approximately 30 miles. Travel west on I-80 for approximately 10 miles, then take Exit 70 north (right) towards Woodland onto SR 113 (Vic Fazio Highway) for approximately 2.8 miles. At Exit 29 for Road 31/Covell Boulevard turn west



Pacific Gas and Electric Company®

Figure 1
Delineation Area Location

(left) onto West Covell Boulevard. Travel on this road for approximately 7.0 miles (it will change from West Covell Boulevard, to County Road 31). Take a left (south) at the fork to continue onto County Road 93A, and travel approximately 4.1 miles (the road will change to Russell Boulevard then to SR 128/East Grant Avenue). After crossing I-505, the Delineation Area is located primarily to the south (left).

Precipitation and Growing Season

The elevation of the Delineation Area is approximately 125 feet. The average yearly temperature in the City of Winters is 62.5 degrees Fahrenheit (°F); the highest average maximum temperatures occur in July (95.8 °F), and the lowest average minimums occur in January (37.0 °F) (National Resource Conservation Service [NRCS] 2014). The average yearly precipitation is approximately 22.8 inches, with an average of 95 percent of the precipitation falling between October and April (NRCS 2014). Essentially all of the precipitation at this elevation falls as rainfall; snowfall averages only 0.2 inches per year (NRCS 2014). Further climate details are provided in the WETS[1] tables provided in Appendix B.

To be considered a wetland, an area within a particular climate must have a 50 percent probability (i.e., averaging 5 years in every 10) of being flooded or ponded, or have a water table at 12 inches or less below the surface, for 14 or more consecutive days during the growing season. The length of the growing season is approximated by the median dates with 50 percent probability (i.e., averaging 5 years in every 10) of 28 °F or greater air temperatures in spring and fall (USACE 2008). In the Delineation Area, these dates are approximately January 4 to December 26 (NRCS 2014, Appendix B), corresponding to a growing season of approximately 355 days.

Vegetation

The upland vegetation within the Delineation Area consists of annual grassland, ruderal ("weedy") roadside vegetation and fallow agricultural fields, and upland riparian vegetation. Wetlands are documented in the Delineation Area in the National Wetlands Inventory (NWI, USFWS 2015). Paved and unpaved roads are also present. A more complete description of vegetation types follows. Scientific names used are consistent with Lichvar et al., 2014, and if not listed in that reference, then Baldwin et al. 2012. Wetland ratings of plants observed in the Delineation Area are found in Appendix C.

Ruderal Vegetation and Fallow Agricultural Fields

Within the Delineation Area, the majority of the vegetation was dominated by non-native and "weedy" native herbaceous species along the roadsides and in a fallow agricultural field. Density of the plant cover in these areas ranged from sparse (e.g., 5 to 10 percent cover) along the roadsides, where the vegetation is likely managed for fuel reduction, to very dense (e.g., 80 to 100 percent) farther from the roads. Common species in the ruderal vegetation included velvetleaf (*Abutilon theophrasti*), perennial wormwood (*Artemisia biennis*), wild oat (*Avena fatua*), rape/yellow mustard (*Brassica rapa*), yellow star-thistle (*Centaurea solstitialis*), doveweed (*Croton setigerus*), Bermuda grass (*Cynodon dactylon*), smooth crab grass (*Digitaria ischaemum*), stinkwort (*Dittrichia graveolens*), medusa head (*Elymus caput-medusae* =

[1] "WETS" is the official name of these tables, and is not an acronym.

Taeniatherum caput-medusae), fringed willowherb (*Epilobium ciliatum*), Canadian horseweed (*Erigeron canadensis*), dove's foot geranium (*Geranium molle*), [wall] barley (*Hordeum [murinum]*[2]), prickly lettuce (*Lactuca serriola*), golden crown grass (*Paspalum dilatatum*), prickly Russian-thistle (*Salsola tragus*), Johnson grass (*Sorghum halepense*), and rough cocklebur (*Xanthium strumarium*).

Common plant species in the agricultural field included Mexican-tea (*Dysphania ambrosioides*), prickly lettuce, bull mallow (*Malva nicaeensis*), cheeseweed (*M. parviflora*), and Harding grass (*Phalaris aquatica*).

Some of the ruderal vegetation was interspersed with a few trees and/or landscaping shrubs and perennials. Near homes and businesses, oleander (*Nerium oleander*), white mulberry (*Morus alba*), and [blackwood] acacia (*Acacia [melanoxylon]*), were common. Italian arum (*Arum italicum*) plants were observed. Occasional valley oak (*Quercus lobata*) and blue oak (*Quercus douglasii*) trees were also present near the roadside ditches. A stand of tree-of-heaven (*Ailanthus altissima*) was present in the ruderal vegetation between the fallow field and the I-505 southbound onramp.

Annual Grassland

Within the Delineation Area, lots adjacent to SR 128, including the proposed sidewalk location, were vegetated with annual grassland. Common herbaceous species included [common] fiddleneck (*Amsinckia [intermedia]*), yellow star-thistle, red-stemmed filaree (*Erodium cicutarium*), white-stemmed filaree (*E. moschatum*), smooth cat's ear (*Hypochaeris glabra*), medusa head, and [purple] vetch (*Vicia [benghalensis]*).

Upland Riparian Vegetation

Between the ordinary high water mark (OHWM) and the top of bank of Putah Creek, the uplands supported riparian vegetation; this varied from dense, almost impenetrable shrub–scrub areas, to open forest with well-spaced trees. Overstory trees included tree-of-heaven, river red gum (*Eucalyptus camaldulensis*), Oregon ash (*Fraxinus latifolia*), black walnut (*Juglans hindsii*), Fremont's cottonwood (*Populus fremontii*), valley oak, black elderberry (*Sambucus nigra*), and Chinese tallow tree (*Triadica sebifera*). Understory shrubs and perennials included Douglas' wormwood (*Artemisia douglasiana*), giant-reed (*Arundo donax*), Himalayan blackberry (*Rubus armeniacus*), and Pacific poison oak (*Toxicodendron diversilobum*). Common understory herbs included wild oat, smooth crab grass, dove's foot geranium, English plantain (*Plantago lanceolata*), and Johnson grass.

Residence

One farmhouse residence with associated outbuildings (29711 and 29719 East Grant Avenue), fenced yards, and associated landscaping is present within the Delineation Area. This residence appeared to be occupied during the field survey.

Roads

Existing native surface and gravel roads, which are approximately 10 to 12 feet wide, are present in the Delineation Area, where they provide access to the existing farm field, house, and

[2] [ ] species names in brackets are likely identifications from field material in January.

associated outbuildings. Near the northern border of the Delineation Area, SR 128 and associated city streets are paved.

NWI Wetlands

The NWI indicates that vegetated wetlands occur near the southern boundary of the Delineation Area, bordering Putah Creek (USFWS 2015). These wetlands are classified as “palustrine, shrub–scrub, seasonally flooded” and “palustrine, emergent vegetation, seasonally flooded” (USFWS 2015). The NWI background data indicate that these wetlands were digitized from aerial photographs from 1984 and 1985 (USFWS 2015).

Hydrology

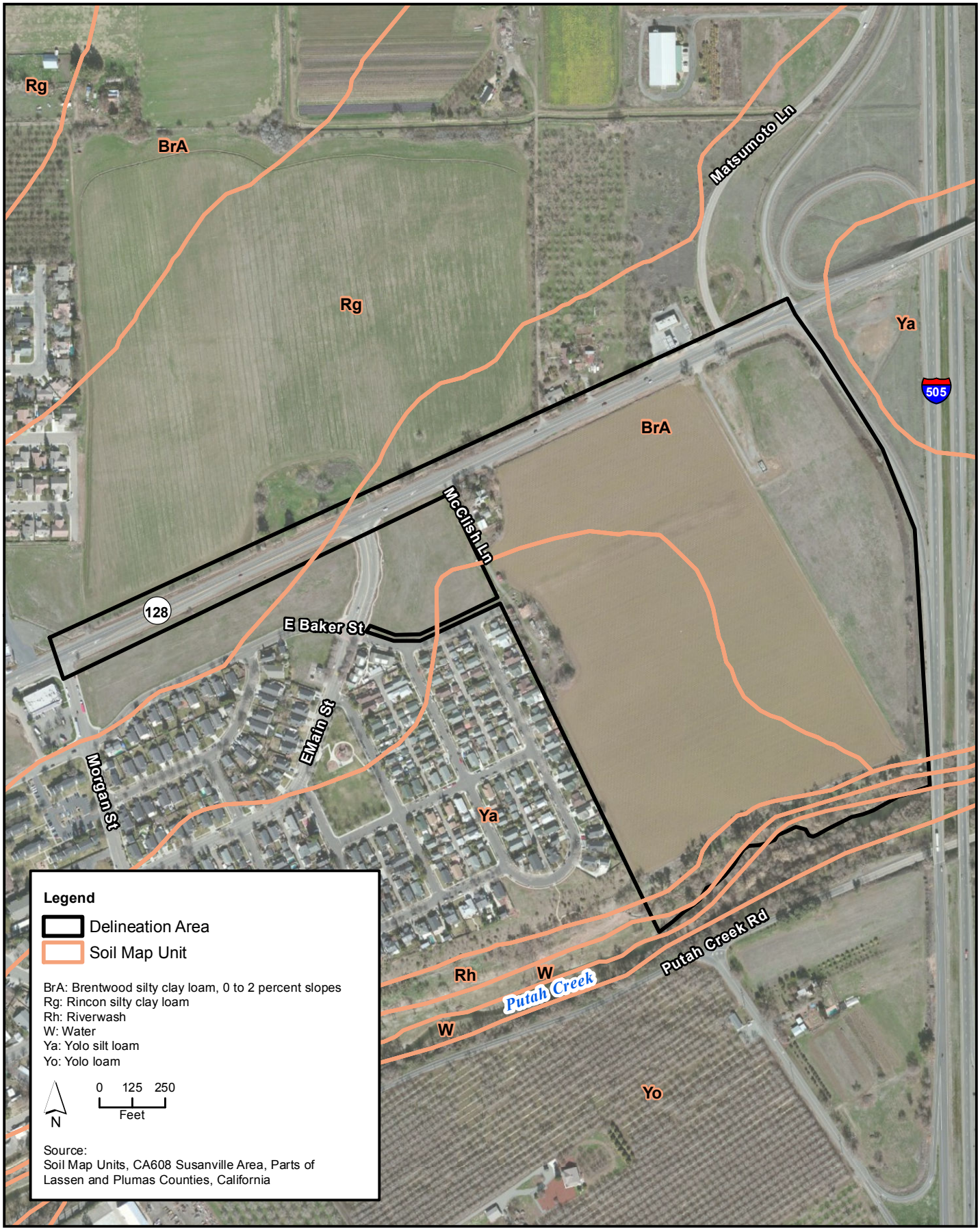
The main hydrological feature in the Delineation Area is Putah Creek, a perennial stream which carries flows from Lake Berryessa (upstream to the west) to the Yolo Bypass (downstream to the east). This creek, which is the boundary between Yolo and Solano counties, is also the southern boundary of the Delineation Area.

