

PG&E Plainfield Substation Biological Resources Technical Report

Plainfield Substation Upgrade Project

15 December 2023

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Prepared for:

Pacific Gas & Electric Company

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Sacramento, CA 95833

Signature Page

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Acronyms and Abbreviations

CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
SC	California Species of Special Concern
CWA	Clean Water Act
ERM	Environmental Resources Management, Inc.
ESA	Endangered Species Act
FP	State Fully Protected
FR	Federal Register
FT	Federally Threatened
GIS	Geographic Information System
IPaC	Information for Planning and Consulting
NRCS	Natural Resources Conservation Service
PG&E	Pacific Gas and Electric Company
Report	Biological Resources Technical Report
Rule	Revised Definition of "Waters of the United States"
RWQCB	Regional Water Quality Control Board
ST	State Threatened
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WBWG	Western Bat Working Group
WOTUS	Waters of the United States

1. INTRODUCTION

1.1 Project Background

Pacific Gas and Electric Company (PG&E) is planning to upgrade and expand Plainfield Substation to address current low voltage concerns in the 60 kilovolt (kV) transmission system and help maintain electric transmission system reliability in unincorporated areas of Yolo County, the farming community of Plainfield, and the cities of Woodland and Davis (Figure 1; all figures are included in Appendix A). The existing 60 kV Plainfield Substation is located at approximately 38.619253, -121.794286 on a 0.9-acre parcel adjacent to County Road (CR) 27 in Yolo County, midway between the cities of Davis and Woodland and approximately 1.5 miles west of California State Route 113. The expansion area will occupy approximately 5.2 acres. Project construction is planned to commence in 2025.

1.2 Project Area

The project area totals approximately 6.57 acres and includes the existing and expanded substation site, temporary construction access between the expanded substation and an agricultural ditch to the west, the areas under existing driveways to the substation and at a new entry point where culverts will be replaced or installed, and temporary construction access and work areas on the north side of CR 27. A conservation easement is located just west of the project area, and Willow Slough is located approximately 0.6 mile south of the project area. Per California Public Utilities Commission requirement, this Biological Resources Technical Report (Report) includes a 1,000-foot buffer surrounding the project area, defined as the study area, which totals 123.44 acres (Figures 2a and 2b). Environmental Resources Management, Inc. (ERM) mapped aquatic resources immediately adjacent to the project area within an approximate 50-foot buffer¹ of the project area.

1.3 Report Purpose

This Report has been prepared to describe biological resources (land cover types, aquatic resources, and special status species) in the study and project areas that the project may affect. Potential impacts associated with the project will be assessed in the Proponent's Environmental Assessment, other environmental regulation compliance documents, and related permit applications.

ERM did not prepare a stand-alone Aquatic Resources Delineation of Waters of the United States (WOTUS) for the project; however, this Report describes adjacent aquatic features and their potential jurisdictional status.

¹ The 50' buffer is conservatively assumed to be the greatest area that aquatic resources in this area could be impacted by the project.

2. METHODS

2.1 Definitions

For the purposes of the California Environmental Quality Act (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 (ESA; 50 Code of Federal Regulations § 17.12 [listed plants], 17.11 [listed animals], and various notices in the Federal Register [FR; proposed species]);
- Species that are listed or proposed for listing under the California ESA (61 FR § 40, February 28, 1996);
- Species listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations § 670.5);
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
- Plants considered by the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (California Rare Plant Rank 1A, 1B, 2A, and 2B);
- Species designated by the California Department of Fish and Wildlife (CDFW) as Fully Protected or as a Species of Special Concern;
- Species protected under the Federal Bald and Golden Eagle Protection Act;

2.2 Database Queries

To identify all listed species and sensitive natural resources in the study area, ERM conducted a desktop review for the project area and a 1,000-foot buffer. The following sources were queried:

- The CDFW California Natural Diversity Database (CNDDDB) RareFind occurrence records within 1 mile and within 5 miles of the project area (Figure 3 and Figure 4; CDFW 2023a and CDFW 2023b);
- The United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) – an unofficial species list was generated from the Sacramento and San Francisco Bay Delta Fish and Wildlife Office using the project area boundaries as the search extent (USFWS 2023a);
- The California Native Plant Society Online Inventory of Rare and Endangered Vascular Plants of California for the nine quadrangles within and surrounding the project area (CNPS 2023); and

The CNPS database query was based on a search of the United States Geological Survey 7.5-minute quadrangle in which the project is located (Merritt) and the surrounding quadrangles (Woodland, Grays Bend, Davis, Saxon, Dixon, Allendale, Winters, and Madison), and the IPaC search based on the project area. Appendix B, Species Evaluated for Potential to Occur in the Study Area, includes a table with the database query results and the species’ potential to occur in the study area. Figure 3 shows spatial data for CNDDDB occurrences of special status plants, fish, and wildlife species within 5 miles of the project area, and Figure 4 shows a more focused view of the species occurrences within 1 mile of the project area.

2.3 Land Cover Types

Land cover type mapping within the study area (Figures 2a and 2b) was completed through use of a handheld Geographic Information System (GIS) Field Map application. Pedestrian surveys were

conducted in accessible areas within the project area (the substation yard was not accessible), in accessible locations outside of the project area, and within the study area boundary. For areas that were not accessible, land cover types were mapped from aerial imagery (Google Earth 2023) and ground truthed in the field from a vantage point. Survey points, lines, and polygons were mapped to illustrate the features present at the time of the site visit. Agricultural fields around the project area were not surveyed in close detail. Table 1 in Section 3.1 presents land cover types and acreages observed in the study and project areas.

2.4 Special Status Plants, Fish, and Wildlife

A preliminary desktop analysis was completed prior to the site visit to compile a list of all species with the potential to occur in the study area based on occurrences in the project vicinity (Appendix B). Once the survey was completed, the list was narrowed down and those species determined to have no potential to occur were removed from analysis. Table 3 in Section 3.3 indicates whether they occur or have the potential to occur within, or immediately adjacent to, the study or project areas based on reported observations and/or the availability of suitable habitat. Sections 3.2 and 3.3 include further discussion of individual species with the potential to occur in the study area.

2.4.1 Desktop Review

In advance of field survey assessments, a desktop review was completed using reference materials, maps, and Google Earth aerial imagery (Google Earth 2023). Agency database queries included those listed under Section 2.2. The background review included published literature to obtain further details concerning species occurrences in the region, habitat, range, and life history. These sources provided information on documented occurrences, regional distributions, and habitat associations of key plant and wildlife species. The pre-field desktop review was conducted to review key identifying characteristics, life history stages, and bloom time of the special status plant species with the potential to occur; to review reported locations of special status species within the project area or region; and to prepare and plan for field surveys. References used to inform the field surveys included:

- The Calflora digital library for information on distribution and ecology of select listed plant species (Calflora 2023);
- The FR for selected species, including listing status and critical habitat;
- The eBird online database of bird distribution and abundance for the general vicinity surrounding the study area (eBird n.d.);
- Recovery plans for selected species to determine the species' current and historical range; and
- The CDFW California Wildlife Habitat Relationships System (CDFW 2021).

2.4.2 Field Survey Assessment

ERM biologists Kimberley Corwin and Amanda Messmann conducted a site visit to the study area on March 22, 2023, to observe existing biological conditions, map sensitive resources, and assess the potential for special status species to occur in the study area. The availability of suitable habitat and the potential for wildlife species to occur were evaluated by comparing the proximity of verified species occurrences and the habitat characteristics in the study area. Although the biological field survey focused on resources within the study area, data was collected on potential nesting habitat and aquatic resources beyond the study area to inform potential jurisdiction of aquatic features within the project area and the potential presence of wildlife species that may forage in the project area. To identify and map biological

conditions, the project area was traversed on foot; sections of the study area that were inaccessible on foot were surveyed from a safe vantage point.

A wetland delineation was not conducted; however, the on-site aquatic features were evaluated for the presence of hydrophytic plants or observed wetland hydrology using methodology described in the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual and Arid West Region Supplement (USACE 1987; USACE 2008). No potential wetlands were observed, and thus no soil pits were dug. The center line of ditches and locations of culverts were mapped and the ordinary high-water mark was noted using methodology described in the *Interim Draft National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (David et al. 2002). The boundaries of aquatic resources were mapped in the field using aerial photographs of the study area and a Trimble R1 Global Positioning System receiver. All Global Positioning System data were corrected differentially to achieve a sub-meter horizontal accuracy. Data on ditch features were collected on ERM Waterbody Data Sheets (Appendix C). Appendix D provides representative photographs of the study area. Figure 5 provides the locations of aquatic resources in the study area and raptor nests observed in the immediate vicinity of the study area.

3. RESULTS

3.1 Land Cover Types

Figure 2 shows the land cover types mapped in the study area. Table 1 provides the land cover acreage in the study and project areas. The majority of the study area is agricultural land; the remaining land is developed/disturbed, ditches, and ruderal habitat. These landcover types are discussed further below. No sensitive vegetation communities were observed.

Table 1: Summary of Land Cover Types in the Project Area and Study Area

Land Cover Type	Acreage in the Project Area	Acreage in the Study Area
Agricultural	4.76	113.80
Developed ¹	1.68	7.67
Ruderal	0.10	1.39
Aquatic Resources (Agricultural and Roadside Ditches) ²	0.02	0.58
Total	6.56	123.44

Notes:

¹ Developed includes culverts.

² No agricultural ditches were mapped in the project area.

3.1.1 Agricultural

The majority of the land cover within the study area is classified as agricultural. No identifiable and active crops were present at the time of the site visit in March 2023 as the fields were plowed. ERM determined that the dominant crops in the area are row crops based on data gathered from prior site visits, aerial imagery, and Google street view. The agricultural field directly to the west of the project area is encumbered by a Yolo County Land Trust conservation easement (City of Woodland 2001; Yolo Land Trust 2023b), part of which is designated as a Swainson’s hawk mitigation easement (discussed under Section 3.2.2.8). As part of the easement, the crops are rotated and no orchard or rice fields can be planted.

3.1.2 Developed

The developed land cover type within the study area includes the existing substation site, and CR 27 as well as the dirt farm access roads that border the agricultural fields. The PG&E substation yard is graveled with a paved interior road. CR 27 runs along the north side of the substation parcel. The existing substation was constructed in 1960 and is located on approximately 0.9 acre of land.

3.1.3 Ruderal

Ruderal habitat was mapped along the roadsides and on slopes above the ditches, and in some patches within the ditches. This community is dominated by non-native species such as wild radish (*Raphanus sativus*), broad-leafed pepperweed (*Lepidium latifolium*), Italian ryegrass (*Festuca perennis*), milk thistle (*Silybum marianum*), curly dock (*Rumex crispus*), common mallow (*Malva neglecta*), cranesbill (*Geranium* spp.), cheeseweed (*Malva parviflora*), bromes (*Bromus* spp.), oats (*Avena* spp.), and devil's claw (*Ibicella lutea*) (Baldwin et. al 2012; Jepson 2014).

3.1.4 Aquatic Resources (Agricultural and Roadside Ditches)

Mapped Aquatic Features

A total of seven agricultural and roadside ditches and five concrete and corrugated metal culverts were mapped in the immediate vicinity of the project area (Figure 5a and Table 2). The entire extent of all features in the study area were not mapped in the field; field mapping was conducted only within approximately 50 feet of the project area. The project area includes only one ditch (Ditch 2a and 2b – separated by Culvert 1) and two culverts (Culverts 1 and 2). There are no National Wetland Inventory-mapped features in the study area (USFWS 2023b).

Table 2: Summary of Agricultural and Roadside Ditches in the Study Area and Project Area

Ditch Name (within Study Area)	Feature type	Project Area (square feet) ¹	Length in Project Area (ft)
Ditch 1 ²	Agricultural Ditch	0	0
Ditch 2a	Roadside Drainage Ditch	619	206
Ditch 2b	Roadside Drainage Ditch	192	64
Ditch 3 ²	Agricultural Ditch	0	0
Ditch 4	Agricultural Ditch	0	0
Ditch 5	Agricultural Ditch	0	0
Ditch 6	Roadside Drainage Ditch	0	0
Ditch 7	Agricultural Ditch	0	0
Total		811	270

Notes:

¹ Only Ditch 2a/2b is located within the project area.

² Ditch 3 flows under CR 27 through Culvert 4 and thereafter is called Ditch 1.

The March 2023 site visit was conducted during a precipitation event and after heavy winter rains. Precipitation records from the Woodland WNW National Weather Service weather station (approximately 0.5 mile north of the study area – the closest station to the study area) measured 9.42 inches in January, 1.90 inches in February, and a total of 6.38 inches in March with 5.41 inches measured before the site visit. The mean precipitation recorded for these months over the previous 23-year period was 4.13 inches, 3.26 inches, and 2.67 inches, respectively (NRCS 2023). Precipitation analysis conducted using weighted averages and thresholds (developed as the “NRCS Method” to determine whether conditions are normal, drier than normal, or wetter than normal during field inspections) show that rainfall conditions were wetter than normal when the field survey was conducted in March (NRCS 1997; Sprecher and Warne 2000).

Within the study area, irrigation and precipitation runoff is moved via agricultural and roadside ditches. During the March 2023 site visit, the depth of flood water flowing through the agricultural ditches ranged from 0.5 feet to 1.5 feet. The dominant vegetation observed in the ditches includes common mallow, Italian ryegrass, and wild radish. Seven mapped ditches are described below and illustrated in Figure 5a through c.

- **Ditch 1** is not within the project area. It is a 6-foot-wide north-south drainage feature just outside the western boundary of the project area. It conveys intermittent flow southward from the study

area into Willow Slough, approximately 0.6-mile from the project area. Willow Slough is a tributary to the Sacramento River.