Much of the local drainage, from run-off and/or constructed stormwater ditches, appears to be directed towards Putah Creek. However, these ditches were constructed wholly in uplands, drain only uplands, and do not carry a relatively permanent flow of water. These ditches do not appear to have continuous flow for a duration of three months. Instead, they appear to flow only for short durations typically after heavy precipitation events and historically, they may have flowed with agricultural irrigation drainage during the growing season, which would be associated with a large hay field on Grant Avenue. Agricultural irrigation supply is from a groundwater well north of Grant Avenue on private property; no surface waters are diverted for irrigation waters that occur in the ditches associated with this study.

While the configuration of ditches indicates that they would carry periodic irrigation releases, the present landowner indicated that no irrigation has taken place in the field for the past two years (N. Newkom, personal communication). In prior periods, it is believed by the landowner, irrigation drainage water was not released into the roadside ditches, and the ditches only flowed during large rain events (N. Newkom, personal communication) as a result of localized storm runoff largely from the adjacent roadway (SR-128).

Soils

Five soil mapping units underlie the Delineation Area (NRCS 2015a, Appendix D, Figure 2): “Brentwood silty clay loam, 0 to 2 percent slopes,” “Rincon silty clay loam,” “Riverwash,” “Water,” and “Yolo silt loam” (Appendix D). The NRSC did not provide a hydric description for the “Water” mapping unit, but this mapping unit appears to be limited to approximately the footprint of Putah Creek (Figure 2), and is assumed to apply to areas that are flooded for a very long time during the growing season. Of the remaining four mapping units, all are formed from alluvium and fill from sedimentary sources. Two of the four have hydric status: “Riverwash,” which is associated with streams and is frequently flooded for long or very long duration during the growing season; and “Yolo Silt Loam,” whose inclusions of “Sycamore” soils found on alluvial fans are also hydric (NRCS 2015b).



Pacific Gas and Electric Company®

Figure 2
Soils in the Delineation Area

Delineation Methods

This investigation followed the methods described in the *Army Corps of Engineers Wetlands Delineation Manual* (USACE 1987), supplemented with guidance as directed by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0*) (USACE 2008). After the preliminary review of existing information (results described in previous sections), the methods consisted of onsite field inspections of the Delineation Area to characterize the vegetation, soils, and hydrology of wetlands, identify OHWMs, and map wetlands and other water features. Data forms are provided in Appendix E. In addition, the top of bank, which also corresponded with the edge of riparian vegetation was identified and mapped. The following discussion describes how these methods were applied to the onsite features.

GANDA botanists conducted the field investigation on January 8 and 22, 2015. The Delineation Area (approximately 69.1 acres) is illustrated in Figures 1 and 2, and Appendix A.

Wetlands were identified based on the presence of hydrophytic vegetation and indicators of hydric soils and wetland hydrology. Other water features were identified based on the presence of water and/or an OHWM. Top of bank was identified based on a distinct break in the bank slope which corresponded to a change in riparian vegetation. Data point locations, OHWM, and top of bank were mapped in the field with a Trimble GeoXT global positioning system (GPS) survey unit capable of submeter accuracy. Data points were assessed at 11 locations. Computerized geographic information system (GIS) software was used to produce maps of the information collected in the field (Appendix A).

Each wetland and other water feature was assigned a unique code designation on the map in Appendix A. The first part consists of an abbreviation based on the categories of system and class from the Cowardin Classification (Cowardin et al. 1979). The prefixes “R,” “P,” and “D” refer to riverine, palustrine, and ditch systems respectively; the suffix “EM” refers to emergent wetland, “SS” refers to shrub–scrub wetland, “UB” refers to unconsolidated bottom, and “r” refers to artificial construction. The second part is a unique identification number assigned to each feature.

Vegetation

Wetland vegetation was identified in the field based on species composition and corresponding wetland indicator status. Plot sizes for evaluating vegetation ranged from 40 to 400 square feet around each data point and is documented in data forms (Appendix E). These plot sizes were used as a representation of the vegetation types encountered in the Delineation Area. The field investigator visually estimated the percent cover of each plant species encountered within the chosen sized plot.

Dominant species of each stratum were the most abundant plant species (when ranked in descending order of percent cover and cumulatively totaled) that immediately exceeded 50 percent of the total cover for the stratum, plus any additional species providing 20 percent or more of total cover for the stratum. The indicator status of each species was determined based on *The National Wetland Plant List: 2014 Update of Wetland Ratings* (Lichvar et al. 2014), utilizing the rating of the species for “Arid West Region.” Plants were identified with *Selected Plants of Northern California* (Janeway 2013) and *The Jepson Manual, Vascular Plants of California, 2nd Edition* (Baldwin et al. 2012). The wetland vegetation criterion was met in plots

where greater than 50 percent of the dominant plant species were assigned wetland indicator categories: Facultative (FAC), Facultative Wetland (FACW), or Obligate (OBL). Upland indicator categories include facultative upland (FACU) and upland (UPL); species with no listing were assumed to belong to the UPL category. Plant species which were encountered within the areas characterized by wetland or upland data points, and their assigned wetland indicator status categories, are presented in Appendix C.

Hydrology

Hydrology was characterized in the field using the methods provided in the *Arid West Supplement* (USACE 2008). While approximately three previous years (2012 through 2014) had abnormally low precipitation, at the time of survey, significant rains had occurred within the previous month. Therefore this investigation relied both on direct and indirect indicators of wetland hydrology. Direct indicators observed during this investigation included standing or flowing surface water and/or saturated soils (see data forms DP-5 and DP-7). Indirect indicators of wetland hydrology were more frequently used, and those that were present included sediment deposits, drift deposits, drainage patterns, and surface soil cracks (data forms DP-1, DP-3, DP-4, DP-6, DP-10, and DP-11).

Soils

Soils were characterized in the field using the methods provided in the *Arid West Supplement* (USACE 2008). Typically, at each sample point, a soil pit was excavated. The determination of presence of hydric soils was based on hydric soil indicators, which are a function of soil texture, matrix color, and/or the presence of other hydric soil indicators such as redoximorphic (redox) features. Soil colors were classified according to the *Munsell Soil Color Charts* (Munsell 2000).

Upland points evaluated in the Delineation Area all had matrices of 10YR 4/3, 10YR 3/4, or 10YR 4/2, with no visible redox features. Three of the evaluated wetland data points had the hydric soil indicator of “redox depressions” (DP-3, DP-5, and DP-10). All had more than 5 percent of prominent or distinct concentrations in a layer greater than 2 inches thick within the upper 6 inches of soil. This indicator signals that the ditches in which the points are located are closed depressions subject to ponding (USACE 2008).

Only one of the evaluated wetland points had problematic hydric soils (DP-6); in this location, the soils at the surface were newly deposited fine sand and gravel. This riverine shrub–scrub area appeared to fall under “vegetated sand and gravel bars within floodplains” as described in the *Arid West Supplement* (page 97, paragraph #3, USACE 2008). With the corresponding hydrophytic vegetation and wetland hydrology indicators at this data points, the soils were determined to be hydric.

Soils in the unvegetated main channel of Putah Creek were not excavated, but were assumed to be hydric because of presence of long-term standing water (DP-7).

Mapping Other Waters

Other waters were mapped in accordance with USACE policy which states the following:

The lateral limits of USACE jurisdiction for non-tidal watercourses (without adjacent wetland areas) is defined in 33 CFR 329.11 (a)(1) as the OHWM. The OHWM is defined as “…the line on

the (bank) established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in litter and debris; or other appropriate means that consider the characteristics of the surrounding areas." The bank-to-bank extent of the channel that contains the water-flow during a normal rainfall year generally serves as a good first approximation of the lateral limit of USACE jurisdiction. The upstream limit of "waters" is defined as the point where the OHWM is no longer perceptible.

The limit of the OHWM of Putah Creek was recorded in the field based on observations of changes in vegetation and break in bank slope. Upstream of the Delineation Area (west), the level of Putah Creek is regulated at Lake Berryessa Dam. Therefore, under normal circumstances, the level of Putah Creek only fluctuates within a given range. The limit of this fluctuation is typically marked by a sharp break in the bank slope, with a corresponding change in vegetation and/or scour; this level was typically mapped as the OHWM. In a few areas where this line was less clear, the OHWM was mapped at the upslope edge of clear sediment and drift deposits.

A submeter GPS unit was used to map OHWMs in the field. These GPS readings, photographs, and notes were then used in the office to identify the OHWM on high resolution, geo-rectified aerial photography

Mapping Top of Bank

The top of bank of Putah Creek within the Delineation Area was mapped. The top of bank was identified in the field based on a distinct break in the channel bank slope, and corresponding change in vegetation from riparian forest to ruderal vegetation and fallow fields. The riparian vegetation around Putah Creek did not extend beyond this bank slope. The submeter GPS unit was used to map the top of bank in the field. These GPS readings were then used in the office to identify the top of bank on high resolution, geo-rectified aerial photography. While USACE jurisdiction is not defined by top of bank, the location of the top of bank provides additional general information on the stream setting, and was included in the mapping.

Mapping Ditches

Some of the stormwater ditches had physical indicators of hydrology such as sediment and/or drift deposits, drainage patterns, or surface soil cracks, indicating that they may carry water briefly during large storm events and/or agricultural irrigation releases. These ditch features were mapped as lines with a submeter GPS unit, and a corresponding width was recorded that was measured with tape measure to the nearest 0.5 foot. The width of the ditch was measured as the lateral extent of physical indicators of hydrology listed above.

Results

The primary focus of this jurisdictional delineation is to identify potential waters of the United States that may fall under USACE jurisdiction. These features are described below, along with other non-jurisdictional elements that were also noted during the field study.

USACE Jurisdictional Features

A total of three potential non-tidal waters of the United States, with combined area of 0.565 acres and 1,234 linear feet, were mapped within the Delineation Area (Table 2 and Appendix A). All of these features are contiguous with, comprised of, or adjacent to Putah Creek, which is a tributary to the Yolo Bypass, which flows into the Sacramento River; therefore, these features are potentially waters of the United States subject to USACE jurisdiction. A detailed description of these features follows.

Wetlands

A total of two potentially jurisdictional wetland features, with combined area of 0.114 acre, were mapped within the Delineation Area.

Riverine Shrub–Scrub Wetlands

One riverine shrub–scrub wetland feature (RSS-1) was mapped within the Delineation Area. It had an area of 0.098 acre (Table 2). This feature was located on a low terrace within the OHWM of Putah Creek on the north bank. While "riparian forest" and "riparian scrub" was widely present along the creek channel, only this single location was observed and mapped where the shrub–scrub vegetation also had indicators of wetland hydrology and hydric soils.

The woody shrub–scrub vegetation was dominated by box elder (*Acer negundo*, FACW), Fremont's cottonwood (UPL), Himalayan blackberry (FACU), and sandbar willow (*Salix exigua*, FACW). Sparse herbs present included Douglas' wormwood (FAC), smooth crab grass (FACU), fringed willowherb (FACW), Canadian horseweed (FACU), and hard-stem bulrush (*Schoenoplectus acutus*, OBL).

Table 2. Jurisdictional Features in the Delineation Area

Feature	USACE Jurisdictional Area (acres / linear feet)
Riverine shrub–scrub wetland (RSS-1)	0.098
Riverine emergent wetland (REM-1)	0.016
TOTAL WETLAND FEATURES (2 features)	**0.114**
Riverine unconsolidated bottom – open water (RUB-1)	0.451 / 1,234
TOTAL WATER FEATURES (1 feature)	**0.451 / 1,234**
TOTALS (3 features)	***0.565 / 1,234***

Riverine Emergent Wetland

One riverine emergent wetland feature (REM-1) was mapped within the Delineation Area. It had an area of 0.016 acre (Table 2). This feature was located on a low terrace within the OHWM of Putah Creek on the north bank where it appeared to be periodically inundated.

This feature had patchy shade from box elder (FACW) and river red gum (FAC). The herbaceous layer contained torrent sedge (*Carex nudata*, FACW), tall flat-sedge (*Cyperus eragrostis*, FACW), perennial rye grass (*Lolium perenne*, FAC), cut-leaf rice grass (*Leersia oryzoides*, OBL), and curly dock (*Rumex crispus*, FAC).

Other Waters

A single other water feature, with an area of 0.451 acre and combined length of 1,234 feet, was mapped in the Delineation Area. This feature is further described below.

Riverine Unconsolidated Bottom – Open Water

One open water feature, a portion of Putah Creek (RUB-1), was present in the Delineation Area, with an area of 0.451 acre and 1,234 feet (Table 2). The channel of this stream is largely unvegetated. At the time of field survey, it appeared to be running up to approximately 4 feet deep, and a few feet of elevation below the OHWM.

Non-Jurisdictional Elements

Stormwater Ditches

Twenty segments of constructed stormwater ditch, including a lined concrete channel, were also present in the Delineation Area. These elements encompass 0.651 acre and 6,564 feet (Table 3).

Table 3. Non-jurisdictional Elements in the Delineation Area

Element	Non-jurisdictional Area (acres / linear feet)
Ditch emergent wetland (DEM-1, DEM-2)	0.166 / 1,272
TOTAL NON-JURISDICTIONAL WETLAND ELEMENTS (2 elements)	**0.166 / 1,272**
Ditch unconsolidated bottom (DUB-1 to DUB-17)	0.472 / 5,221
Ditch artificial construction (Dr-1)	0.013 / 71
TOTAL NON-JURISDICTIONAL WATER ELEMENTS (18 elements)	**0.485 / 5,292**
TOTALS (20 elements)	***0.651 / 6,564***

Eighteen segments of the stormwater ditch conduct water into Putah Creek. However, these ditches appear to flow for only short periods (less than three months) during large precipitation events, and fit into the category of "non-tidal drainage and irrigation ditches excavated on dry land." Based on guidance provided by the USACE and U.S. Environmental Protection Agency (EPA), "*the agencies will generally not assert jurisdiction over the following features…Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water*" (U.S. EPA and Department of the Army 2008). Under 33 CFR 328.3 (a), the USACE generally does not consider "non-tidal drainage and irrigation ditches excavated on dry land" to be waters of the United States (Federal Register 1986). Therefore the constructed ditches are likely not waters of the United States that fall under USACE jurisdiction.

The remaining two segments of non-wetland constructed stormwater ditch are isolated (DUB-16 and DUB-17); they do not have connectivity with Putah Creek or other water features. These ditch features also appear to run only for short periods during large precipitation events, and are

likely non-jurisdictional elements. Types of non-jurisdictional elements are further described below.

Ditch Unconsolidated Bottom

Seventeen segments of stormwater ditch with unconsolidated bottoms, with combined area of 0.472 acre and length 5,221 feet, were mapped within the Delineation Area. These ditches were dry at time of survey. However, they had indications of wetland hydrology such as sediment deposits, surface soil cracks, and drainage patterns, and most (15 of 17 ditch segments) appear to have drainage connectivity (either via surface flow or stand pipes and culverts) with Putah Creek; the remaining two stormwater ditches are isolated and did not appear to have connectivity to Putah Creek or any water features (Appendix A, Sheet 1 of 3, DUB-16 and DUB-17).

The stormwater ditches appear to carry short-term flows during periodic storm events and historically, drainage from agricultural irrigation releases. These ditches are vegetated with upland ruderal vegetation, and where investigated, did not have hydric soil indicators (see DP-1, DP-4, and DP-11). Sixteen of the seventeen ditch segments are “roadside ditches” with ruderal vegetation. The last, a 2-foot-wide ditch, with an area of 0.002 acre and length of 46 feet (DUB-15), carries flows through a short distance that is vegetated with upland riparian forest and shrub–scrub vegetation.

All seventeen segments of the unconsolidated bottom stormwater ditch appear to fit into the category of “non-tidal drainage and irrigation ditches” and are likely not waters of the United States.

Ditch Emergent Wetland

Two ditch segments contain areas with wetland indicators (DEM-1 and DEM-2), have a total area of 0.166 acre and were mapped as constructed stormwater ditches in the Delineation Area. These ditches have total length of approximately 1,272 linear feet. One ditch with wetland indicators (DEM-1) is located on the north side of SR 128, in a constructed stormwater ditch that appears to have poor drainage. The second ditch with wetland indicators (DEM-2) is located in another constructed stormwater ditch in an area with poor drainage. DEM-2 is located approximately 100 feet downstream of a pair of culverts (see Appendix A, Sheet 2 of 3, south end of feature DUB-14) which drain stormwater runoff from the I-5 southbound onramp and associated traffic island from the east into the ditch.

The emergent wetlands in the ditches were dominated in areas by hydrophytic herbaceous vegetation. Common species present included perennial wormwood (FACW), wild oat (UPL), Johnson grass (FACU), tall flat-sedge (FACW), smooth crab grass (FACU), large barnyard grass (*Echinochloa crus-galli*, FACW), dove’s foot geranium (UPL), ox-eye daisy (*Leucanthemum vulgare,* UPL), perennial rye grass (FAC), great plantain (*Plantago major,* FAC), and curly dock (FAC).

While wetland indicators are present, these elements are stormwater ditches fitting into the category of “non-tidal drainage and irrigation ditches,” flowing discontinuously for short periods (less than three months) during and immediately after large precipitation events, and are likely not waters of the United States.

Artificial Construction

An 8-foot-wide constructed concrete trapezoidal "channel" (Dr-1) collects water from other stormwater ditches throughout the Delineation Area, and acts as a spillway for short term flows downwards from the top of bank, into the Putah Creek riparian area. This concrete "channel", which was dry at time of survey, has an area of 0.013 acre and length of 71 feet. This "channel" also appears to fit into the category of "non-tidal drainage and irrigation ditches" and is likely not a waters of the United States.

References Cited

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California, 2nd edition*. University of California Press, Berkeley.

City of Winters. 2014. *Notice of Preparation (NOP) and Notice of Scoping Meeting for the Draft Environmental Impact Report (EIR) For the PG&E Winters Gas Operations Technical Training Center.* Memo to Responsible and Trustee Agencies, Interested Parties, and Organizations. Dated November 7, 2014.

Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* United States Department of the Interior Fish and Wildlife Service publication FWS/OBS-79/31, Washington, D.C. Dated December 1979.

Federal Register. 1986. *Part II. Department of Defense, Corps of Engineers, Department of the Army, Regulatory Programs of the Corps of Engineers Final Rule.* 33 CFR Parts 320 through 330. Volume 51, Number 219, page 41217. Dated Thursday November, 13, 1986.

Janeway, Lawrence. 2013. *Vern Oswald's Selected Plants of Northern California and Adjacent Nevada, Updated and Revised*. Studies from the Herbarium Number 17, California State University, Chico.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List: 2014 Update of Wetland Ratings*. Phytoneuron 2014-41: 1-42.

Munsell, A.H. 2000. *Munsell Soil Color Charts*. Revised washable edition, Munsell Company. Grand Rapids, Michigan.

Natural Resources Conservation Service (NRCS). 2014. WETS table for Winters, Yolo County accessed online at http://www.wcc.nrcs.usda.gov/climate/wetlands.html on December 10, 2014.

Newkom. Nancy, landowner of field north of Grant Avenue. 2015. Phone call with Samantha Hillaire, Garcia and Associates' botanist on February 13, 2015.

NRCS. 2015a. Web Soil Survey (WSS). Delineation Area in Winters, Yolo and Solano counties, California. Accessed online at http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx on January 7, 2015.

NRCS. 2015b. National Hydric Soils List. Accessed online from http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/ on January 7, 2015.

U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Waterways Experimental Station Technical Report Y-87-1.