- **Ditch 2** (mapped as 2a and 2b separated by Culvert 1) is within the project area. It is a 3-foot-wide roadside drainage feature along the south side of CR 27. This ditch conveys intermittent flow westward into Ditch 1 through two existing 18-inch culverts (Culverts 1 and 2) that allow vehicle access to the substation. Ditch 2 carries sheet flow from the road, agricultural runoff, and appears to convey waters from an unnamed intermittent stream 0.3 mile east of the project area (the National Wetland Inventory mapped freshwater forested/shrub wetland in Figure 5b).
- **Ditch 3** is not within the project area. It is also a north-south drainage feature on the north side of CR 27. It flows into Ditch 1 via a concrete culvert under CR 27.
- **Ditches 4, 5, and 7** are not within the project area. They are agricultural ditches on the north side of CR 27 that convey ephemeral flows into Ditch 3
- **Ditch 6** is not within the project area. It is a roadside drainage feature along the south side of CR 27. It conveys ephemeral flow eastward to Ditch 1.

Potential Jurisdiction and Exemptions

A wetland and waterbody delineation report was not prepared for the project; however, potential USACE jurisdictional status for the aquatic features within and adjacent to the project area was determined using the Environmental Protection Agency and USACE final conforming rule amending the “Revised Definition of ‘Waters of the United States’” (Rule), which was published in the Federal Register and became effective on 8 September 2023. This final rule conforms the definition of “waters of the United States” to the US Supreme Court’s 25 May 2023 decision in the case of Sackett v. Environmental Protection Agency.

Projects that require a USACE permit for dredge and fill activities or that fall under other federal jurisdiction and have the potential to impact waters of the state are required to comply with the terms of the Section 401 Water Quality Certification determination. Waters of the state are regulated by the RWQCBs under the State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State unless otherwise exempted.

The potential jurisdiction and exemptions from permitting are discussed below for each mapped feature.

- **Ditches 1 and 2:** Described above as an intermittent feature, Ditch 1 is the only aquatic feature in the study area that carries relatively permanent flow. Due to this, and its connectivity to Willow Slough (which flows into the Sacramento River), Ditch 1 is a jurisdictional feature regulated by the USACE as a non-wetland WOTUS. It is also regulated by the Regional Water Quality Control Board (RWQCB) (State Water Resources Control Board 2021) under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act of 1969, which defines waters of the state as “any surface water or groundwater, including saline waters, within the boundaries of the state.” Ditch 2 is an ephemeral feature upstream of Ditch 1, with the potential for backflow from Ditch 1 during a high flow event, and therefore also a jurisdictional feature. A Nationwide 57 permit and a 401 certification is the preferred permitting path for these features.
- **Ditches 3 – 7:** Described above as ephemeral features, these ditches are not USACE jurisdictional because they are stormwater features that do not carry a relatively permanent flow of water. However, ditches 3 – 7 are regulated by the RWQCB as waters of the state.
 - Because **ditches 3, 4, and 5** are used for agricultural purposes, they may be excluded at the discretion of the RWQCB as, “[Agricultural] Ditches that do not flow, either directly or through another water, into another water of the state.”

- This exclusion does not apply to **ditches 6 and 7** which are roadside ditches and not agricultural ditches.

3.2 Special Status Plants

A total of 26 special status plants were identified from the database queries as potentially occurring within a 5-mile buffer of the project area (Appendix B). The majority of plant species observed during the site visit are non-native ruderal herbs. There are no special status plant species with the potential to occur in the study area. Many of the special status plant species within 5 miles of the study area occur in alkali soils and vernal pools which were not observed within the study area (Natural Resources Conservation Service 2019). Therefore, all of the identified species are categorized as “none” for likelihood to occur within the study area.

3.3 Special Status Fish and Wildlife

A total of 45 special status fish and wildlife (invertebrate, amphibian, reptile, bird, and mammal) species were identified from the database queries as potentially occurring within a 5-mile buffer of the project area (Appendix B). Of this total, 28 species were eliminated from further consideration because no suitable habitat is present in the study area, or because the study area is outside of the species’ current range. A total of 12 species were considered to have low potential to occur and five were considered to have moderate potential to occur. Seven species with low potential to occur are not discussed further due to very low likelihood for presence and because the species would only be an incidental migrant through the area. The remaining 10 special status wildlife species with low or moderate potential to occur in the study area are summarized in Table 3 and discussed in detail below—including status, distribution, habitat requirements, and potential to occur in or near the project and study areas.

Table 3: Summary of Special Status Species with Potential to Occur in the Project or Study Area

Species	Habitat within Project or Study Area	Status	Potential to Occur?
Amphibians			
California tiger salamander <i>Ambystoma californiense</i> pop. 1	Uses ponds, lakes, or vernal pools in grasslands and oak woodlands for breeding; reliance on mammal burrows, rock crevices, or fallen logs for upland cover during dry season. There is one CNDDDB occurrence from 1993, 4 miles from the study area. Suitable breeding habitat is absent from the study area. Based on aerial imagery, there is one potentially suitable breeding pond 0.7 miles from the project area. Although there is potential suitable habitat for this species in the study area, there is no suitable aestivation or migration habitat in the project area.	ST/FT	Low
Reptiles			
Giant garter snake <i>Thamnophis gigas</i>	Found in marsh and swamp, riparian scrub, and wetland. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. Often found in irrigated rice fields. There is one CNDDDB occurrence 4.5 miles from the study area. Potential suitable habitat is present within Ditch 1. Adjacent agricultural fields do not support rice crops. Due to limited water and lack of suitable vegetative cover and burrows, presence is unlikely.	ST/FT	Low
Western Pond Turtle <i>Actinemys marmorata</i>	This species requires aquatic habitat, upland habitat, and exposed areas for basking. It is a habitat generalist, occurring in a wide variety of ephemeral to perennial water bodies including rivers, streams, ponds, lakes, reservoirs, marshes, and irrigation ditches. Within the aquatic	PFT	Low

Species	Habitat within Project or Study Area	Status	Potential to Occur?
	component of the habitat, preferred conditions include underwater shelter sites such as undercut banks, submerged vegetation, mud, rocks, and logs. Suitable aquatic habitat is present within Ditch 1, but this feature lacks underwater shelter sites that would qualify this habitat as high quality. No CNDDDB occurrences within 5 miles of the study area.		
Birds			
Loggerhead shrike <i>Lanius ludovicianus</i>	Grasslands, agricultural lands, shrublands or open woodlands with a fair amount of grass cover and areas of bare ground. Require tall shrubs or trees (also use fences or power lines) for hunting perches, territorial advertisement, and pair maintenance; open areas of short grasses, forbs, or bare ground for hunting; and large shrubs or trees for nest placement. No CNDDDB occurrences within 5 miles of the study area. There are 61 eBird records within 5 miles of the study area. Suitable nesting trees or shrubs are absent from the project and study areas; however, marginal suitable foraging in active and fallow fields is present within both the project and study areas.	CSC	Moderate
Mountain plover <i>Charadrius montanus</i>	Mountain plover inhabits semi-arid plains, grasslands, plateaus, grazed pasture, and areas with bare soil or very short grass. They also favour ploughed agricultural fields during winter. No CNDDDB occurrences within 5 miles of the study area. Several historic (from 1970s) eBird occurrences within the study area. Agricultural fields within the project and study areas provide potentially suitable winter habitat.	CSC	Moderate
Northern harrier <i>Circus hudsonius</i>	Frequents meadows, grasslands, open rangelands, desert sinks, emergent wetlands. Breeds on ground in shrubby vegetation, usually at marsh edges. One CNDDDB (2015) record within 5 miles of the study area. Project area supports suitable foraging habitat but does not support suitable nesting habitat. Not observed during surveys.	CSC	Moderate
Purple martin <i>Progne subis</i>	Towns, farms, semi-open country near water; in west, also mountain forest, and saguaro desert. Usually nests in colonies in natural sites (cavities, mostly old woodpecker holes, and trees). No CNDDDB occurrences or eBird records occur within 5 miles of the study area. No nesting habitat, but marginally suitable agricultural foraging habitat present within the project area.	CSC	Low
Swainson's hawk <i>Buteo swainsoni</i>	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields. There are over 100 CNDDDB known records of Swainson's hawk within 5 miles of the study area. Suitable nesting trees are absent from the project and study areas; however, suitable foraging is present in active and fallow fields within both the project and study areas.	ST	Moderate
Western burrowing owl <i>Athene cunicularia</i>	Typically prefer ruderal habitats, open grassland, prairies, agricultural fields, and field edges. This species relies on the presence of burrowing animals to utilize burrows as shelter and nesting space. There are eight CNDDDB occurrences between 3 to 5 miles from the study area. Minimal ground squirrel activity was noted at the time of the site visit and only marginal suitable habitat is present along field edges and within fallow fields. Minimal ground squirrel activity noted within the project area and no CNDDDB occurrences within 3 miles of the study area.	CSC	Low
White-tailed kite <i>Elanus leucurus</i>	Suitable foraging habitat in open grasslands, meadows, agricultural lands, and marshes. Prefers dense-topped trees, including Riparian trees and Eucalyptus, for nesting and perching. Suitable nesting habitat is present just outside of the study area along Willow Creek and edge habitats. There are two CNDDDB occurrences within 5 miles of the study area. Suitable agricultural foraging habitat is present in the project area.	FP	Moderate

Species	Habitat within Project or Study Area	Status	Potential to Occur?
Mammals			
Pallid bat <i>Antrozous pallidus</i>	Pallid bats are known to inhabit shrublands, grasslands, agricultural lands, woodlands; caves, mines, hollow trees, and buildings. There are two CNDDDB occurrences within 5 miles of the study area. Suitable roosting habitat is present in the study area, and agricultural land in the project area provides potentially suitable foraging habitat for this species.	CSC, WBWG- H	Low

Notes:

CSC = California Species of Special Concern; FP = State Fully Protected; FT = Federally Threatened; PFT = Proposed Federally Threatened; ST = State Threatened;

3.3.1 Fish

Aquatic features in the study area are ephemeral or intermittent and shallow (maximum of 1.5 feet depth), and do not supply adequate sustained habitat for fish species. Based on climatic conditions of the region and field survey observations, these ditches are likely dry during most of the year. As such, occurrence of any special status fish species within the study area is not expected.

3.3.2 Wildlife

3.3.2.1 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 packardii*) and conservancy fairy shrimp (*Branchinecta conservatio*), both federally listed endangered species, and vernal pool fairy shrimp (*Branchinecta lynchi*), a federally listed threatened species. These species occur within a range of specific environmental conditions unique to certain vernal pool communities that include soil type, vegetation characteristics, water depth, water temperature, inundation duration, and water quality (Eriksen and Belk 1999; United States Department of Agriculture 2023). 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 (USFWS 1994).

There are no vernal pools or other seasonal wetland habitats in the study area; therefore, there is no potential for these species to occur. The nearest reported occurrences are of vernal pool tadpole shrimp approximately 4 miles southwest of the study area (Figure 3).

3.3.2.2 Giant Garter Snake

The giant garter snake is a federally- and state-listed threatened species endemic to California's Central Valley. It is one of North America's largest native snakes, reaching up to 65 inches in length. This species originally inhabited natural wetlands, swamps, and riparian scrub through much of Central California's Sacramento and San Joaquin valleys (California Herps n.d.). Giant garter snakes prefer to inhabit stagnant or slow-moving water bodies with emergent vegetation; they use water to thermoregulate and deep and fast-moving water bodies are too cold, while emergent vegetation protects them from predators (USFWS 2017).

Due to its semi-aquatic nature, this species is rarely found more than a few meters from water during the active season. This reliance on water has prevented the giant garter snake from dispersing to new habitats effectively and is also responsible for fragmenting populations of the snake as the areas between habitats are often inhospitable for it. Because of this, giant garter snake typically found in areas that they

inhabited previously, even if those areas were destroyed or converted (Center for Biological Diversity n.d.; iNaturalist n.d.).

Habitat loss and fragmentation has caused giant garter snake to become extirpated from 98 percent of its former San Joaquin habitat. As a result, the species has adapted to inhabit drainage canals, irrigation ditches, and other artificial wetlands associated with rice agriculture (USFWS 2017). Giant garter snakes associated with rice agriculture use rice field canals during the spring and autumn and rice fields throughout the active season as they provide good habitat for the snakes with plentiful food, water, and cover. Despite their dependence on water, giant garter snakes spend most of their time on land during the active season and all of their time in brumation on land during the winter. They spend most of their time on land underground. When not underground, they seek litter or vegetation (particularly tules) to use as cover from predators and environmental extremes and they avoid rocky or otherwise open areas. Their diet is primarily aquatic fish, frogs, and tadpoles. Historical prey has been extirpated in much of this snake's range, leaving it to consume introduced fish and bullfrogs (California Herps n.d.; Center for Biological Diversity n.d.).

There are four CNDDDB records within 5 miles of the study area (Figure 3). No suitable breeding habitat for the giant garter snake was observed during the site visit. There is not adequate sustained water present to provide suitable aquatic habitat for this species. Since giant garter snake is typically found in aquatic habitat, it is not expected to occur within the project area. Additionally, the project area does not provide suitable vegetative cover nor burrows to support this species.

3.3.2.3 *Western Pond Turtle*

Western pond turtle was proposed to be federally listed in October 2023 due to several threats including habitat loss and fragmentation, altered hydrology, predation, competition, road impacts, and collection (Federal Register 2023). In California, western pond turtle occurs from San Joaquin Valley north to the Coastal and Cascade Ranges of Oregon and Washington State; an outlying population occurs in Nevada.