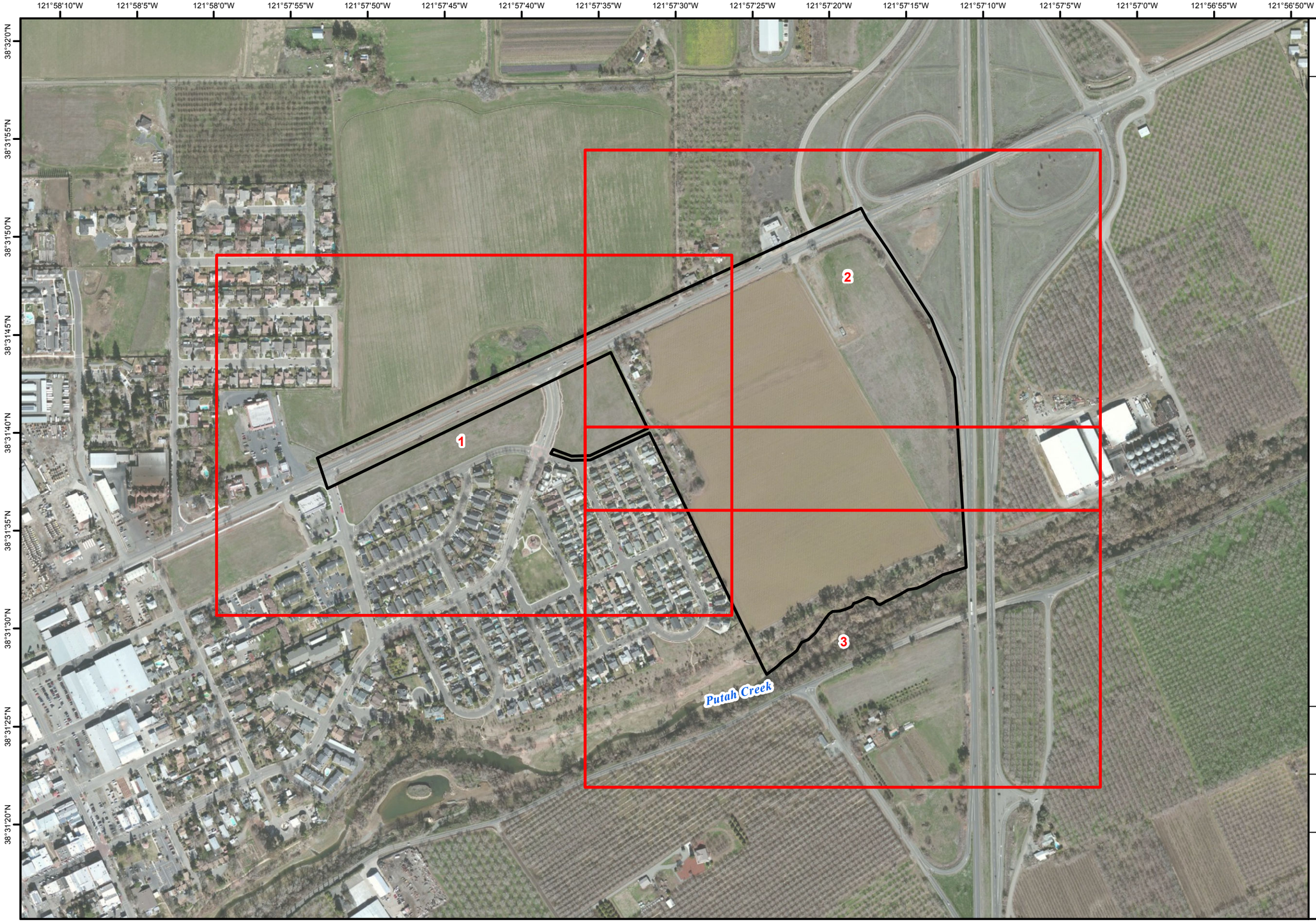
USACE. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Publication number ERDC/EL TR-08-28 from the Engineer Research and Development Center. Dated September 2008. Vicksburg, Massachusetts.

U.S. Environmental Protection Agency (EPA) and Department of the Army. 2008. *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States.* Accessed online on February 3, 2015 at http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa_guide/cwa_juris_2dec08.pdf. Dated December 2, 2008.

U.S. Fish and Wildlife Service (USFWS). 2015. National Wetlands Inventory (NWI), online wetlands mapper, accessed online at http://www.fws.gov/wetlands/data/mapper.HTML on January 6, 2015.

U.S. Geological Survey (USGS). 1978. *Winters, California* 7.5' topographic quadrangle, photorevised.

Appendix A
Delineation Map



PG&E Winters GOTTC
February 2015
Key Map

Legend

- Delineation Area
- Map Sheet Index

N

0 250 500
Feet

Notes:
1. Acreage shown for each class refers to the entire delineation area.
2. Feature label key provided below.

Imagery Source: ESRI World Imagery (2010)
USGS Topo Quad: Winters (1978)
PLSS: Section 22; Township: 8N; Range: 01W

PG&E Contact: Ryan Brown
Prepared by: Garcia and Associates/530-588-3515
Delineated by: Samantha Hillaire and Susan Dewar
Delineation Survey Date: 01-08-2015, 01-22-2015
Drawn By: Karen Klinger

Pacific Gas and Electric Company®

Appendix A
Delineation of Potential Waters of the United States, Including Wetlands

121°58'0"W 121°57'55"W 121°57'50"W 121°57'45"W 121°57'40"W 121°57'35"W 121°57'30"W

38°31'45"N

38°31'40"N

38°31'35"N

DUB-2 w = 4 ft.
DUB-3 w = 4 ft.
DP-4
DUB-4 w = 3 ft.
DUB-11 w = 4 ft.
DUB-12 w = x ft.
DP-1
DUB-13 w = 3.5 ft.
DUB-6 w = 3 ft.
DUB-5 w = 3 ft.
DP-2
DUB-7 w = 3 ft.
DUB-17 w = 4 ft.
DUB-8 w = 3 ft.
RUB-9 w = 3 ft.
DUB-16 w = 4 ft.
DUB-10 w = 2 ft.

PG&E Winters GOTTC
February 2015
Sheet 1 of 3

Legend

- Culvert
- Data Point
- Storm drain
- Stand pipe
- Delineation Area (69.070 ac)
- Direction of flow

Non-tidal waters (0.565 acre)

Wetlands (0.114 acre)

- Riverine (0.114 acre)

Other Waters (0.451 acre)

- Riverine (0.451 acre)
- Ordinary High Water Mark
- Top of Bank

Non-jurisdictional elements (0.651 acre)

Stormwater ditches (0.651 acre)

- Ditch nonwetland (0.485 acre)
- Ditch wetland (0.166 acre)

N

0 100 200
Feet

1 inch = 200 feet

Notes:
1. Acreage shown for each class refers to the entire delineation area.
2. Feature label key provided below.

Imagery Source: ESRI World Imagery (2010)
USGS Topo Quad: Winters (1978)
PLSS: Section 22; Township: 8N; Range: 01W

PG&E Contact: Ryan Brown
Prepared by: Garcia and Associates/530-588-3515
Delineated by: Samantha Hillaire and Susan Dewar
Delineation Survey Date: 01-08-2015, 01-22-2015
Drawn By: Karen Klinger

*System: P = Palustrine, R = Riverine, D = Nonjurisdictional Ditch, *Class: UB= Unconsolidated Bottom, EM = Emergent Vegetation, SS = Scrub-Shrub, r = Artificial

Pacific Gas and Electric Company®

Appendix A
Delineation of Potential Waters of the United States, Including Wetlands

121°57'35"W 121°57'30"W 121°57'25"W 121°57'20"W 121°57'15"W 121°57'10"W 121°57'5"W

38°31'50"N
38°31'45"N
38°31'40"N

DP-3
DEM-1
DUB-1
w = 4 ft.
DUB-2
w = 4 ft.
DP-11
DUB-14
w = 6 ft.
DUB-3
w = 4 ft.
DP-4
DUB-11
w = 4 ft.
DUB-12
w = x ft.
DUB-13
w = 3.5 ft.
DEM-2
avg w = 6 ft.
DP-10

PG&E Winters GOTTC
February 2015
Sheet 2 of 3

Legend

- Culvert
- Data Point
- Storm drain
- Stand pipe
- Delineation Area (69.070 ac)
- Direction of flow

Non-tidal waters (0.565 acre)

Wetlands (0.114 acre)

- Riverine (0.114 acre)

Other Waters (0.451 acre)

- Riverine (0.451 acre)
- Ordinary High Water Mark
- Top of Bank

Non-jurisdictional elements (0.651 acre)

Stormwater ditches (0.651 acre)

- Ditch nonwetland (0.485 acre)
- Ditch wetland (0.166 acre)

N

0 100 200
Feet

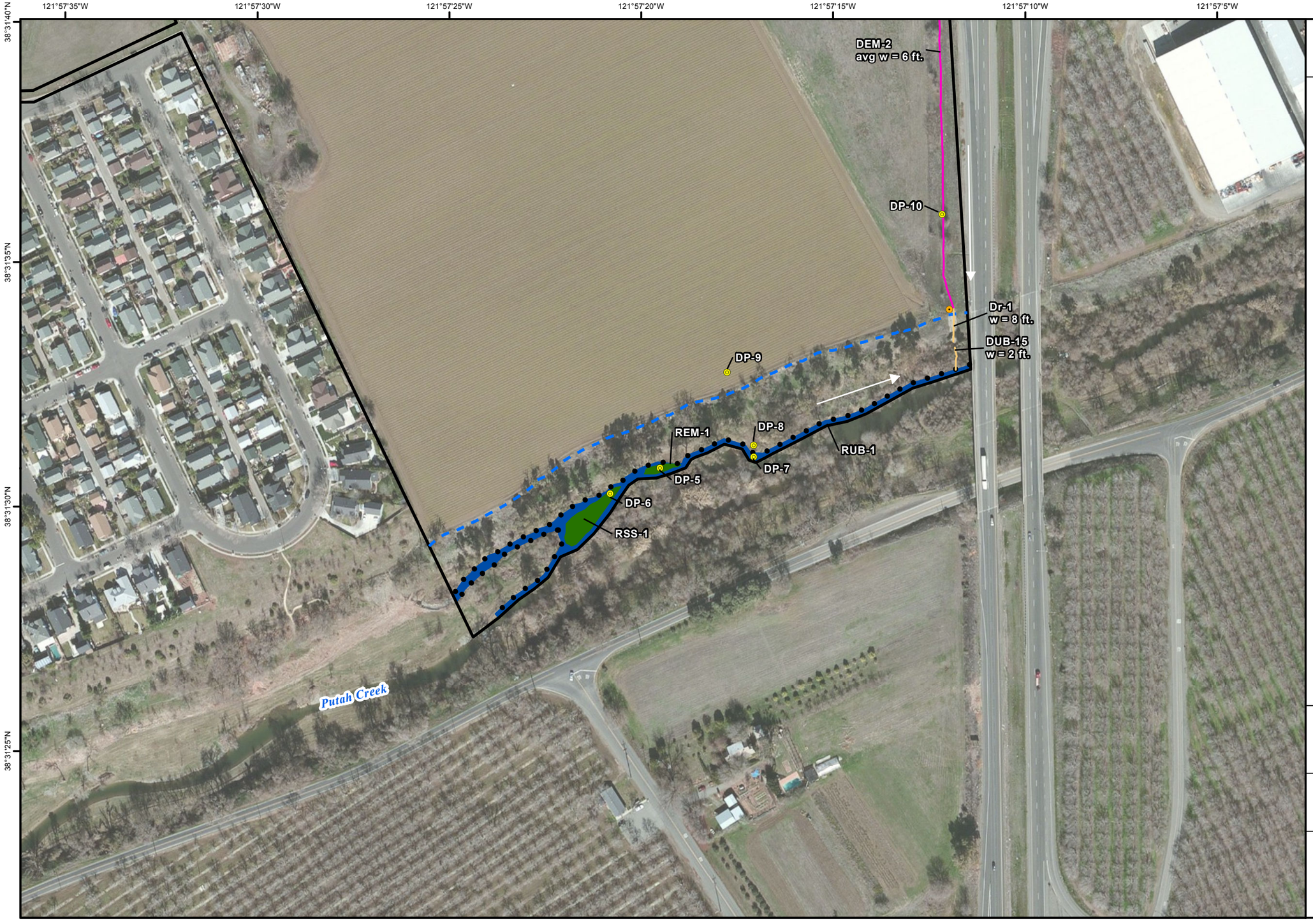
1 inch = 200 feet

Notes:
1. Acreage shown for each class refers to the entire delineation area.
2. Feature label key provided below.

Imagery Source: ESRI World Imagery (2010)
USGS Topo Quad: Winters (1978)
PLSS: Section 22; Township: 8N; Range: 01W

PG&E Contact: Ryan Brown
Prepared by: Garcia and Associates/530-588-3515
Delineated by: Samantha Hillaire and Susan Dewar
Delineation Survey Date: 01-08-2015, 01-22-2015
Drawn By: Karen Klinger

*System: P = Palustrine, R = Riverine, D = Nonjurisdictional Ditch, *Class: UB= Unconsolidated Bottom, EM = Emergent Vegetation, SS = Scrub-Shrub, r = Artificial



PG&E Winters GOTTC
February 2015
Sheet 3 of 3

Legend

- Culvert
- Data Point
- Storm drain
- Stand pipe
- Delineation Area (69.070 ac)
- Direction of flow

Non-tidal waters (0.565 acre)

Wetlands (0.114 acre)

- Riverine (0.114 acre)

Other Waters (0.451 acre)

- Riverine (0.451 acre)
- Ordinary High Water Mark
- Top of Bank

Non-jurisdictional elements (0.651 acre)

Stormwater ditches (0.651 acre)

- Ditch nonwetland (0.485 acre)
- Ditch wetland (0.166 acre)

N

0 100 200
Feet

1 inch = 200 feet

Notes:
1. Acreage shown for each class refers to the entire delineation area.
2. Feature label key provided below.

Imagery Source: ESRI World Imagery (2010)
USGS Topo Quad: Winters (1978)
PLSS: Section 22; Township: 8N; Range: 01W

PG&E Contact: Ryan Brown
Prepared by: Garcia and Associates/530-588-3515
Delineated by: Samantha Hillaire and Susan Dewar
Delineation Survey Date: 01-08-2015, 01-22-2015
Drawn By: Karen Klinger

*System: P = Palustrine, R = Riverine, D = Nonjurisdictional Ditch, *Class: UB= Unconsolidated Bottom, EM = Emergent Vegetation, SS = Scrub-Shrub, r = Artificial

Pacific Gas and Electric Company®

Appendix A
Delineation of Potential Waters of the United States, Including Wetlands

Appendix B
WETS Tables

WETS Station : WINTERS, CA202 Creation Date: 12/10/2014
Latitude: 3832 Longitude: 12159 Elevation: 00135
State FIPS/County(FIPS): 06113 County Name: Yolo
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.)			Precipitation (Inches)				
					30% chance will have		avg # of days w/.1 or more	avg total snow fall
	avg daily max	avg daily min	avg	avg	less than	more than		
January	54.8	37.6	46.2	5.10	1.88	6.16	7	0.1
February	61.3	41.1	51.2	4.67	1.48	5.56	7	0.0
March	66.6	44.2	55.4	3.60	1.29	4.34	6	0.0
April	74.4	47.9	61.2	1.03	0.33	1.24	3	0.0
May	82.9	53.4	68.2	0.64	0.05	0.71	2	0.0
June	90.9	58.2	74.6	0.12	0.00	0.13	1	0.0
July	95.8	60.0	77.9	0.03	NA	NA	0	0.0
August	94.3	59.1	76.7	0.05	0.00	0.00	0	0.0
September	89.8	56.8	73.3	0.26	0.00	0.25	1	0.0
October	80.3	50.7	65.5	1.00	0.28	1.20	2	0.0
November	65.0	42.6	53.8	2.87	0.75	3.35	5	0.0
December	55.6	37.0	46.3	3.45	1.47	4.25	5	0.0
Annual	-----	-----	-----	------	16.60	26.87	--	----
Average	76.0	49.1	62.5	------	------	------	--	----
Average	-----	-----	-----	22.82	------	------	38	0.2

GROWING SEASON DATES

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *		1/ 4 to 12/26 355 days	2/ 5 to 12/ 6 304 days
70 percent *		> 365 days > 365 days	1/29 to 12/13 318 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

Tables from NRCS 2014.

Appendix C
Plant Species Observed in the Delineation Area

Appendix C. Wetland Indicator Status for Plant Species Observed in the Delineation Area

Scientific Name	Common Name	Wetland Indicator Status[a]
Abutilon theophrasti	Velvetleaf	UPL
Acacia [melanoxylon]	[Blackwood] acacia	UPL
Acer negundo	Box elder	FACW
Achillea millefolium	Common yarrow	FACU
Ailanthus altissima	Tree-of-heaven	FACU
Amsinckia [intermedia]	[Common] fiddleneck	UPL
Artemisia biennis	Perennial wormwood	FACW
Artemisia douglasiana	Douglas' wormwood	FAC
Arum italicum	Italian arum	UPL
Arundo donax	Giant-reed	FACW
Avena fatua	Wild oat	UPL
Brassica rapa	Rape / yellow mustard	FACU
Carex nudata	Torrent sedge	FACW
Centaurea solstitialis	Yellow star-thistle	UPL
Centromadia fitchii	Fitch's false tarplant	FACU
Croton setigerus	Doveweed	UPL
Cynodon dactylon	Bermuda grass	FACU
Cyperus eragrostis	Tall flat-sedge	FACW
Digitaria ischaemum	Smooth crab grass	FACU
Dittrichia graveolens	Stinkwort	UPL
[Dysphania ambrosioides]	[Mexican-tea]	FAC
Echinochloa crus-galli	Large barnyard grass	FACW
Elymus caput-medusae = Taeniatherum caput-medusae	Medusa head	UPL
Epilobium ciliatum	Fringed willowherb	FACW
Equisetum hyemale	Tall scouring-rush	FACW
Erigeron canadensis	Canadian horseweed	FACU
Erodium cicutarium	Red-stemmed filaree	UPL
Erodium moschatum	White-stemmed filaree	UPL
Eucalyptus camaldulensis	River red gum	FAC
Fraxinus latifolia	Oregon ash	FACW
Geranium molle	Dove's foot geranium	UPL
Hordeum murinum	Wall barley	FACU
Hypochaeris glabra	Smooth cat's ear	UPL
Juglans hindsii	Black walnut	FAC
Kickxia elatine	Sharp-leaf cancerwort	UPL
Lactuca serriola	Prickly lettuce	FACU

Scientific Name	Common Name	Wetland Indicator Status[a]
[Leersia oryzoides]	Cut-leaf rice grass	OBL
Lepidium latifolium	Broad-leaf pepperwort	FAC
Leucanthemum vulgare	Ox-eye daisy	UPL
Lolium perenne	Perennial rye grass	FAC
Malva nicaeensis	Bull mallow	UPL
Malva parviflora	Cheeseweed	UPL
Morus alba	White mulberry	FACU
Nerium oleander	Oleander	UPL
Paspalum dilatatum	Golden crown grass	FAC
Phalaris aquatica	Harding grass	FACU
Plantago lanceolata	English plantain	FAC
Plantago major	Great plantain	FAC
Populus fremontii	Fremont's cottonwood	UPL
Quercus douglasii	Blue oak	UPL
Quercus lobata	Valley oak	FACU
Rubus armeniacus	Himalayan blackberry	FACU
Rumex crispus	Curly dock	FAC
Salix exigua	Sandbar willow	FACW
Salsola tragus	Prickly Russian-thistle	FACU
Sambucus nigra	Black elderberry	FAC
Schoenoplectus acutus	Hard-stem bulrush	OBL
Sorghum halepense	Johnson grass	FACU
Toxicodendron diversilobum	Pacific poison-oak	FACU
Triadica sebifera	Chinese tallowtree	UPL
Vicia [bengalensis]	[Purple] vetch	UPL
Xanthium strumarium	Rough cocklebur	FAC

Sources: USACE 1987; Lichvar et al. 2014; Baldwin et al. 2012.

[ ] species in brackets are likely identifications from field samples in January.

[a] Indicator Status Definitions for Arid West Region:

OBL = Obligate, almost always occurs in wetlands (>99% probability of occurrence)

FACW = Facultative wetland, usually occurs in wetlands (66%–99% probability)

FAC = Facultative, equally likely to occur in wetlands or nonwetlands (34%–66% probability)

FACU = Facultative upland, usually occurs in nonwetlands but occasionally in wetlands (1%–33% probability)

UPL = Obligate upland, almost never occurs in wetlands (<1% probability)

NI = No indicator (insufficient information to assign an indicator status)

Appendix D
Soil Survey and Hydric Soils Information

Soil Map Units in the Delineation Area

Map Unit	Inclusions	Hydric Status	Hydric Criteria
Brentwood Silty Clay Loam, 0 to 2 percent slopes	None listed	None	None
Rincon Silty Clay Loam	None listed	None	None
Riverwash	None listed (streams)	Yes	4
Water	None listed	Yes	4*
Yolo Silt Loam	Sycamore (alluvial fans)	Yes	2

Source: NRCS 2015a, 2015b

* The "water" soil map unit was not listed for Yolo or Solano counties in NRCS 2015b, and was assumed to be an oversight. Map units called "water" are assumed to be flooded for very long duration during the growing season.

Hydric Criteria are as follows (2015b):

1. All Histels except Folistels and Histosols except Folists; or
2. Map unit components in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups that:
   a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
   b. Show evidence that the soil meets the definition of a hydric soil;
3. Map unit components that are frequently ponded for long duration or very long duration during the growing season that:
   a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
   b. Show evidence that the soil meets the definition of a hydric soil; or
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
   a. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
   b. Show evidence that the soils meet the definition of a hydric soil.