Western pond turtles are semi-aquatic, requiring both aquatic habitat and upland habitat. Aquatic habitat is used for breeding, feeding, overwintering, and sheltering. A broad range of ephemeral to perennial aquatic features meet this requirement, including streams, rivers, lakes, reservoirs, farm ponds, wetlands, and ditches. Preferred aquatic conditions provide structure such as submerged vegetation, undercut banks, fallen logs, rocks, and mud. Upland habitat is used for nesting and overwintering. It is typically characterized by sparse vegetation with little or no canopy to allow for basking (exposure to sunlight). Although western pond turtles are considered a habitat generalist, suitable aquatic habitat are relatively scarce across the landscape and lack connectivity.

There are no CNDDDB occurrences of western pond turtle within 5 miles of the study area (Figure 3). No turtles were observed during the site visit. The study area may provide suitable upland habitat for western pond turtle, but access to the area would be via an aquatic feature. Ditch 1 may provide suitable aquatic habitat, but this feature lacks submerged structures such as undercut banks and logs, making the ditch low-quality habitat. Thus, potential for this species to occur within the study area is low.

3.3.2.4 *California Tiger Salamander*

The California tiger salamander, a federally and state-listed threatened species, inhabits grasslands and open oak woodlands in central and northern California. The species is estimated to have disappeared from more than 50 percent of its historic range due to habitat loss from agriculture and urbanization and the introduction of non-native aquatic predators (CDFG 2010). The range of California tiger salamanders is currently restricted to the Central Valley and the South Coast Range of California from Butte County and south to Santa Barbara County.

California tiger salamanders breed in temporarily ponded environments surrounded by uplands that support small mammal burrows. Vernal pools or seasonal human-made ponds provide ideal breeding habitat. Water must remain for at least 12 weeks or long enough for the aquatic larvae to complete development. Although breeding usually occurs in fish-free ephemeral ponds that form during the winter and dry out in summer, some salamanders may also breed in slow streams and in some semi-permanent to permanent waters including cattle ponds (provided that aquatic vertebrate predators are not present), probably due to the loss of ephemeral ponds in their habitat. Apart from breeding and larval development, California tiger salamanders spend the majority of their lives in subterranean refuges. These sites are typically referred to as aestivation locations, although it appears that California tiger salamanders remain active for much of the time they are underground (USFWS 2005). Small mammal burrows, especially those made by ground squirrels (*Otospermophilus* spp.), and soil crevices in upland grassy habitat provide refugia sites for juvenile and adult salamanders. After winter rains have begun to fill breeding sites with water, the salamanders emerge from their refugia and migrate to breeding pools. Females deposit eggs singly or in small groups in the water, attaching them to submerged vegetation or debris. Larvae usually complete metamorphosis after 3 to 6 months. Larvae typically metamorphose and leave their natal ponds as the water dries up during the summer months. When breeding occurs in perennial ponds, larvae may over-summer in the water (Shaffer et al. 1993). After metamorphosis, juveniles spend a few days at the pond margin before migrating to underground refugia. Overland migration has been documented to extend up to 1.24 miles (USFWS 2005), but most California tiger salamanders remain within 0.5 mile of their breeding ponds (Shaffer et al. 1993). A dispersal distance of 0.7 mile between breeding ponds is thought to account for 99 percent of the inter-pond movement of breeding adults (USFWS 2005).

There is one CNDDDB record 4 miles south of the study area (Figure 3). Individuals breeding in nearby ponds may travel through or to suitable upland dispersal and refugia habitat within the study area. Intermittent and ephemeral drainages throughout the biological study area serve as aquatic migration corridors and foraging habitat. No suitable breeding habitat for California tiger salamanders was observed during the site visit. The closest potentially suitable breeding pond (based on review of aerial imagery) is located 0.65 mile to the northwest of the study area. However, roads and properties present dispersal barriers. The project will not directly affect potential breeding habitat, and will not likely have impact on upland dispersal, foraging, and aestivation habitat.

3.3.2.5 Loggerhead Shrike

Loggerhead shrike inhabits grasslands, agricultural lands, shrublands, or open woodlands with a fair amount of grass cover and areas of bare ground. They require tall shrubs or trees (also use fences or power lines) for hunting perches, territorial advertisement, and pair maintenance; open areas of short grasses, forbs, or bare ground for hunting; and large shrubs or trees for nest placement. Loggerhead shrikes hunt by scanning the ground from elevated perches, then diving onto prey (CDFG 2008a). They also hover-hunt. Loggerhead shrikes sometimes hunt from the ground, flashing their wing patches in a manner similar to the Northern Mockingbird, to startle prey out of hiding. To immobilize large prey items, the loggerhead shrike impales them on sharp objects such as thorns and barbed wire or tucks them into forks between branches (CDFG 2008a).

While there are no known CNDDDB records within 5 miles of the study area (Figure 3), there are 61 eBird records and suitable foraging is present in active and fallow fields within both the project and study areas. No nesting habitat is present.

3.3.2.6 Mountain Plover

Mountain plovers nest in shortgrass prairie, especially where blue grama, buffalo grass, and western wheat grass are dominant; and in grassy semidesert with scattered saltbush, sage, prickly pear, and

yucca at elevations ranging from 2,100 to 10,663 feet (Audubon 2023b; Cornell 2023). They also nest in fallow or recently plowed agricultural fields and in overgrazed landscapes that mimic their natural shortgrass habitat. Mountain plovers often nest around prairie-dog towns. During migration they may appear in almost any shortgrass habitat, including sod farms, playas, or tilled fields. Wintering birds also gather in tilled or burned farm fields, harvested alfalfa fields, alkaline flats, and coastal prairies in South Texas (Cornell 2023).

Mountain plovers arrive on breeding grounds in early spring, usually in April. Males claim territories and display to prospective partners almost as soon as they arrive. The males prepare potential nests, making scrapes with feet and breast. While showing these sites to a female, the male bows, fans the tail, lowers the head, and gives a low, mooring call (Cornell 2023). Females often visit territories of multiple males before selecting a partner (and sometimes mate with multiple partners). Male and female remain together during the nesting season. However, in this species, the pair uses two nests as a rule: the female splits her clutch (usually six eggs) between a nest at which she incubates and a nest where the male incubates. These nests can be far apart, though often within sight of each other (Cornell 2023). Fewer than half of females return to the same territory (or male) in subsequent years. After the young have fledged, they begin departing the breeding areas with their parents in July. Most arrive on their wintering grounds in early November, and not much is known about their movements in the intervening months (Audubon 2023b). There is one CNDDDB record within 5 miles of the study area (Figure 3) and there are historic eBird occurrences within the study area (eBird n.d.). Agricultural fields within the project and study areas provide potentially suitable wintering foraging habitat. No nesting habitat is present.

3.3.2.7 Northern Harrier

Northern harrier is a wide-ranging bird that occurs throughout California where it frequents open areas including meadows, grasslands, desert sinks, emergent wetlands, and range lands. Northern harriers nest on the ground in shrubby vegetation and typically at the edge of emergent wetlands or marshes. There is one CNDDDB nest record within 5 miles of the study area (Figure 3). Although northern harriers were not observed during surveys, this species could possibly occur in the project and study areas in agricultural lands that provide suitable foraging habitat. The project area and adjacent lands do not support emergent wetlands and shrubby vegetation suitable for nesting northern harriers. No nesting habitat is present.

3.3.2.8 Purple Martin

The purple martin is known to inhabit a variety of environments, including towns, farms, and semi-open country near water. In the west, purple martin also inhabit mountain forest and saguaro desert. This species forages almost entirely in the air, though occasionally may forage over very low water (Audubon 2023c). They occasionally walk on the ground to pick up insects, perhaps mostly in harsh weather. Males return to nesting areas first in spring and establish nesting territories. They usually nest in colonies, typically in multiple-roomed nest boxes (CDFG 2008b). Western purple martins may also nest in more loose colonies or as isolated pairs. Males will sometimes have more than one mate. Species nests may be found in natural sites such as cavities, mostly old woodpecker holes, in trees, or in giant cactus in the southwest. Purple martins sometimes nest in holes in buildings or cliffs. Their nests (built by both sexes) are comprised of leaves, grass, twigs, debris, and usually mud. Nests may have a raised dirt rim in front to help keep eggs from rolling out (Audubon 2023c).

While there are no known CNDDDB occurrences or eBird records recorded within 5 miles of the study area (Figure 3), suitable agricultural foraging habitat is present within the project and study areas. No suitable nesting habitat is present in either the project or study areas.

3.3.2.9 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, populations are now restricted mainly to the Central Valley and Great Basin portions of the state as a result of habitat loss and conversion to agriculture.

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, and some row and grain crops), but also use irrigated pastures and annual grasslands (Estep 1989; 2008). 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, as defined by CDFW (Bloom 1980; Anderson et al. 2007). 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.

There are 101 CNDDDB occurrences of Swainson's hawk within 5 miles of the project area (Figure 3) and eight known Swainson's hawk nest sites reported within 1 mile of the study area (Figure 4). The nearest recently reported nest is approximately 0.3 mile east of the project area in 2004, and an observation approximately 0.4 mile northwest of the project area in 2009 (Figure 4). The parcel to the west of the project area is a Yolo County Land Trust and City of Woodland-managed Swainson's Hawk Conservation Easement; this land has been preserved as permanent conservation of Swainson's hawk foraging habitat that can never be planted in orchards, vineyards, cotton, or rice, thereby preserving the ground for foraging by Swainson's hawks and other raptors. There are no suitable trees for nesting within the project or study areas or within 0.25 mile of the project area. Two stick nests and a pair of red-tailed hawks were observed during the March 2023 field studies in the eucalyptus grove 300 feet east of the study area boundary (Figure 5). Trees along Willow Creek to the south may also provide suitable nesting habitat, as well as rural residential/farmyard trees just outside of the study area. The active and idle agricultural fields within the study provide suitable Swainson's hawk foraging habitat.

3.3.2.10 Western Burrowing Owl

The western burrowing owl 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 are occasionally found in open pipes and small culverts. They forage for small rodents and insects in grassland and agricultural habitats with low vegetative height. The nearest recently reported occurrence is approximately 3.5 miles southwest of the study area (Figure 3). Although no suitable burrows were observed in the project area, berms along the agricultural fields within the study area provide potentially suitable nesting habitat.

3.3.2.11 *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; it is smaller than most hawks with a wingspan of just over 3 feet, is white underneath and light gray above, has black shoulder patches, and a 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 to be primarily found in 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, their 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, and there are no suitable nesting trees within the study area. Trees in properties adjacent to the study area may support suitable nesting habitat for kites. However, although the species is resident in Yolo County and occurs throughout the valley floor and foothill grasslands, it is a relatively uncommon nesting species. The most recent records of white-tailed kite nests within 5 miles of the study area are from 1993, approximately 3.5 miles southeast of the study area, and 1999, approximately 4.6 miles southwest of the study area (Figure 3). Within the study areas agricultural fields provide suitable foraging habitat. No nesting habitat is present.

3.3.2.12 *Pallid Bat*

The pallid bat is a locally common species of low elevations in California. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County (WBWG 2023a). A wide variety of habitats are occupied, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests (WBWG 2023a). The species is most common in open, dry habitats with rocky areas for roosting and is a yearlong resident in most of the range. This species day roosts in caves, crevices, mines, and occasionally in hollow trees and buildings. Roosts must protect bats from high temperatures; bats move deeper into cover if temperatures rise. Night roosts may be more open sites, such as porches and open buildings. Few hibernation sites are known, but pallid bats probably use rock crevices for hibernation (CDFW 1990). Possible foraging habitat is present within both the project and study areas. The bats forage over open shrub-steppe grasslands, oak savannah grasslands, open Ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. They may echolocate while flying, but generally use passive acoustic cues to locate prey. 'Perch feeding' has also been observed in some individuals from different populations. Diet composition and foraging style vary within and between populations. There are two CNDDDB records within 5 miles of the study area (Figure 3). Agricultural fields within the study area provide potentially suitable foraging habitat. No suitable roosting habitat is present.

3.3.2.13 Other Migratory Birds

In addition to the species listed previously, other listed or non-listed migratory bird species or raptors could establish nests in suitable habitat near the project area, primarily in trees, shrubs, poles, towers, grasslands, buildings, or other nesting structures. 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 western scrub jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), European starling (*Sturnus vulgaris*), northern mockingbird (*Mimus polyglottos*), red-winged blackbird (*Agelaius phoeniceus*), great blue heron (*Ardea herodias*), killdeer (*Charadrius vociferus*), and common raven (*Corvus corax*).

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.

3.4 Designated Critical Habitat

The database review included a search for USFWS and NMFS designated critical habitat in the vicinity of the study area. There is no USFWS or NMFS designated critical habitat within 5 miles of the study area (Figure 3).

3.5 Biological Resource Management Areas

As discussed in Sections 3.1.1 and 3.2.3.8 the parcel immediately to the west of the project area is a 45-acre conservation easement held by the Yolo County Land Trust and the City of Woodland for Swainson's hawk mitigation. This easement is one of 21 Davis-Woodland corridor Yolo Land Trust Easements on soil designated as prime farmland. The land west of the easement, within the same parcel, has most recently been used as a seed research and development facility, and much of the parcel will be converted into a centralized facility for the distribution of fertilizer and agricultural products (State of California 2023; Yolo County 2009; Yolo Land Trust 2023a). This conservation easement maintains the area in cultivation and serves as mitigation and compensation for impacts to Swainson's hawk habitat from the City of Woodland's Spring Lake Development, and is to remain permanently protected from future development via enforceable deed restrictions (City of Woodland 2001). The easement has been set aside to meet the habitat needs of Swainson's hawk and other wildlife that may use the area for foraging and is managed via an agreement between the City of Woodland and CDFW.

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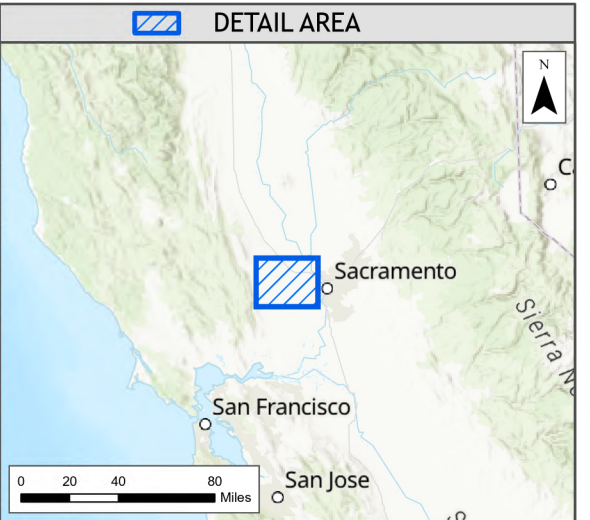
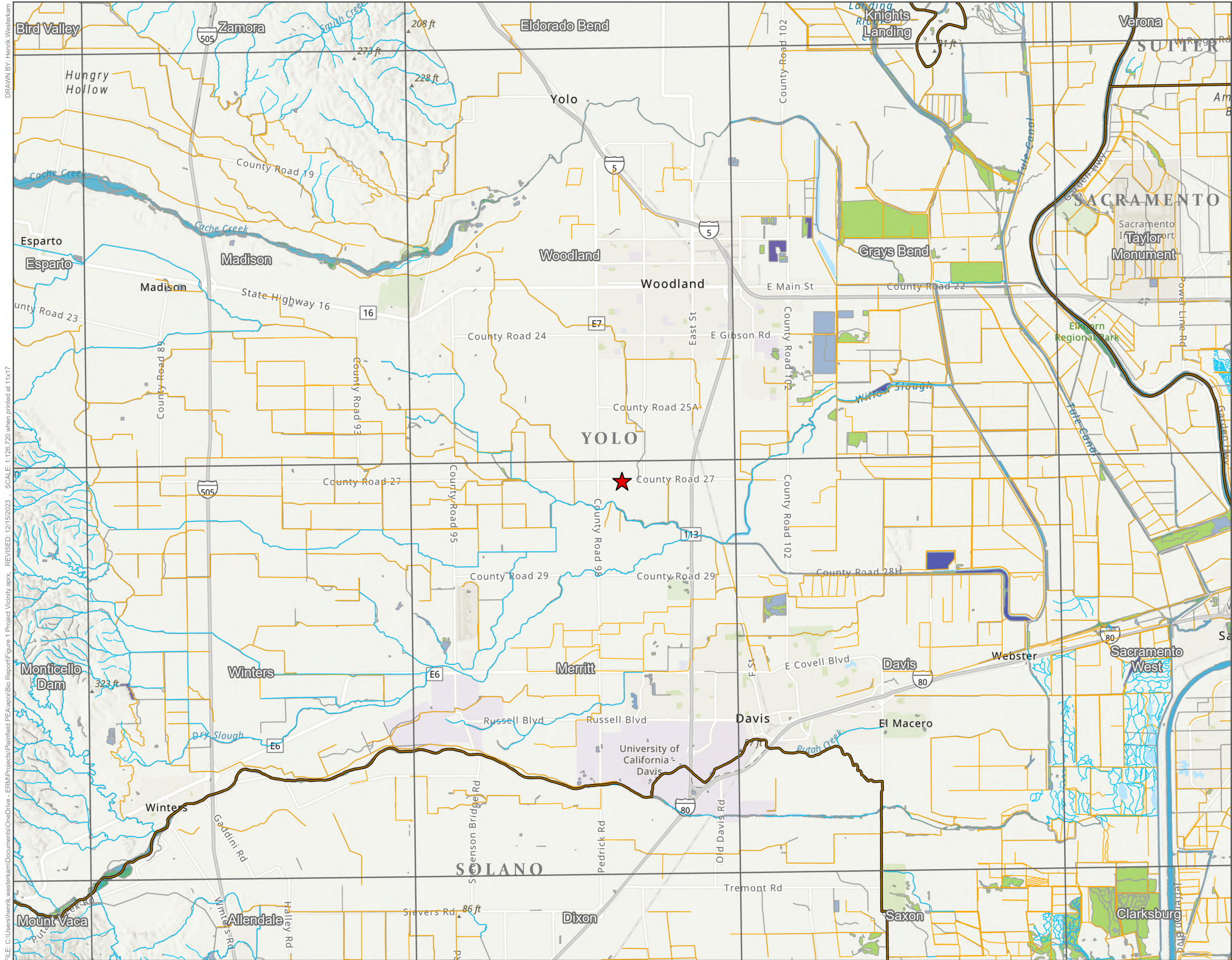
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APPENDIX A FIGURES

Figure 3 (Special Status Species within 5 Miles of the Project Area) and Figure 4 (Special Status Species within 1 Mile of the Project Area) are removed from this report as CNDDDB data is confidential; the figures will be submitted to the CPUC under separate cover.



- ★ Project Location
- USGS 7.5-Minute Quadrangle
- ▭ County Boundaries
- NHD Streams**
- Canal/Ditch
- Stream/River
- NWI Wetlands**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

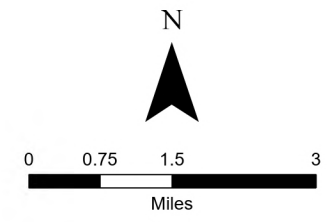
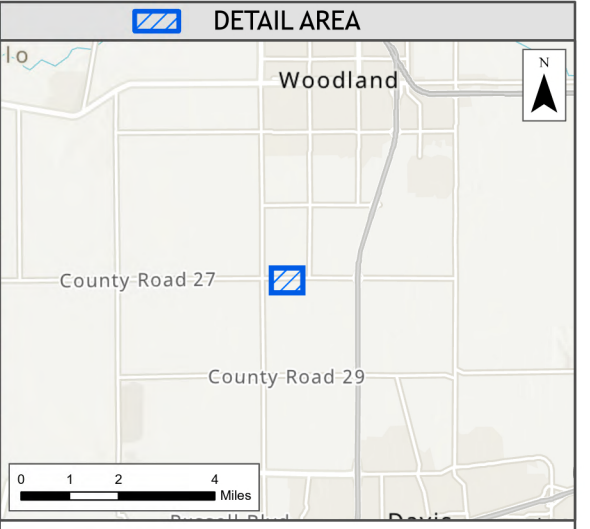
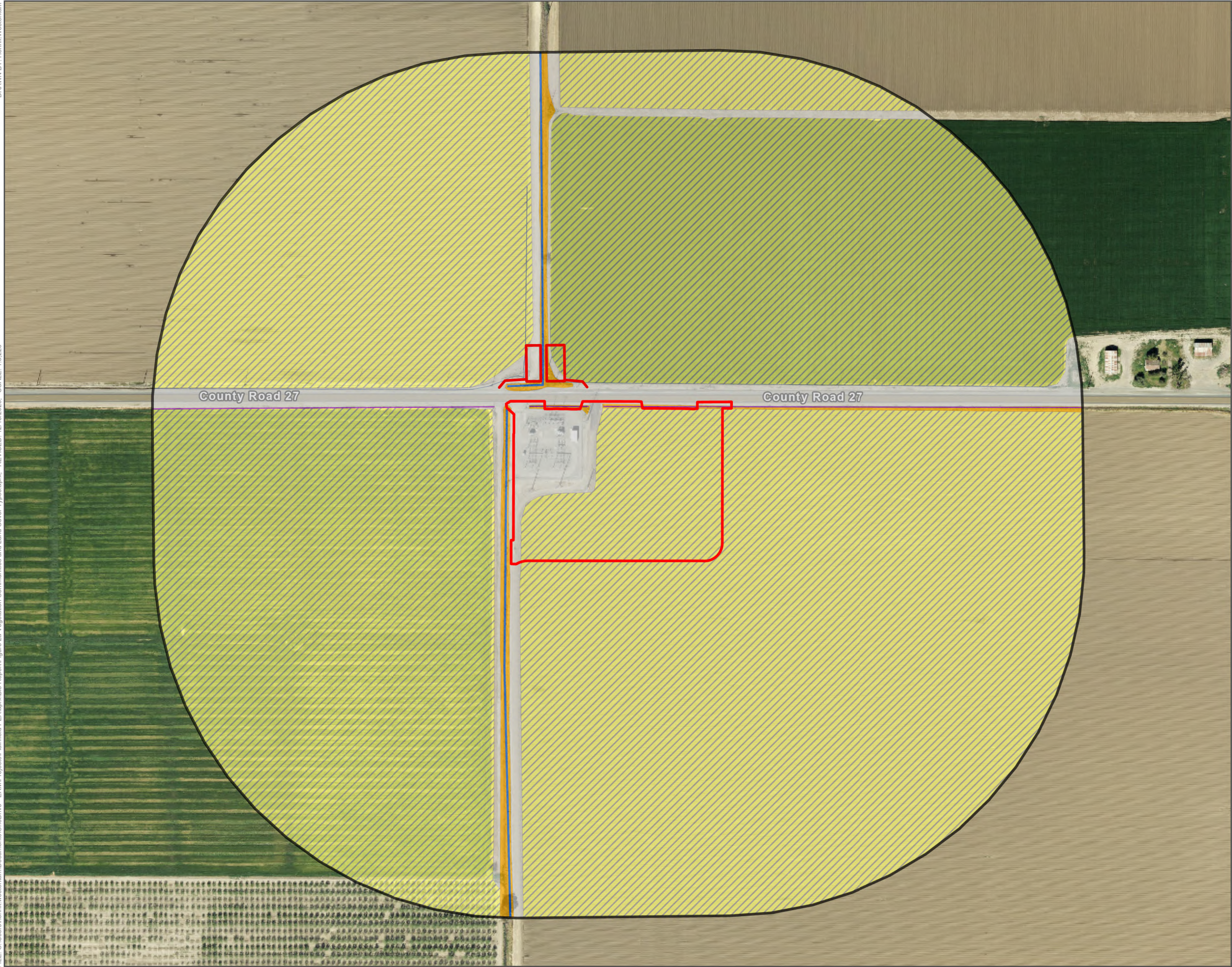


Figure 1 Project Vicinity

PG&E Plainfield Substation Upgrade Project

DRAWN BY: Henrik Westerkam
FILE: C:\Users\henrik.westerkam\Documents\OneDrive - ERM\Projects\Plainfield PEA\pdx\BIO Report\Figure 1 Project Vicinity.aprx, REVISION: 12/15/2023, SCALE: 1:126,720 when printed at 11x17



- Study Area
- Project Area
- Landcover Types**
- Agricultural land
- Agricultural ditch
- Disturbed
- Roadside ditch
- Ruderal

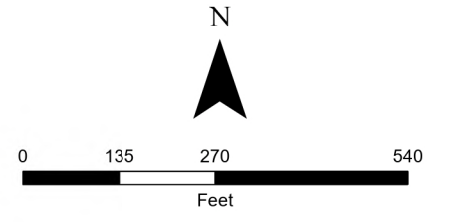
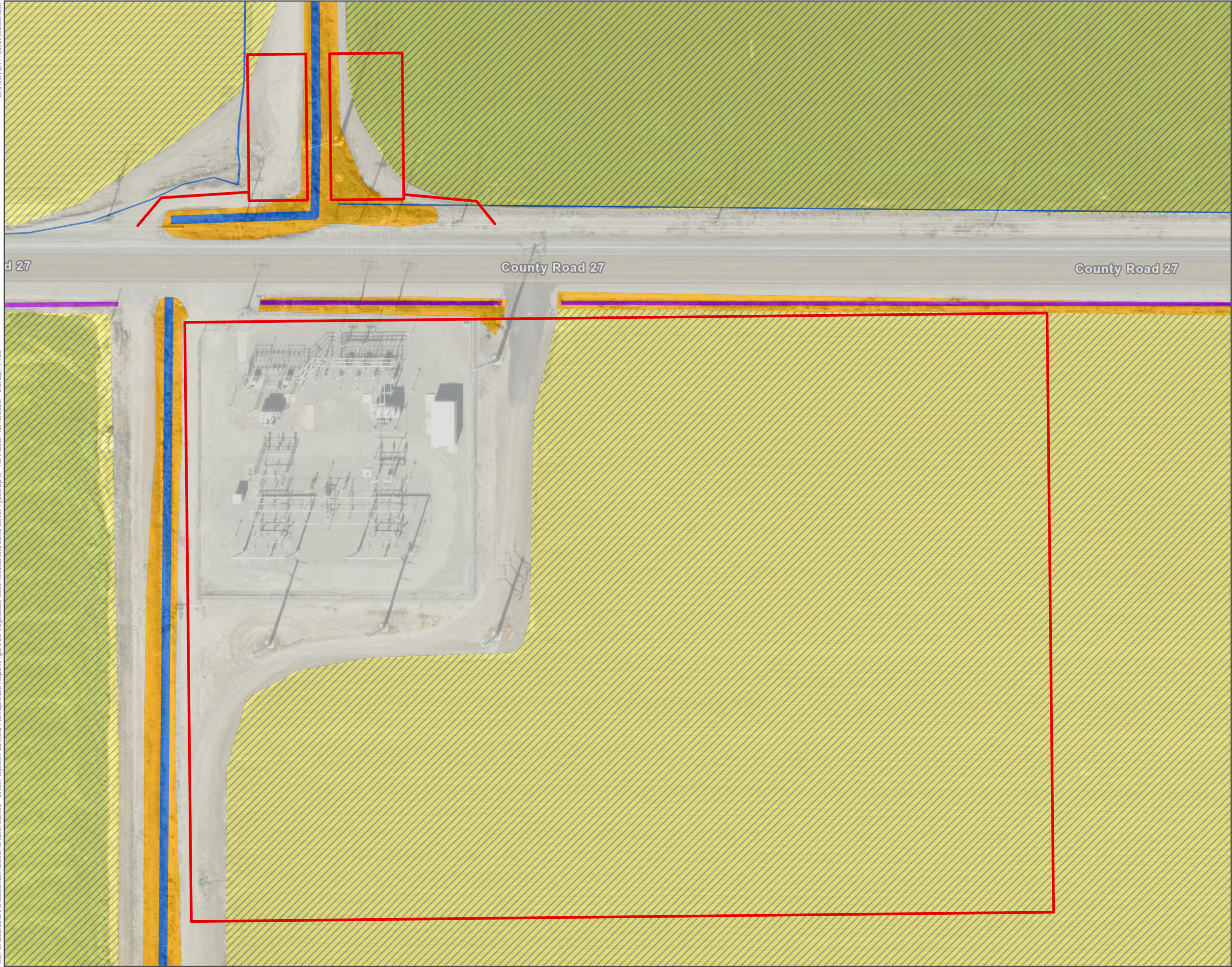
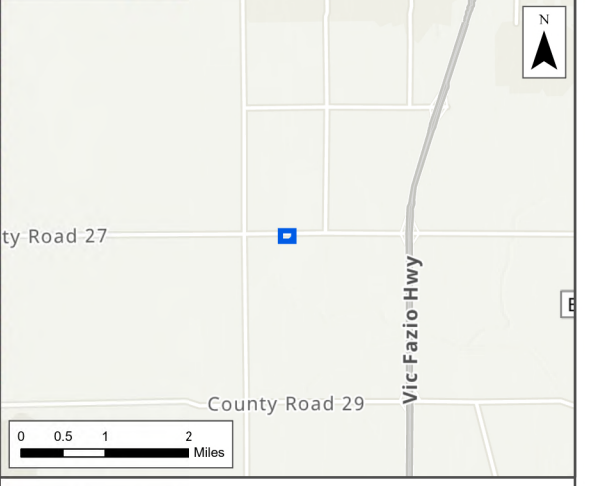