Appendix E
Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-1

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave Slope (%): 0-2%

Subregion (LRR): LRR-C Lat: 38.52863 degrees Long: -121.960325 degrees Datum: NAD 83

Soil Map Unit Name: Brentwood silty clay loam, 0 to 2 percent slopes NWI classification: R-UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Point evaluated in roadside ditch, 3.5 feet wide, south side of SR 128 (East Grant Avenue). Ditch has evidence of flow; appears to flow west toward stand pipe at this location but does not have hydrophytic vegetation. Likely flows for brief periods during storm events or agricultural releases.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 3.5 x 20 feet)			
1. Croton setigerus	40	YES	NI/UPL
2. Brassica rapa	10	NO	FACU
3. Asteraceae (unknown, dry skeletons)	6	NO	UNKN
4. Lactuca serriola	3	NO	FACU
5. Centromadia fitchii	1	NO	FACU
6.			
7.			
8.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10%* % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	14	x 4 =	56
UPL species	40	x 5 =	200
Column Totals:	54 (A)		256 (B)

Prevalence Index = B/A = 4.7

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Hydrophytic vegetation is not present.
*Remaining 30% on ground is leaf litter.

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/2	100					silty clay	
6-12	10YR4/3	100					silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydrology indicator of sediment deposits inconsistently observed in ditch. Water likely flows in this roadside ditch during large storm events or sporadic agricultural releases. Water at this location appears to flow west into a large stand pipe.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-2

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): LRR-C Lat: 38.528615 degrees Long: -121.960314 degrees Datum: NAD 83

Soil Map Unit Name: Brentwood silty clay loam, 0 to 2 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Non-native grassland upland point, paired to DP-1.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 10 x 10 feet)			
1. (Avena fatua)	40	yes	NI/UPL
2. Erodium cicutarium	20	yes	NI/UPL
3. Centaurea solstitialis	10	no	NI/UPL
4. Hypochaeris glabra	7	no	NI/UPL
5. Amsinckia (intermedia)	3	no	NI/UPL
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species _____	x 3 =	_____
FACU species _____	x 4 =	_____
UPL species 80	x 5 =	400
Column Totals: 80 (A)		400 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Hydrophytic vegetation not present.
Species in parentheses are likely identifications during this January (non-flowering season) survey.

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No hydric soil indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-3

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 0-2%

Subregion (LRR): LRR-C Lat: 38.530681 degrees Long: -121.955517 degrees Datum: NAD 83

Soil Map Unit Name: Brentwood silty clay loam, 0 to 2 percent slopes NWI classification: R-UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Wetland area in a 5-feet-wide stormwater ditch with poor flow (see Photo 1); flow is supposed to go east and south under SR 128. Surrounding uplands are landscaped in front of AM-PM/Burger King.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 x 10 feet)			
1. Lolium perenne	80	yes	FAC
2. Digitaria ischeamum	10	no	FACU
3. Avena fatua	3	no	NI/UPL
4. Plantago major	3	no	FAC
5. Echinochloa crus-galli	2	no	FACW
6. Rumex crispus	1	no	FAC
7. Leucanthemum vulgare	1	no	UPL
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic herbaceous vegetation present in ditch.

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/1	100					silty clay	
1-6	10YR 4/3	94	10YR 3/1	6	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: man-made, concrete

Depth (inches): at surface to not present

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

Soil has more than 5 percent of distinct concentrations in a layer more than 2 inches thick within the upper 6 inches of soil. Hydric soil indicator present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Obvious sediment deposits in ditch. Wetland hydrology indicator present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-4

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 0-2%

Subregion (LRR): LRR-C Lat: 38.52948 Long: -121.958678 Datum: NAD 83

Soil Map Unit Name: Brentwood silty clay loam, 0 to 2 percent slopes NWI classification: R-UB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Stormwater ditch, approximately 4 feet wide, on the north side of SR 128 (East Grant Avenue). Feature appears to carry water briefly during storm events or agricultural releases, but is not a wetland (Photo 2). At this location, flow would go east to a culvert then turn south under SR 128.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 4 x 10 feet)			
1. Sorghum halepense	100	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species 100	x 4 =	400
UPL species	x 5 =	
Column Totals: 100 (A)		400 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Entire ditch is filled with Johnson grass (Sorghum halepense) = FACU. Hydrophytic vegetation not present.

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100					silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The wetland hydrology indicators are not very clear at this location, but presence of sediment deposits and cracked soils sporadically in ditch, particularly near culverts. Wetland hydrology indicators present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-5

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): flat terrace of Putah Creek Local relief (concave, convex, none): concave Slope (%): <5%

Subregion (LRR): LRR-C Lat: 38.525178 degrees Long: -121.955487 degrees Datum: NAD 83

Soil Map Unit Name: Water NWI classification: R-2-EM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Flat vegetated terrace under the OHWM of Putah Creek. Photo 3.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Eucalyptus camaldulensis	45	Yes	FAC
2. Acer negundo	5	No	FACW
3.			
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 10 x 10 feet)			
1. Cyperus eragrostis	50	Yes	FACW
2. Carex nudata	10	No	FACW
3. (Leersia oryzoides)	8	No	OBL
4. Festuca perennis	1	No	FAC
5. Rumex crispus	1	No	FAC
6.			
7.			
8.			
	70	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic riparian vegetation present.
(Species in parenthesis indicate those with likely identifications).

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					clay	
2-8	10YR 5/6	70	10YR 4/3	25	C	M	silty	
			10YR 6/1	5	D	M	clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None noted

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Area subject to ponding adjacent the currently running stream channel. More than 5% distinct/prominent redox concentrations are present. This point was evaluated on the edge of what is currently inundated. The water level may come slightly over this area up to the mapped OHWM.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 0-8 inches

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area subject to ponding adjacent the currently running stream channel. Adjacent the stream, areas are inundated up to 8 inches, but near the outer OHWM, surface is dry with sediment and drift deposits.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-6

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): low terrace by stream Local relief (concave, convex, none): none to concave Slope (%): 0-5%

Subregion (LRR): LRR-C Lat: 38.525033 Long: -121955846 Datum: NAD 83

Soil Map Unit Name: Riverwash NWI classification: R-2-US-6 (RSS)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

A shrub-scrub vegetated area in a low-lying area by Putah Creek. Lies within the OHWM. Area has problematic soils, with lots of newly deposited fine sand and small gravel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	6	yes	FACW
2. Populus fremontii	5	yes	NI/UPL
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1. Salix exigua	25	yes	FACW
2.			
3.			
4.			
5.			
	25	= Total Cover	
Herb Stratum (Plot size: 10 x 10 feet)			
1. Digitaria ischaemum	5	yes	FACU
2. Artemisia douglasiana	1	no	FAC
3. Erigeron (canadensis)	1	no	FACU
4. Epilobium ciliatum	1	no	FACW
5. Schoenoplectus acutus	2	yes	OBL
6.			
7.			
8.			
	10	= Total Cover	
Woody Vine Stratum (Plot size: 10 x 10 feet)			
1. Rubus armeniacus	30	yes	FACU
2.			
	30	= Total Cover	

% Bare Ground in Herb Stratum 20%* % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	32	x 2 =	64
FAC species	1	x 3 =	3
FACU species	36	x 4 =	134
UPL species	5	x 5 =	25
Column Totals:	76 (A)		228 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Plant names in parentheses are likely identifications.
*The remainder of the ground was covered with duff and blackberry.
Wetland vegetation is prevalent (but not dominant) in the area.

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
Fine sand	and small gravel	on	top 6 inches.					New deposits.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None noted

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

Soil is problematic at this location. The area is covered with new deposits of fine sand and gravel. This falls under the "vegetated sand and gravel bars within floodplains" problematic hydric soils (Arid West, page 97, #3). Area has hydrophytic vegetation and wetland hydrology (under the OHWM of creek).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-7

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): creek channel Local relief (concave, convex, none): concave Slope (%): ~3%

Subregion (LRR): LRR-C Lat: 38.525234 Long: -121.954808 Datum: NAD 83

Soil Map Unit Name: Water NWI classification: R-2-UB-3 (RUB)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Point assessed in main channel of Putah Creek. Area is an unvegetated water of the United States that is approximately 20 or 25 feet wide.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 x 10 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 x 10 feet)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 10 x 10 feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: 10 x 10 feet)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Area is unvegetated flowing creek channel of Putah Creek.
(Very edge of stream has Rubus armeniacus, Populus fremontii, Arundo donax, Eucalyptus camaldulensis, Carex nudata, Equisetum sp.)

SOIL

Sampling Point: DP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
Did not	excavate.							Area assumed hydric because of
								long term inundation of main
								Putah Creek channel.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Area assumed to have hydric soils because of long term inundation of Putah Creek.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1 to ~72 inch

Water Table Present? Yes ✓ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Long term flowing channel of Putah Creek. Wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-8

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): ~0%

Subregion (LRR): LRR-C Lat: 38.525298 Long: -121.954805 Datum: NAD 83

Soil Map Unit Name: Water NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation ✓, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

This is upland riparian forest/scrub on a terrace above the OHWM of Putah Creek. Area may flood occasionally, but doesn't appear to be regularly inundated. Putah Creek levels are highly regulated at Lake Berryessa Dam upstream.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 x 20 feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Eucalyptus camaldulensis	5	Yes	FAC
2. (Triadica sebifera)	5	Yes	NI/UPL
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 20 x 20 feet)			
1. Toxicodendron diversilobum	5	Yes	FACU
2.			
3.			
4.			
5.			
	5	= Total Cover	
Herb Stratum (Plot size: 20 x 20 feet)			
1. Sorghum halepense	20	Yes	FACU
2. Digitaria ischaemum	15	Yes	FACU
3. Avena fatua	10	No	NI/UPL
4. Arundo donax	5	No	FACW
5. Geranium molle	1	No	NI/UPL
6. Plantago lanceolata	1	No	FAC
7.			
8.			
	62	= Total Cover	
Woody Vine Stratum (Plot size: 20 x 20 feet)			
1. Rubus armeniacus	10	Yes	FACU
2.			
	10	= Total Cover	

% Bare Ground in Herb Stratum 20%* % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	6	x 3 =	18
FACU species	50	x 4 =	200
UPL species	16	x 5 =	80
Column Totals:	77 (A)		308 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Species in parenthesis are likely identifications. *Remainder of ground is duff/leaf litter.
Some long-lived and deep-rooted plant species with wetland indicator status are present. These species are likely capable of getting water from the creek, although this area is outside of the OHWM and does not appear to be regularly inundated. Hydrophytic vegetation not present.