Figure 2a Study Area

PG&E Plainfield Substation Upgrade Project



DETAIL AREA



- Study Area
- Project Area
- Landcover Types**
- Agricultural land
- Agricultural ditch
- Disturbed
- Roadside ditch
- Ruderal

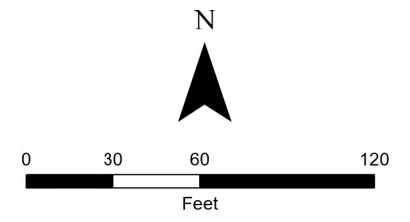
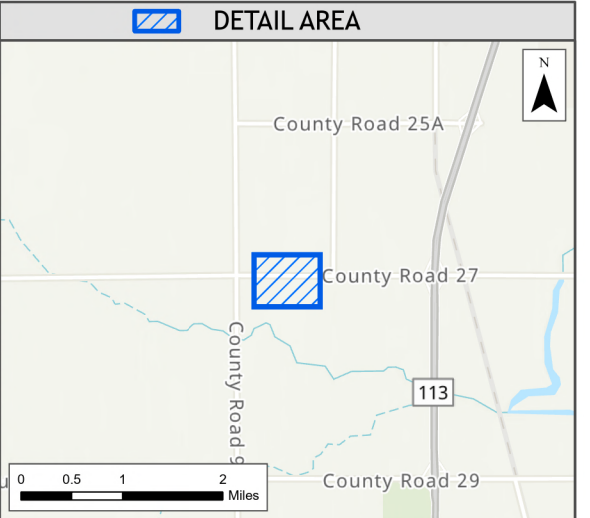
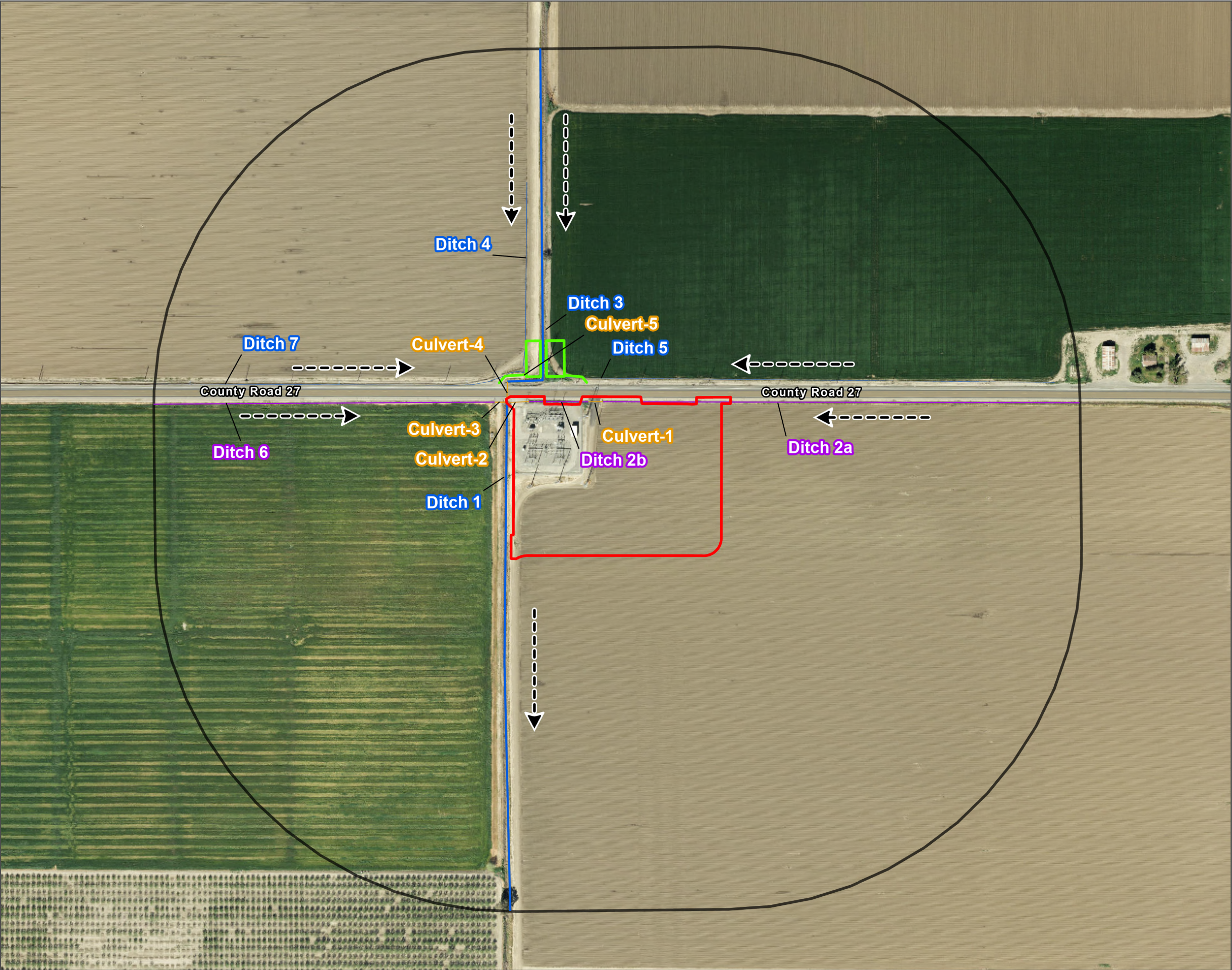


Figure 2b Study Area

PG&E Plainfield Substation Upgrade Project



- Project Area**
- Temporary Impacts
 - Permanent Impacts
 - Study Area
 - Flow Direction
- Field Verified Biological Resources (3/22/23)**
- Agricultural Ditch
 - Roadside Ditch
 - Culvert

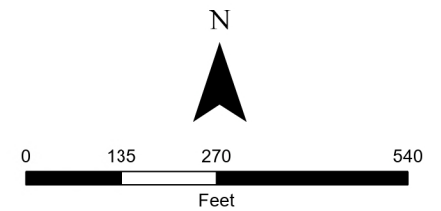
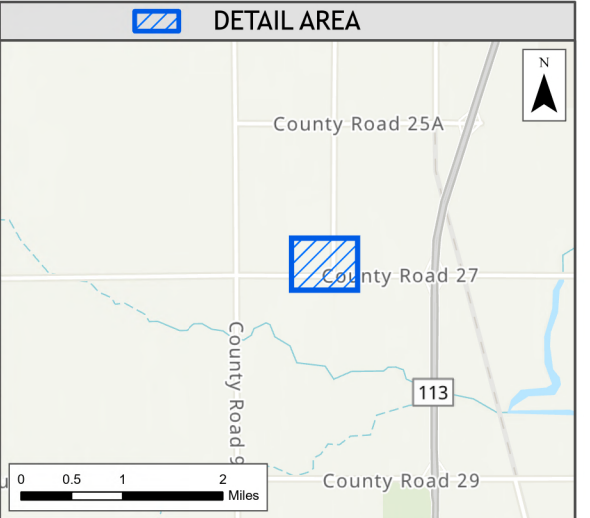


Figure 5a Biological Resources
 PG&E Plainfield Substation Upgrade Project



- Project Area**
- Temporary Impacts
 - Permanent Impacts
 - Study Area
 - Flow Direction
- Field Verified Biological Resources (3/22/23)**
- Agricultural Ditch
 - Roadside Ditch
 - Stick Nests
- NWI Wetlands**
- Freshwater Forested/Shrub Wetland
 - Riverine

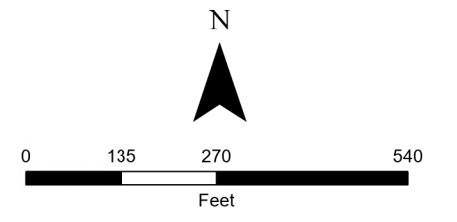
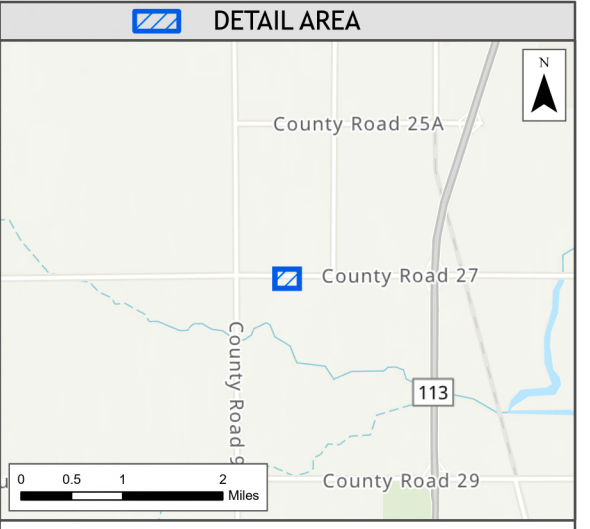
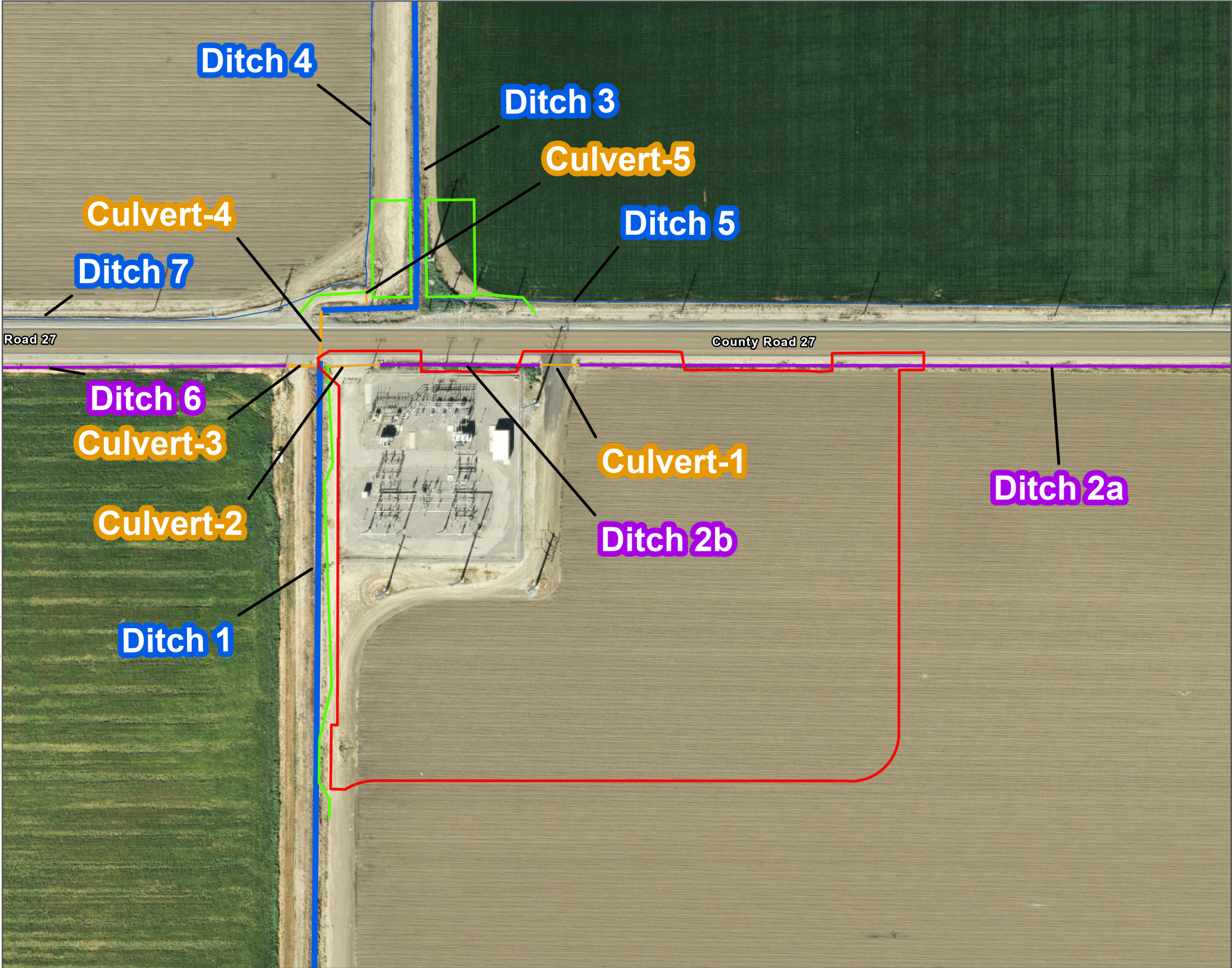


Figure 5b Biological Resources
 PG&E Plainfield Substation Upgrade Project



- Project Area**
- ▭ Temporary Impacts
 - ▭ Permanent Impacts
- Field Verified Biological Resources (3/22/23)**
- ▬ Agricultural Ditch
 - ▬ Culvert
 - ▬ Roadside Ditch

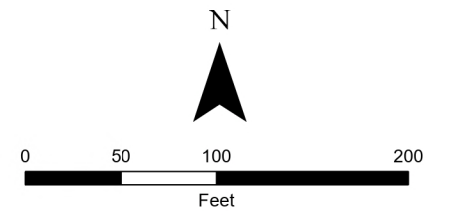
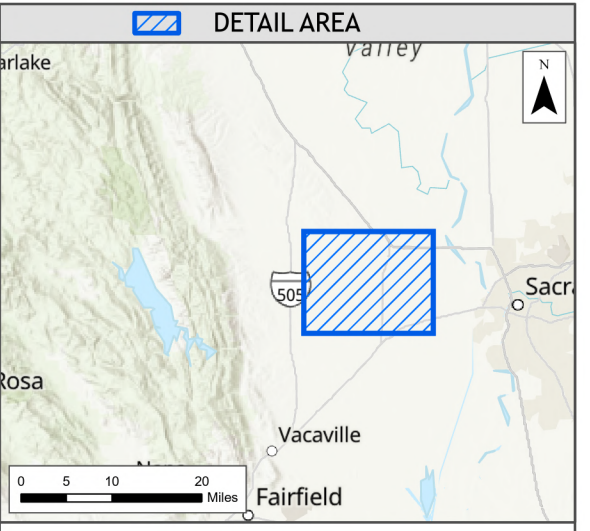
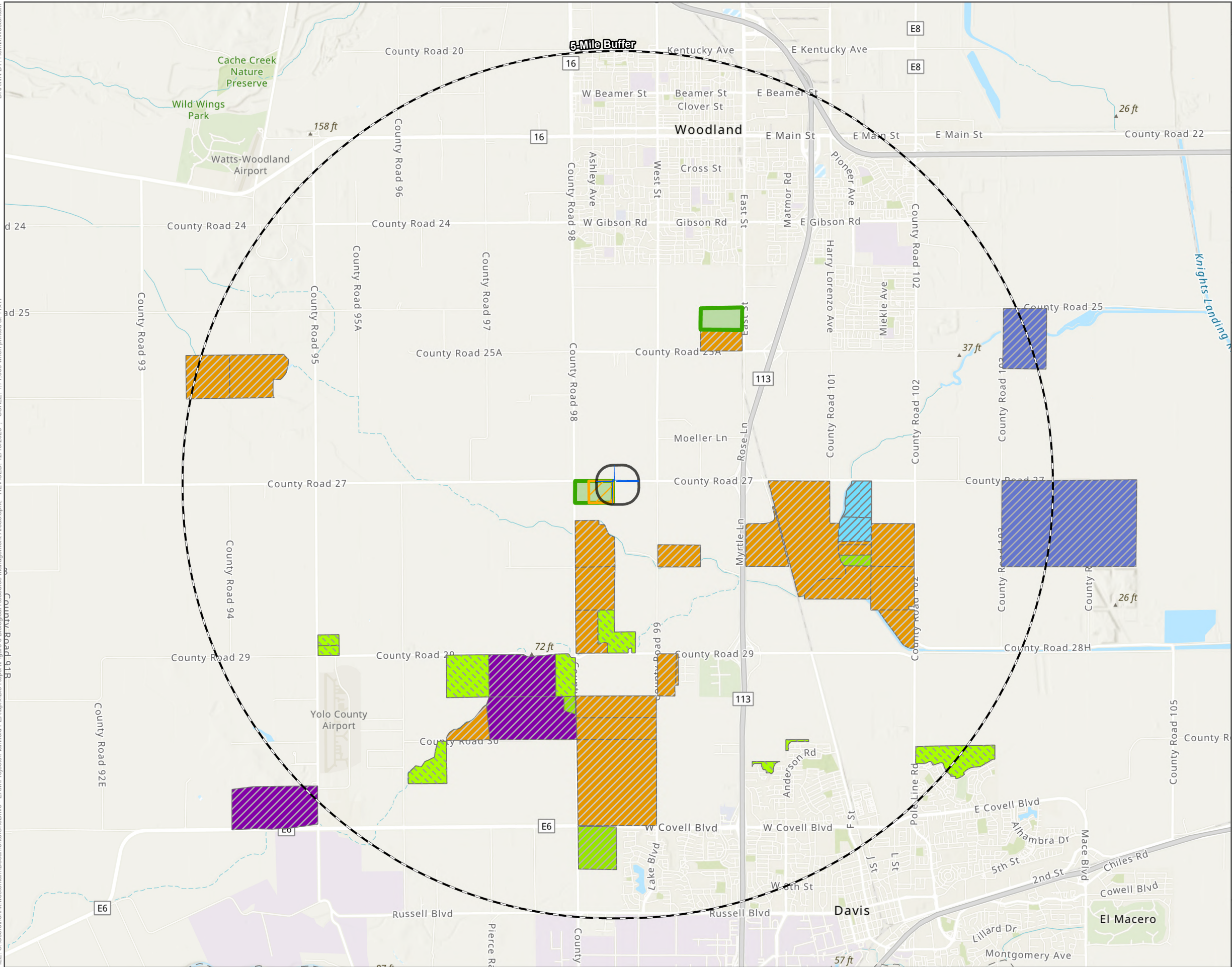


Figure 5c Biological Resources
 PG&E Plainfield Substation Upgrade Project

DRAWN BY: Henrik Westerkam
FILE: C:\Users\henrik.westerkam\Documents\OnoDrive - ERM\Projects\Plainfield PEA\p\BIO\Report\Figure 6 Biological Resource Management Areas.aprx, REVISED: 12/15/2023, SCALE: 1:71,069 when printed at 11x17



- Yolo County HCP Boundary
 - 5-Mile Buffer
 - Study Area
 - Additional Yolo Land Trust Conservation Easements
 - Swainson's Hawk Conservation Easement
- Easement Holder**
- California Department of Fish and Wildlife
 - City of Davis and Yolo Land Trust
 - City of Woodland and Yolo Land Trust
 - City of Davis
 - U.S. Natural Resources Conservation Service
 - Yolo Land Trust

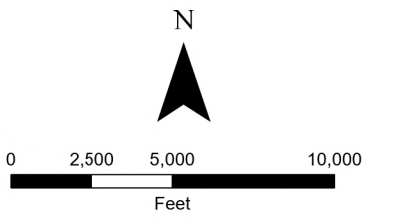


Figure 6 Biological Resource Management Areas

PG&E Plainfield Substation Upgrade Project

**APPENDIX B SPECIES EVALUATED FOR POTENTIAL TO OCCUR IN THE
STUDY AREA**

Appendix B. Special-Status Species Evaluated for Potential to Occur in the Study Area

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Wildlife				
Invertebrates				
Crotch bumble bee <i>Bombus crotchii</i>	SE/-	Open grasslands, shrublands, chaparral, desert margins including Joshua tree and creosote scrub, and semi-urban settings.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	-/FE	Vernal pools and other seasonal wetlands.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Monarch butterfly - Ca overwintering population <i>Danaus plexippus</i> pop. 1	SC/FC	During winter, roosts in wind-protected tree groves (such as eucalyptus, Monterey pine, cypress), with nectar (milkweed species) and water sources nearby.	No CNDDDB occurrences within 5 miles of the study area. No suitable habitat is present within the project or study areas. Winter roosts may be present in nearby eucalyptus trees; however preferred nectar source is not abundant in project vicinity.	None
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	-/FT	Elderberry shrubs.	There is one CNDDDB occurrence within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	-/FT	Vernal pools and other seasonal wetlands.	No CNDDDB occurrences within 5 miles of the study area. Suitable aquatic habitat is absent from the study area.	None
Vernal pool tadpole shrimp <i>Lepidurus Packardii</i>	-/FE	Vernal pools and other seasonal wetlands.	There are three CNDDDB occurrence within 5 miles of the study area. Suitable aquatic habitat is absent from the study area.	None
Fish				
Chinook salmon – Central Valley spring-run Evolutionarily Significant Unit (ESU) <i>Oncorhynchus tshawytscha</i> pop.11	ST/FT	Adults utilize cool water habitats in Spring; juveniles may remain in freshwater and migrate as yearlings.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Chinook salmon –	CSC/-	Migrate upstream as adults and spawn	No CNDDDB occurrences within 5 miles of	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Central Valley fall/late fall-run ESU <i>Oncorhynchus</i> <i>tshawytscha</i> pop.13		in the fall/late fall. The majority of young salmon migrate to the ocean during the first few months following emergence, although some may remain in freshwater and migrate as yearlings.	the study area. Suitable habitat is absent from the study area.	
Chinook salmon – Central Valley winter-run ESU <i>Oncorhynchus</i> <i>tshawytscha</i> pop.7	SE/FE	Adapted to spawn in clear, spring-fed rivers, typically in the early summer.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Delta smelt <i>Hypomesus</i> <i>transpacificus</i>	SE/FT	Endemic to the San Francisco Estuary. Most spawning happens in tidally influenced backwater sloughs and channel edge waters.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Green sturgeon – southern Distinct Population Segment (DPS) <i>Acipenser medirostris</i> pop.1	-/FT	Majority in marine waters, however often enter bays or brackish estuaries to feed in the summer. They spawn in cool, deep, swift flowing river reaches over gravel and cobble bottoms.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Longfin smelt <i>Spirinchus thaleichthys</i>	ST/FC	Uses a variety of habitats , including nearshore waters, estuaries and lower portions of freshwater streams. Tolerant of a wide range of salinity from completely fresh to marine.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Pacific lamprey <i>Entosphenus tridentatus</i>	CSC/-	Uses a variety of habitats, including cool mountain slopes, moist coastal drainages and arid southern chaparral. After about 1-3 years in the ocean, adult Pacific Lampreys migrate to freshwater to spawn.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Sacramento hitch <i>Lavinia exilicauda</i> <i>exilicauda</i>	CSC/-	Warm, lowland, waters including clear streams, turbid sloughs, lakes and reservoirs. In streams they are generally found in pools or runs among aquatic vegetation, although small individuals will also use riffles.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Sacramento splittail <i>Pogonichthys</i> <i>macrolepidotus</i>	CSC/-	Splittail require a rising hydrograph for upstream migration and flooded vegetation for spawning and rearing areas for their early life history stages.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Steelhead – Central Valley DPS <i>Oncorhynchus mykiss</i> <i>irideus</i> pop.11	-/FT	Stream channels defined by the ordinary high-water line. In areas where the ordinary high-water line has not been defined, the lateral extent will be defined by the bankfull elevation.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Western river lamprey <i>Lampetra ayresii</i>	CSC/-	Clean, gravelly riffles in permanent streams for spawning. Larvae require sandy to silty backwaters or stream edges in which to bury themselves.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
White sturgeon <i>Acipenser transmontanus</i>	CSC/-	Primarily live in estuaries of large rivers but migrate to spawn in fresh water and often make long ocean movements between river systems.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Amphibians				
California tiger salamander <i>Ambystoma californiense</i> pop. 1	ST/FT	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for breeding; reliance on mammal burrows, rock crevices, or fallen logs for upland cover during dry season.	There is one CNDDDB occurrence from 1993 4 miles south of the study area. Suitable breeding habitat is absent from the study area. Based on aerial imagery, there are potentially suitable breeding ponds over 0.5 mile from the project area.	Low

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Foothill yellow-legged frog – North Coast DPS <i>Rana boylei</i>	CSC/-	Streams in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Western spadefoot <i>Spea hammondi</i>	CSC/-	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pool, and wetlands. Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying and sandy soils are essential for burrowing.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the project and study areas. Surrounding agricultural fields provide possible, but low value, habitat. However, pools necessary for breeding are absent from the study area.	None
Reptiles				
Giant garter snake <i>Thamnophis gigas</i>	ST/FT	Marsh and swamp, riparian scrub, wetland. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	There is one CNDDDB occurrence 4.5 miles east of the study area. Potential suitable habitat present within drainage canals and irrigation ditches. Adjacent ag fields do not support rice crops. Due to limited water present and lack of vegetative cover and burrows, presence is unlikely.	Low
Western pond turtle <i>Actinemys marmorata</i>	CSC/ Proposed FT	Streams, ponds, water conveyance channels. May occur within any aquatic habitat in Yolo County, including irrigation ditches and humanmade ponds.	No CNDDDB occurrences within 5 miles of the study area. Potentially suitable habitat is absent from the project or study areas due to lack of adequate, sustained aquatic features.	Low
Birds				