SOIL

Sampling Point: DP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					clay loam	
8-10	10YR 4/3	90	10YR 4/4	10	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** ✓

Remarks:

No hydric indicators present towards the surface. Faint mottles present near bottom of pit. In the distant past, before Putah Creek was regulated at Lake Berryessa Dam, this area was likely regularly part of the floodplain. The deeper layers may reflect this.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

In this riverine system, drift deposits are present, but no other hydrology indicator present. Wetland hydrology not present. Area likely floods for short intervals during occasional (>5 year intervals) flood events that cannot be regulated at Lake Berryessa Dam, but is not regularly saturated or inundated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-9

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): Valley Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): LRR-C Lat: 38.525718 Long: -121.954992 Datum: NAD 83

Soil Map Unit Name: Yolo silt loam NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Point was evaluated in a plowed field, that represents much of the upland habitat within the Delineation Area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 20 x 20 feet)			
1. (Dysphania ambrosioides)	40	Yes	FAC
2. Malva nicaeensis	5	No	NI/UPL
3. Lactuca serriola	4	No	FACU
4. Phalaris aquatica	1	No	FACU
5.			
6.			
7.			
8.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 50% % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present because of widespread presence of a FAC species. Plant species names in parentheses represent likely identifications.

SOIL

Sampling Point: DP-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/4	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Hydric soil indicators not present. Area has been levelled and plowed in the past. Old furrows are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-10

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 3%

Subregion (LRR): LRR-C Lat: 38.526602 Long: -121.953423 Datum: NAD 83

Soil Map Unit Name: Brentwood silty clay loam, 0 to 2 percent slopes NWI classification: P-EM-1 (PEM)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation ✓, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

This point was evaluated in a man-made ditch, downstream of inputs from a pair of 30-inch concrete culverts. Vegetation from previous years' growth indicates dominance of a FACW species (Cyperus eragrostis) that is not as prevalent in current years growth.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 6 x 10 feet)			
1. Lolium perenne = Festuca perennis	66	Yes	FAC
2. Cyperus eragrostis	25	Yes	FACW
3. Rumex crispus	5	No	FAC
4. Artemisia biennis	3	No	FACW
5. Geranium molle	1	No	NI/UPL
6.			
7.			
8. utilizing old and new material			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Hydrophytic vegetation present. Vegetation was assessed based on both standing remnants and undecayed vegetation.

SOIL

Sampling Point: DP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	7.5YR 4/1	100					silty clay	
1-10	10YR 4/3	100	10YR 4/1	30	C	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: none noted

Depth (inches): ___

Hydric Soil Present? Yes ✓ **No** ___

Remarks:

Hydric soil indicators present. More than 5 percent distinct redox concentrations in a layer more than 2 inches thick within the upper 6 inches of soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sediment deposits present. Wetland hydrology indicators present.
Wetland hydrology indicators not strong, likely due to approximately 3 previous years of drought.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Winters GOTTC City/County: Winters / Yolo Sampling Date: 8 January 2015

Applicant/Owner: Pacific Gas and Electric Company (PG&E) State: CA Sampling Point: DP-11

Investigator(s): Samantha Hillaire and Susan Dewar Section, Township, Range: Section 22, R1W, T8N

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): ~1%

Subregion (LRR): LRR-C Lat: 38.529928 Long: -121.956686 Datum: NAD 83

Soil Map Unit Name: Brentwood silty clay loam, 0 to 2 percent slopes NWI classification: Not applicable

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

Area is a ~4-foot-wide ditch with sediment deposits and surface soil cracks. Likely runs for short periods of time during rain events and/or agricultural releases but is not a wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 4 x 10 feet)			
1. Sorghum halepense	50	Yes	FACU
2. (Lepidium latifolium)	10	No	FAC
3. Xanthium strumarium	2	No	FAC
4. Latuca serriola	2	No	FACU
5. Rumex crispus	1	No	FAC
6. Geranium molle	1	No	NI/UPL
7. Elymus caput-medusae	1	No	NI/UPL
8.			
	67 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10%* % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	13	x 3 =	39
FACU species	52	x 4 =	208
UPL species	2	x 5 =	10
Column Totals:	67 (A)		257 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Hydrophytic vegetation not present. Plant species in parenthesis are likely identifications. *Remainder of ground cover is duff/leaf litter.

SOIL

Sampling Point: DP-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	100					silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Hydric soil indicators not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland hydrology indicators are present in the form of sediment deposits and sporadic surface soil cracks. This roadside ditch likely runs for short periods during storm events and/or agricultural releases. However, the ditch does not appear to remain wet long enough to support hydric vegetation or induce hydric soil indicators.

Appendix F
Representative Photographs

Photo 1. Palustrine emergent wetland feature (PEM-1) at location of DP-3. North side of SR 128, facing west, January 8, 2015.

Photo 2. Stormwater ditch feature (riverine unconsolidated bottom, RUB-3) at location of DP-4. North side of SR 128, facing west, January 8, 2015.

XXXXX-XX

Photo 3. Riverine emergent wetland feature (REM-1) at location of DP-5. North side of Putah Creek (seen in background), facing east, January 8, 2015.

Photo 4. Open water of Putah Creek (RUB-15) on left, next to riverine shrub-scrub wetland (RSS-1) on right. North side of Putah Creek, facing west, January 8, 2015.

XXXXX-XX

Photo 5. Man-made concrete channel in left foreground (Rr-1) leads downhill to small forested channel in right background (RUS-1). North side of Putah Creek (seen in background), facing southeast, January 8, 2015.

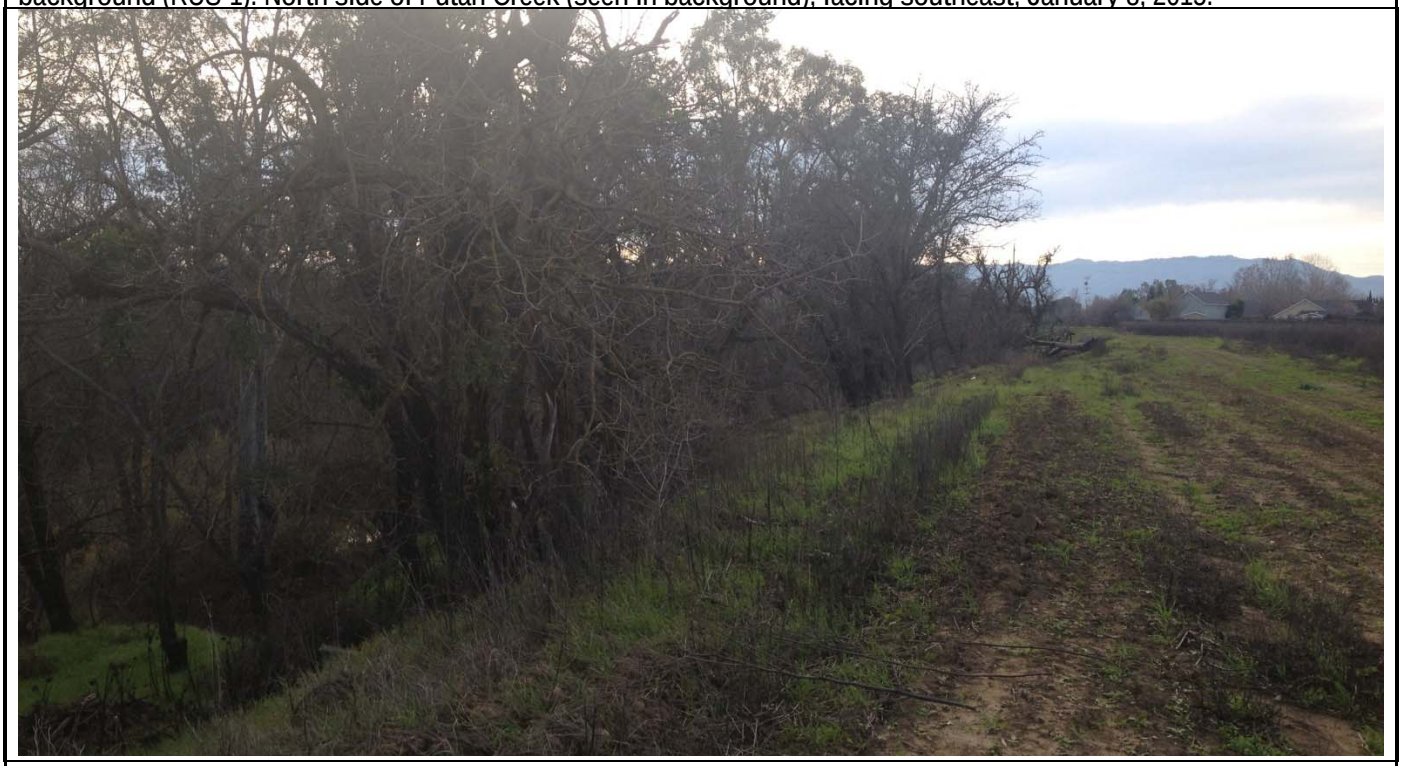


Photo 6. Upland riparian forest below top of bank of Putah Creek (left). Ruderal vegetation and fallow fields above top of bank (right). Facing west, January 8, 2015.

XXXXX-XX

Office Memorandum

TO: Nathan Lishman, PG&E Land Planner	**DATE:** 2/19/2015
	SUBJECT: 7082465 Gas Operations Technical Training Center – Biological Addendum
FROM: Ryan Brown (RQB5) 1-530-896-4261	

Background

Pacific Gas and Electric Company (PG&E) is proposing the construction and operation of the Winters Gas Operations Technical Training Center (GOTTC) Project (project) in the City of Winters. The facility would be constructed at the southwest corner of Interstate 505 (I-505) and State Route (SR) 128 (Grant Avenue) in Yolo County, California. This facility would be a vocational training center for students. The proposed project includes construction and operation of a Training Center (totaling 106,500 square feet) and associated infrastructure.

A Biological Resources Assessment of the Proposed PG&E GOTTC in the City of Winters dated October 2014 was drafted by Estep Environmental Resources which evaluated the potential for occurrence of regional special-status species and potential waters of the U.S. in a defined study area (Figure 1). Areas adjacent to the project area were also discussed in the document as they would pertain to special-status species and potential waters of the U.S.

Since that time, additional areas associated with the site construction design and planning have been added, largely associated with adjacent roadside ditches, and a narrow area on the west side of the site which will be utilized for offsite improvements consisting of a sidewalk.

Additionally, areas to the south of the site were included in the new survey area map, which include riparian areas associated with Putah Creek. While these areas are not depicted on the original survey area map, they have been considered in previous species and habitat discussion, primarily for valley elderberry longhorn beetle and western pond turtle.

To evaluate these areas in a biological context, this addendum is being generated to supplement the original Estep (2014) report and contribute to the Project's Environmental Impact Report being prepared for the City of Winters.

Methods

To evaluate areas of, and adjacent to, the project site, added subsequent to the original reporting, review of the original biological documentation was performed, a site survey was conducted, and aerial photography on GoogleEarth was reviewed.

While conducting the site survey, areas added to the project study boundary as depicted in Figure 2, were walked on foot, or driven by, in their entirety by PG&E Senior Terrestrial Biologist, Ryan Brown on February 2, 2015.

Results

New survey areas offered little additional information in comparison with the results and conclusion of the original biological report provided by Estep (2014). Much of the increase area of this study is comprised of fallow agricultural land dominated by annual grass and ruderal vegetation. Areas west of the site are narrow bands, one comprised mainly of SR-128, which is asphalt, and roadside ditch on the north and south side of the roadway (**Photograph 1**). The other area west of the site is an option to have a sidewalk built to connect with existing residential development. This area is graded, disturbed, and comprised of annual grass and ruderal vegetation.

A roadside ditch occurs along the I-505 on-ramp (**Photograph 2**). Several trees occur along the I-505 ditch which present suitable nesting habitat for passerine birds. Also, within the I-505 ditch are several isolated areas of Himalayan blackberry (*Rubus armeniacus*) brambles, which provide some cover for wildlife and potential nesting sites for passerine birds.

Two residential homes and several mature trees occur on the west side of the property.

Putah Creek occurs south of the project site and contains many mature trees which provide nesting habitat for passerine birds and raptors, including Swainson's hawk (**Photograph 3**). Also, the riverine area provides aquatic habitat for western pond turtle. These species are discussed in the original Estep report.

Putah Creek is Essential Fish Habitat and could support Chinook salmon and steelhead runs.

No special-status species were observed within the added survey areas. No additional elderberry shrubs were observed in these areas that have not already been included in previous study results.

Roadside ditches do occur within the survey areas and occur adjacent to the proposed building envelope for the GOTTC paralleling SR-128 on the north side of the property as discussed above, and paralleling an I-505 onramp on the eastern side of the site. Wetland vegetation was observed in some areas of the I-505 ditch, no standing water or flow was observed. The roadside ditches provide no suitable habitat for fish, or lesser aquatic taxa and appear to flow for short duration (hours to days) after significant precipitation events. Historically, agricultural water originating from a well may have been conveyed in these ditches. These ditches convey flows, when substantial enough, down a concrete spillway into Putah Creek riparian area and eventually into the Creek.

Conclusions

Areas addressed in this addendum do not change the conclusions of the original biological study performed by Estep (2014). Several areas within the study area provide suitable habitat for nesting passerine birds, which are protected by the Migratory Bird Treaty Act, and raptors, including the state listed threatened Swainson's hawk. These species have been discussed in previous reporting, including potential foraging habitat for the Swainson's hawk.

Western pond turtle could occur in Putah Creek aquatic habitat. This species has been previously addressed.

Roadside ditches within the study site were created in uplands, to drain uplands, and flow for a short duration of the year, less than 3 months. These physical parameters would not qualify these features to be waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers. Although, these features would presumably be waters of the State and regulated by the Regional Water Quality Control Board under the Porter Cologne Act. The regulatory status of site ditches has also been discussed in previous reporting (Estep 2014). If any "fills" are required for the development of the site, permitting may be necessary.

This study's findings are consistent with the original biological reporting performed by Estep and no new mitigations, surveys, or studies are recommended.

References:

Estep Environmental Consulting. 2014 (October). Biological Resources Assessment of the Proposed PG&E Gas Operations Technical Training Center in the City of Winters.

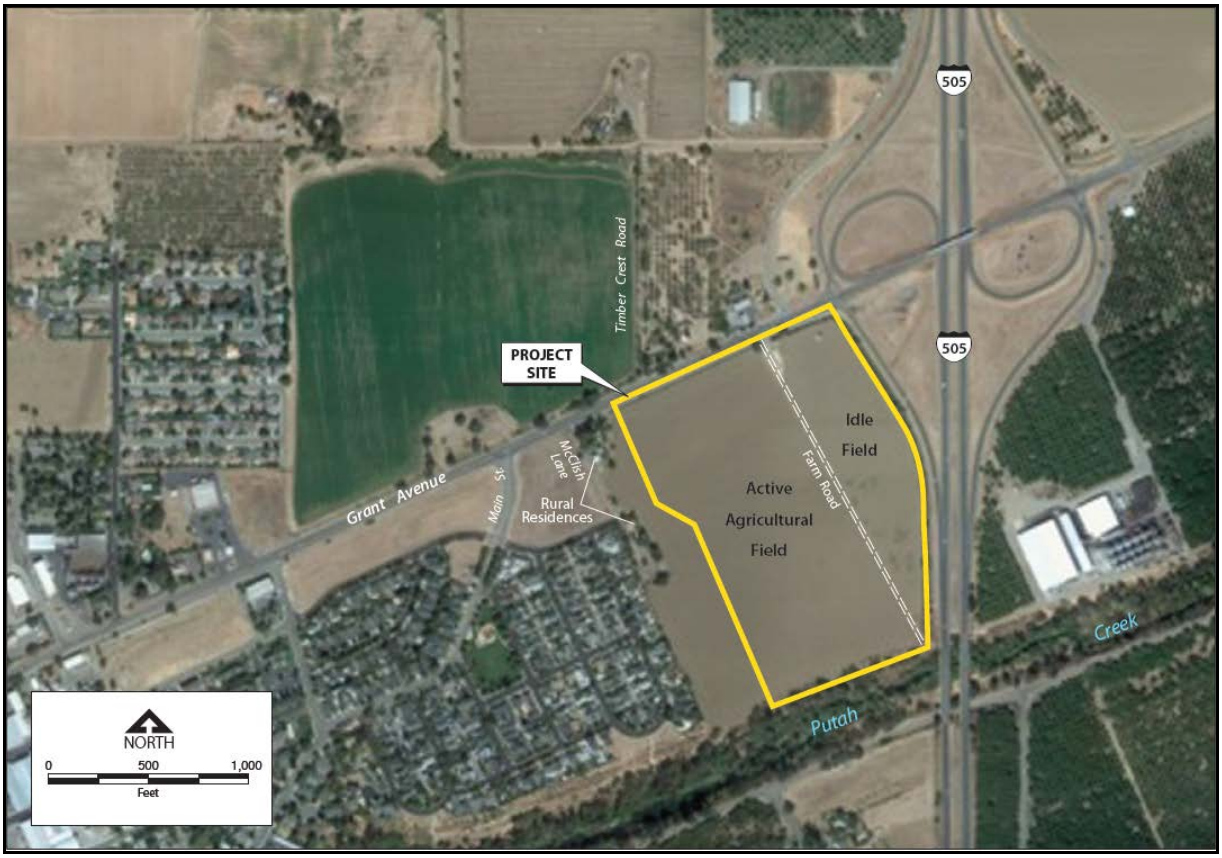


Figure 1. Overview of original Project Site and vicinity.

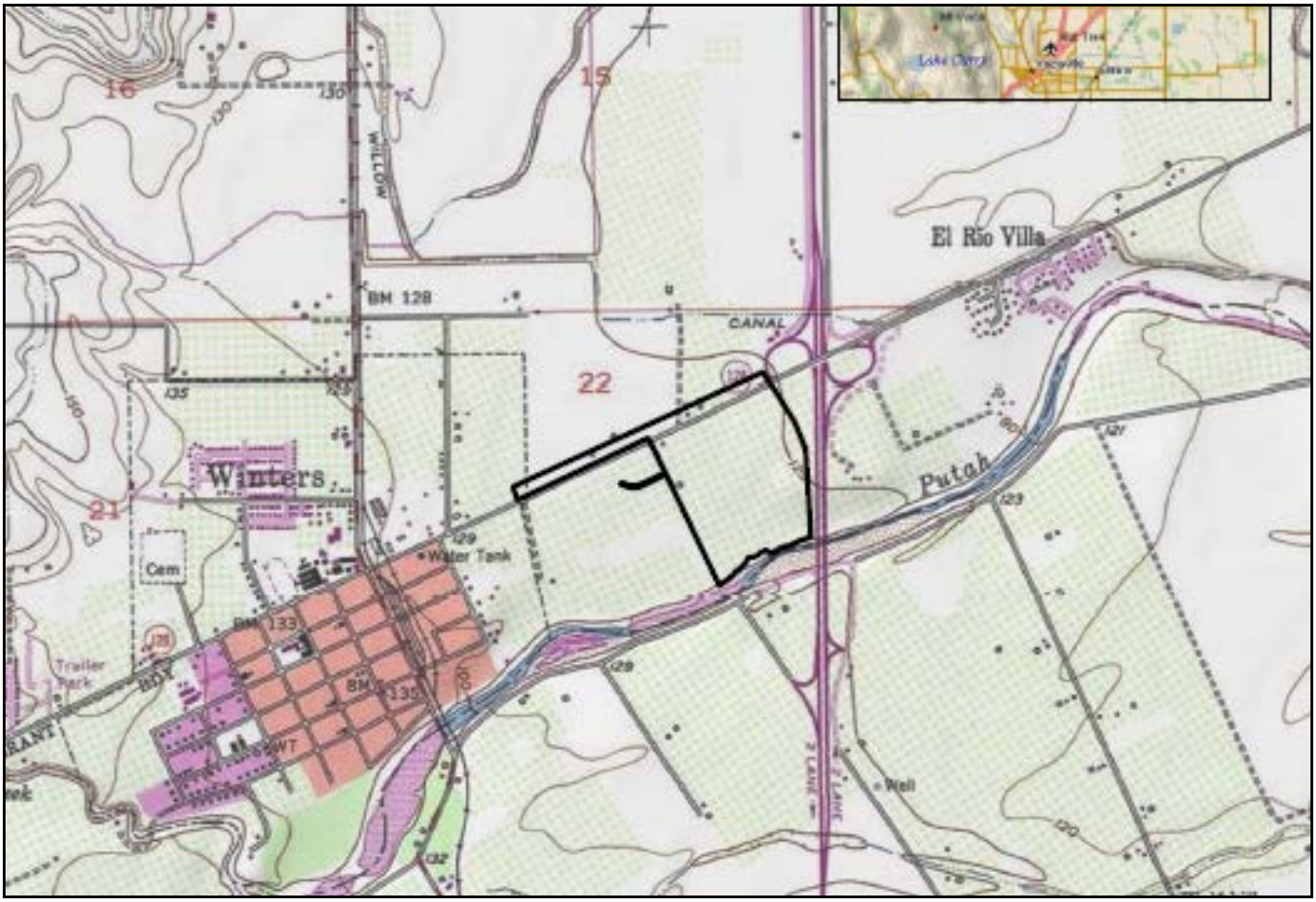


Figure 2. Updated Project Area Study Boundary.

Photograph 1 – Depicts roadside ditch at north border of project site on SR-128. Photo taken facing west.

Photograph 2 – Depicts roadside ditch paralleling I-505 on-ramp. Photo taken facing south.

Photograph 3 – Depicts Putah Creek riparian area on the south end of the project site. Photo taken facing west.