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
American peregrine falcon <i>Falco peregrinus anatum</i>	D/D/ FP	Near wetlands, lakes, rivers, or other water; on cliffs or man-made structures. Nest consists of a scrape or a depression or ledge in an open site.	No CNDDDB occurrences within 5 miles of the study area. Potential suitable agricultural foraging habitat is present within the project and study areas. However no suitable nesting habitat is present in the study area.	None
Bald eagle <i>Haliaeetus leucocephalus</i>	BGEPA	Typically nest in large, mature, accessible trees, as well as cliffs and man-made structures within two and a half miles of the coast, bay, rivers, lakes or other bodies of water.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Bank swallow <i>Riparia riparia</i>	ST/-	Bank swallows are most commonly found in banks and bluffs along rivers and lakes, where they can occur in colonies of up to 2,000 nests. These birds stick to open, wet areas and steer clear of forested habitats.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Golden eagle <i>Aquila chrysaetos</i>	SP/FP	Known to nest in cliffs, in trees, on the ground, windmills, and on towers. May hunt and forage in open grasslands.	No CNDDDB occurrences within 5 miles of the study area. Suitable nesting tree habitat is absent from the study area.	None
Grasshopper sparrow <i>Ammodramus savannarum</i>	CSC/-	Grassland, hayfields, prairies. Breeds in rather dry fields and prairies, especially those with fairly tall grass and weeds and a few scattered shrubs. Also nests in overgrown pastures and hayfields, and sometimes in fields of other crops. During migration and winter, found in many types of open fields.	No CNDDDB occurrences within 5 miles of the study area. Suitable nesting tree habitat is absent from the study area.	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Least bittern <i>Ixobrychus exilis</i>	CSC/-	Suitable breeding habitats include freshwater and brackish marshes with tall, dense emergent vegetation and clumps of woody plants over deep water. The bitterns may require fairly large marshes for breeding.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Loggerhead shrike <i>Lanius ludovicianus</i>	CSC/-	Grasslands, agricultural lands, shrublands or open woodlands with a fair amount of grass cover and areas of bare ground. They require tall shrubs or trees (also use fences or power lines) for hunting perches, territorial advertisement, and pair maintenance; open areas of short grasses, forbs, or bare ground for hunting; and large shrubs or trees for nest placement.	No CNDDDB occurrences within 5 miles of the study area. Suitable nesting trees or shrubs are absent from the project and study areas, however marginal suitable foraging in active and fallow fields is present within both the project and study areas.	Moderate
Mountain plover <i>Charadrius montanus</i>	CSC/-	Mountain plover inhabits semi-arid plains, grasslands, plateaus, grazed pasture and areas with bare soil or very short grass. They are favor plowed agricultural fields during winter.	No CNDDDB occurrences within 5 miles of the study area. Several historic (from 1970s) eBird occurrences from within the study area. Agricultural fields within the project and study areas provide potentially suitable winter habitat.	Moderate
Northern harrier <i>Circus cyaneus</i>	CSC/-	Grasslands, seasonal marshes, some agricultural habitats	There is one CNDDDB occurrence 3 miles east of the study area. Potential suitable agricultural foraging habitat is present within the project and study areas. However no suitable nesting habitat is present in either area.	Moderate

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Purple martin <i>Progne subis</i>	CSC/-	Towns, farms, semi-open country near water; in west, also mountain forest, saguaro desert. Usually nests in colonies in natural sites (cavities, mostly old woodpecker holes, and trees).	No CNDDDB occurrences within 5 miles of the study area. No nesting habitat, but marginal suitable agricultural foraging habitat present within both the project and study areas.	Low
Swainson's hawk <i>Buteo swainsoni</i>	ST/-	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields.	There are 101 CNDDDB occurrence within 5 miles of the study area. No suitable nesting habitat present in the study area. However, nesting habitat present just outside study area. Suitable foraging habitat present in agricultural fields in Study and project area. Swainson's hawk foraging conservation easement present in study area, immediately west of project area.	Moderate
Tricolored blackbird <i>Agelaius tricolor</i>	ST/-	Emergent marshes, blackberry thickets, silage, pastures, some agricultural habitats.	There are 6 CNDDDB occurrence within 5 miles of the study area. No nesting habitat present in study area; foraging habitat marginal. Presence unlikely.	None
Western burrowing owl <i>Athene cucularia</i>	CSC/-	Typically prefer ruderal habitats, open grassland, prairies, agricultural fields and field edges. Potential low value habitat is present within the study area along field edges, however minimal ground squirrel activity was noted at time of site visit. This species relies on the presence of burrowing animals to utilize burrows as shelter and nesting space.	There are eight CNDDDB occurrences between 3 to 5 miles from the study area. Marginally suitable habitat present along field edges and within fallow field. Minimal ground squirrel activity noted within the project area and no CNDDDB occurrences within 3 miles of the study area.	Low
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	SE/FT	Dense, large tracts of riparian woodlands, deciduous trees and shrubs with well-developed understories for breeding. During the breeding season, restricted to river	No CNDDDB occurrences within 5 miles of the study area. Suitable nesting habitat is absent from study area.	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
		bottoms and other moist habitats along slow-moving watercourses where humidity is high.		
White-tailed kite <i>Elanus leucurus</i>	FP/-	Suitable foraging habitat in open grasslands, meadows, agricultural lands and marshes. Prefers dense-topped trees, including Riparian trees and Eucalyptus, for nesting and perching.	There are 2 CNDDDB occurrence within 5 miles of the study area. Suitable nesting trees are absent from the project and study areas, however suitable foraging in active and fallow fields is present within both the project and study areas.	Moderate
Yellow-breasted chat <i>Icteria virens</i>	CSC/-	Early successional riparian habitats with a well-developed shrub layer and an open canopy. Nesting habitat is usually restricted to the narrow border of streams, creeks, sloughs, and rivers and seldom forms extensive tracts.	No CNDDDB occurrences within 5 miles of the study area. Suitable nesting trees are absent from the study area.	None
Yellow warbler <i>Setophaga petechia</i>	CSC/-	Riparian vegetation near water along streams and in wet meadows, including willows, cottonwoods and numerous other species of shrubs or trees.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Mammals				
American badger <i>Taxidea taxus</i>	CSC/-	Generally found in grassland, shrubland, desert, dry forest, parkland, and agricultural areas. They require soils that allow the excavation of den sites and support burrowing prey species (such as ground squirrels).	There are three CNDDDB occurrence within 5 miles of the study area. Agricultural land in the study area presents potential suitable habitat for this species; however, soils in the project area are not suitable for burrowing. Presence unlikely.	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Pallid bat <i>Antrozous pallidus</i>	CSC/-/WBWG-H	Shrublands, grasslands, agricultural lands, woodlands; caves, mines, hollow trees, buildings.	There are two CNDDDB occurrences within 5 miles of the study area. Potential roosting habitat is present within the study area; none present in the project area. Potential foraging habitat present in agricultural fields within both the project and study areas.	Low
Townsend's big-eared bat <i>Corynorhinus townsendii townsendii</i>	CSC/-/WBWG-H	Most low to mid-elevation habitats; caves, mines, and buildings for roosting.	No CNDDDB occurrences within 5 miles of the study area. Potential foraging in agricultural fields within the project and study areas, however no roosting habitat present in study area.	None
Western red bat <i>Lasiurus frantzii</i>	CSC/-/WBWG-H	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. Not found in desert areas.	No CNDDDB occurrences within 5 miles of the study area. Potential foraging in agricultural fields within the project and study areas, however no roosting habitat present in study area.	None
Plants				
Adobe lily <i>Fritillaria pluriflora</i>	-/-/1B.2	Grasslands	Suitable habitat is absent from the study area.	None
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	-/-/1B.2	Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools.	There are three CNDDDB occurrence within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Bakers navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	-/-/1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Bearded popcornflower <i>Plagiobothrys hystriculus</i>	-/-/1B.1	Vernal pools, valley and foothill grassland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Brewer's western flax <i>Hesperolinon breweri</i>	-/ /1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Brittlescale <i>Atriplex depressa</i>	-/ /1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools.	There are 3 CNDDDB occurrence within 5 miles of the study area Suitable habitat is absent from the study area.	None
California alkali grass <i>Puccinellia simplex</i>	-/ /1B.2	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools.	There are 6 CNDDDB occurrence within 5 miles of the study area Suitable habitat is absent from the study area.	None
Colusa grass <i>Neostapfia colusana</i>	SE/FT/1B.1	Vernal pools.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Cotula navarretia <i>Navarretia cotulifolia</i>	-/ /4.2	Chaparral, cismontane woodland, valley and foothill grassland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Crampton's tuctoria (also known as Solano grass) <i>Tuctoria mucronata</i>	SE/FE/1B.1	Vernal pools, valley and foothill grassland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Depauperte milk-vetch <i>Astragalus tener</i> var. <i>ferrisiae</i>	-/ /1B.1	Meadows and seeps, valley and foothill grassland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Dwarf downingia <i>Downingia pusilla</i>	-/ /2B.2	Grasslands and wetlands.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Fragrant fritillary <i>Fritillaria liliacea</i>	-/ /1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Jepson's coyote-thistle <i>Eryngium jepsonii</i>	-/ /1B.2	Vernal pools, valley and foothill grassland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	-/-/1B.2	Chenopod scrub, valley and foothill grassland, vernal pools.	There is one CNDDDB occurrence within 5 miles of the study area Suitable habitat is absent from the study area.	None
Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>heckardii</i>	-/-/1B.2	Valley and foothill grassland, edges of vernal pools.	There are three CNDDDB occurrences within 5 miles of the study area Suitable habitat is absent from the study area.	None
Hellers bush-mallow <i>Malacothamnus helleri</i>	-/-/3.3	Chaparral, riparian woodland.	No CNDDDB occurrences within 5 miles of the study area. Potential suitable habitat within riparian corridor is present outside of the study area.	None
Hogwallow starfish <i>Hesperevax caulescens</i>	-/-/4.2	Valley and foothill grassland, vernal pools	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Keck's checkerbloom <i>Sidalcea keckii</i>	-/FE/1B.1	Cismontane and oak woodland, valley and foothill grassland.	There is one CNDDDB occurrence within 5 miles of the study area Suitable habitat is absent from the study area.	None
Little mouseltail <i>Myosurus minimus</i> ssp. <i>apus</i>	-/-/3.1	Vernal pools, valley and foothill grassland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	-/-/1B.1	Freshwater marsh, marsh, swamp riparian scrub and wetland.	No CNDDDB occurrences within 5 miles of the study area. Potential suitable habitat within riparian corridor is present outside of the study area	None
Palmate-bracted birds-beak <i>Chloropyron</i> <i>palmatum</i>	SE/FE/1B.1	Chenopod scrub, valley and foothill grassland.	There are two CNDDDB occurrences within 5 miles of the study area Suitable habitat is absent from the study area.	None
Pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	-/-/1B.2	Valley and foothill grasslands, vernal pools.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None

Species	Status State/Federal/CNPS	Habitat	Habitat Availability in Project/Study Area	Potential for Occurrence in Study Area
Parrys rough tarplant <i>Centromadia parryi</i> <i>ssp. rudis</i>	-/-/1B.2	Valley and foothill grasslands, vernal pools.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Recurved larkspur <i>Delphinium recurvatum</i>	-/-/1B.2	Chenopod scrub, valley and foothill grassland, cismontane woodland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Saline clover <i>Trifolium hydrophilum</i>	-/-/1B.2	Marshes and swamps, valley and foothill grassland, vernal pools.	There are two CNDDDB occurrences within 5 miles of the study area Suitable habitat is absent from the study area.	None
San Joaquin spearscale <i>Extriplex joaquinana</i>	-/-/1B.2	Chenopod scrub, alkali meadow, playas, valley and foothill grassland.	There are five CNDDDB occurrences within 5 miles of the study area Suitable habitat is absent from the study area.	None
Stinkbells <i>Fritillaria agrestis</i>	-/-/4.2	Cismontane woodland, chaparral, valley and foothill grassland, pinyon and juniper woodland.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Woolly-headed lessingia <i>Lessingia holoeuca</i>	-/-/3	Coastal scrub, lower montane coniferous forest, valley and foothill grassland, broadleafed upland forest.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None
Woolly rose-mallow <i>Hibiscus lasiocarpus var. occidentalis</i>	-/-/1B.2	Freshwater marshes and swamps, wetlands.	No CNDDDB occurrences within 5 miles of the study area. Suitable habitat is absent from the study area.	None

Notes: T=Threatened; E=Endangered; CSC=California species of species concern; ST= State Threatened; SC= State Candidate; FT= Federally Threatened; FC= Federal Candidate; FP=state fully protected; 1A=CNPS plants presumed extirpated in California and either rare or extinct elsewhere; 1B=CNPS plants rare, threatened, or endangered in California and

elsewhere; 2A=CNPS plants presumed extirpated in California but common elsewhere; 2B=CNPS plants rare, threatened, or endangered in California but common elsewhere; 3= CNPS plants about which more information is needed, a review list; 4= CNPS plants of limited distribution, a watch list; WBWG-H=Western Bat Working Group – High Priority

Sources: California Natural Diversity Database. Accessed April 2023 from <https://wildlife.ca.gov/Data/CNDDDB>; California Native Plant Society. Accessed April 2023 from <https://rareplants.cnps.org/>; U.S. Fish and Wildlife Service Information for Planning and Consultation. Accessed April 2023 from <https://ipac.ecosphere.fws.gov/>; California Department of Fish and Wildlife RareFind. Accessed April 2023 from <https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx>; Western Bat Working Group. Accessed April 2023 from <http://wbwg.org/western-bat-species/>; Jepson Herbarium eFlora. Accessed April 2023 from <https://ucjeps.berkeley.edu/eflora/tools/>; CalFlora Database. Accessed April 2023 from <http://www.calflora.org/>

APPENDIX C WATERBODY DATASHEETS

Waterbody Data Sheet

Description			
Project Name: PG&E Plainfield Substation Upgrade		Date: October 22, 2023	Waterbody Survey ID: Ditch 1
State: CA	County/Parish: Yolo County	USGS Waterbody Name: NA	
Company: ERM	Crew Member Initials: KC, AM	Latitude: 38.619111	Longitude: -121.794679
Survey Type: <small>(check one)</small>	<input type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input checked="" type="checkbox"/> Facility <input type="checkbox"/> Other		
Waterbody Type: <small>(check one)</small>	<input type="checkbox"/> River <input type="checkbox"/> Stream <input checked="" type="checkbox"/> Ditch <input type="checkbox"/> Swale <input type="checkbox"/> Canal <input type="checkbox"/> Other		
Water Appearance: <small>(check one)</small>	<input type="checkbox"/> No Water <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/> Sheen on Surface <input type="checkbox"/> Surface Scum <input type="checkbox"/> Algal Mats <input type="checkbox"/> Other		
Feature Quality^a: <small>(check one)</small>	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low		
Feature Description: <small>(check one)</small>	<input type="checkbox"/> Natural <input checked="" type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated		
Flow Regime: <small>(check one)</small>	<input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial <input type="checkbox"/> Connecting Swale		
Sinuosity within Survey Corridor: <small>(check one)</small>	<input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		
Description Notes: Agricultural ditch flowing north to south along western edge of substation. Some emergent grasses. Banks sparsely vegetated with non-native herbs.			
Measurements			
Depth of Water: <u>1.5</u> ft. N/A <input type="checkbox"/> Unknown <input type="checkbox"/>		Water Edge to Water Edge: <u>6</u> ft. N/A <input type="checkbox"/>	
OHWM Width: <u>4</u> ft.			
OHWM Indicator: <small>(check all that apply)</small>	<input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Dominant Substrate: <small>(check all that apply)</small>	<input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic		
Observations			
Riparian Zone Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <small>(check one)</small>			
Vegetation Layers: <input type="checkbox"/> Trees <input type="checkbox"/> Saplings/Shrubs <input checked="" type="checkbox"/> Herbs <small>(check all that apply)</small>			
Dominant Bank Vegetation (list): Wild radish (Raphanus sativus), broad-leafed pepperweed (Lepidium latifolium).			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): Roughly 5 percent emergent grasses.			
Aquatic Organisms Observed (list): None.			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Water draining from north flows through agricultural fields.			
Observation Notes: Water was flowing into the ditch from the culvert under Highway 27 and from two culverts that drain the east/west ditch parallel to Highway 27 (Ditch 2). Ditch is likely dry during most of the year. It was conveying flood water during the site visit. Other vegetation included Italian ryegrass (Lolium multiflorum), curly dock (Rumex crispus), common mallow (Malva neglecta). Dead Botta's pocket gopher (Thomomys bottae) found on earthen farm road adjacent to ditch.			

Waterbody Data Sheet

Description			
Project Name: PG&E Plainfield Substation Expansion		Date: October 22, 2023	Waterbody Survey ID: Ditch 2
State: CA	County/Parish: Yolo County	USGS Waterbody Name: NA	
Company: ERM	Crew Member Initials: KC, AM	Latitude: 38.619473	Longitude: -121.791374
Survey Type: <i>(check one)</i>	<input type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input checked="" type="checkbox"/> Facility <input type="checkbox"/> Other		
Waterbody Type: <i>(check one)</i>	<input type="checkbox"/> River <input type="checkbox"/> Stream <input checked="" type="checkbox"/> Ditch <input type="checkbox"/> Swale <input type="checkbox"/> Canal <input type="checkbox"/> Other		
Water Appearance: <i>(check one)</i>	<input type="checkbox"/> No Water <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/> Sheen on Surface <input type="checkbox"/> Surface Scum <input type="checkbox"/> Algal Mats <input type="checkbox"/> Other		
Feature Quality^a: <i>(check one)</i>	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low		
Feature Description: <i>(check one)</i>	<input type="checkbox"/> Natural <input checked="" type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated		
Flow Regime: <i>(check one)</i>	<input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial <input type="checkbox"/> Connecting Swale		
Sinuosity within Survey Corridor: <i>(check one)</i>	<input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		
Description Notes: Roadside ditch flowing east to west on the south side of Highway 27. Banks sparsely vegetated with non-native herbs.			
Measurements			
Depth of Water: <u> 1 </u> ft. N/A <input type="checkbox"/> Unknown <input type="checkbox"/>		Water Edge to Water Edge: <u> 3 </u> ft. N/A <input type="checkbox"/>	
OHWM Width: <u> 3 </u> ft.			
OHWM Indicator: <i>(check all that apply)</i>	<input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Dominant Substrate: <i>(check all that apply)</i>	<input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic		
Observations			
Riparian Zone Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>(check one)</i>			
Vegetation Layers: <input type="checkbox"/> Trees <input type="checkbox"/> Saplings/Shrubs <input checked="" type="checkbox"/> Herbs <i>(check all that apply)</i>			
Dominant Bank Vegetation (list): Wild radish (Raphanus sativus), broad-leafed pepperweed (Lepidium latifolium)			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): None			
Aquatic Organisms Observed (list): None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Trash was accumulated at culvert.			
Observation Notes: Ditch is likely dry during most of the year. It was conveying flood water during the site visit. Other vegetation included Italian ryegrass (Lolium multiflorum) cranesbill (Geranium spp.), cheeseweed, (Malvo parviflora), and devil's claw (Ibicella lutea).			

Waterbody Data Sheet

Description			
Project Name: PG&E Plainfield Substation Expansion		Date: October 22, 2023	Waterbody Survey ID: Ditch 3
State: CA	County/Parish: Yolo County	USGS Waterbody Name: NA	
Company: ERM	Crew Member Initials: KC, AM	Latitude:	Longitude:
Survey Type: <i>(check one)</i>	<input type="checkbox"/> Centerline	<input type="checkbox"/> Re-Route	<input type="checkbox"/> Access Road <input checked="" type="checkbox"/> Facility <input type="checkbox"/> Other
Waterbody Type: <i>(check one)</i>	<input type="checkbox"/> River	<input type="checkbox"/> Stream	<input checked="" type="checkbox"/> Ditch <input type="checkbox"/> Swale <input type="checkbox"/> Canal <input type="checkbox"/> Other
Water Appearance: <i>(check one)</i>	<input type="checkbox"/> No Water	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Turbid <input type="checkbox"/> Sheen on Surface <input type="checkbox"/> Surface Scum <input type="checkbox"/> Algal Mats <input type="checkbox"/> Other
Feature Quality^a: <i>(check one)</i>	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low
Feature Description: <i>(check one)</i>	<input type="checkbox"/> Natural	<input checked="" type="checkbox"/> Artificial, man-made	<input type="checkbox"/> Manipulated
Flow Regime: <i>(check one)</i>	<input checked="" type="checkbox"/> Ephemeral	<input type="checkbox"/> Intermittent	<input type="checkbox"/> Perennial <input type="checkbox"/> Connecting Swale
Sinuosity within Survey Corridor: <i>(check one)</i>	<input checked="" type="checkbox"/> Straight	<input type="checkbox"/> Meandering	
Description Notes: Roadside ditch flowing north to south on the north side of Highway 27. Banks thickly vegetated, primarily with non-native herbs.			
Measurements			
Depth of Water: <u>1</u> ft. N/A <input type="checkbox"/> Unknown <input type="checkbox"/>		Water Edge to Water Edge: <u>6</u> ft. N/A <input type="checkbox"/>	
OHWM Width: <u>6</u> ft.			
OHWM Indicator: <i>(check all that apply)</i>	<input type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input checked="" type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining
	<input type="checkbox"/> Bent, matted, or missing vegetation	<input type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change
Dominant Substrate: <i>(check all that apply)</i>	<input type="checkbox"/> Bedrock	<input type="checkbox"/> Boulder	<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic
Observations			
Riparian Zone Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>(check one)</i>			
Vegetation Layers: <input checked="" type="checkbox"/> Trees <input type="checkbox"/> Saplings/Shrubs <input checked="" type="checkbox"/> Herbs <i>(check all that apply)</i>			
Dominant Bank Vegetation (list): Unidentified herbaceous plant.			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): None			
Aquatic Organisms Observed (list): Treefrogs heard calling.			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Trash in water.			
Observation Notes: Ditch is likely dry during most of the year. It was conveying flood water during the site visit.			

Waterbody Data Sheet

Description			
Project Name: PG&E Plainfield Substation Expansion		Date: October 22, 2023	Waterbody Survey ID: Ditch 4
State: CA	County/Parish: Yolo County	USGS Waterbody Name: NA	
Company: ERM	Crew Member Initials: KC, AM	Latitude: 38.619874	Longitude: -121.794471
Survey Type: <small>(check one)</small>	<input type="checkbox"/> Centerline	<input type="checkbox"/> Re-Route	<input type="checkbox"/> Access Road <input checked="" type="checkbox"/> Facility <input type="checkbox"/> Other
Waterbody Type: <small>(check one)</small>	<input type="checkbox"/> River	<input type="checkbox"/> Stream	<input checked="" type="checkbox"/> Ditch <input type="checkbox"/> Swale <input type="checkbox"/> Canal <input type="checkbox"/> Other
Water Appearance: <small>(check one)</small>	<input type="checkbox"/> No Water	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Turbid <input type="checkbox"/> Sheen on Surface <input type="checkbox"/> Surface Scum <input type="checkbox"/> Algal Mats <input type="checkbox"/> Other
Feature Quality^a: <small>(check one)</small>	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input checked="" type="checkbox"/> Low
Feature Description: <small>(check one)</small>	<input type="checkbox"/> Natural	<input checked="" type="checkbox"/> Artificial, man-made	<input type="checkbox"/> Manipulated
Flow Regime: <small>(check one)</small>	<input checked="" type="checkbox"/> Ephemeral	<input type="checkbox"/> Intermittent	<input type="checkbox"/> Perennial <input type="checkbox"/> Connecting Swale
Sinuosity within Survey Corridor: <small>(check one)</small>	<input checked="" type="checkbox"/> Straight	<input type="checkbox"/> Meandering	
Description Notes: Agricultural ditch flowing north to south on the north side of, and perpendicular to, Highway 27. No vegetation.			
Measurements			
Depth of Water: <u>0.5</u> ft. N/A <input type="checkbox"/> Unknown <input type="checkbox"/>		Water Edge to Water Edge: <u>1</u> ft. N/A <input type="checkbox"/>	
OHWM Width: <u>1</u> ft.			
OHWM Indicator: <small>(check all that apply)</small>	<input type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining
	<input type="checkbox"/> Bent, matted, or missing vegetation	<input type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change
Dominant Substrate: <small>(check all that apply)</small>	<input type="checkbox"/> Bedrock	<input type="checkbox"/> Boulder	<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic
Observations			
Riparian Zone Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <small>(check one)</small>			
Vegetation Layers: <input type="checkbox"/> Trees <input type="checkbox"/> Saplings/Shrubs <input type="checkbox"/> Herbs <small>(check all that apply)</small>			
Dominant Bank Vegetation (list): None			
Aquatic Habitats (ex: submerged or emergent aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): None			
Aquatic Organisms Observed (list): None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Adjacent to plowed agricultural field.			
Observation Notes: Ditch is likely dry during most of the year. It was conveying flood water during the site visit.			

Waterbody Data Sheet

Description			
Project Name: PG&E Plainfield Substation Expansion		Date: October 22, 2023	Waterbody Survey ID: Ditch 5
State: CA	County/Parish: Yolo County	USGS Waterbody Name: NA	
Company: ERM	Crew Member Initials: KC, AM	Latitude: 38.619653	Longitude: -121.794153
Survey Type: <i>(check one)</i>	<input type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input checked="" type="checkbox"/> Facility <input type="checkbox"/> Other		
Waterbody Type: <i>(check one)</i>	<input type="checkbox"/> River <input type="checkbox"/> Stream <input checked="" type="checkbox"/> Ditch <input type="checkbox"/> Swale <input type="checkbox"/> Canal <input type="checkbox"/> Other		
Water Appearance: <i>(check one)</i>	<input type="checkbox"/> No Water <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/> Sheen on Surface <input type="checkbox"/> Surface Scum <input type="checkbox"/> Algal Mats <input type="checkbox"/> Other		
Feature Quality^a: <i>(check one)</i>	<input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low		
Feature Description: <i>(check one)</i>	<input type="checkbox"/> Natural <input checked="" type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated		
Flow Regime: <i>(check one)</i>	<input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial <input type="checkbox"/> Connecting Swale		
Sinuosity within Survey Corridor: <i>(check one)</i>	<input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		
Description Notes: Roadside ditch east to west on the north side of Highway 27. Controlled culvert on west end where it drains into Ditch 3.			
Measurements			
Depth of Water: <u>0.5</u> ft. N/A <input type="checkbox"/> Unknown <input type="checkbox"/>		Water Edge to Water Edge: <u>1</u> ft. N/A <input type="checkbox"/>	
OHWM Width: <u>1</u> ft.			
OHWM Indicator: <i>(check all that apply)</i>	<input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Dominant Substrate: <i>(check all that apply)</i>	<input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic		
Observations			
Riparian Zone Present: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>(check one)</i>			
Vegetation Layers: <input type="checkbox"/> Trees <input type="checkbox"/> Saplings/Shrubs <input checked="" type="checkbox"/> Herbs <i>(check all that apply)</i>			
Dominant Bank Vegetation (list): Wild radish (Raphanus sativus) and milk thistle (Silybum marianum)			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): None			
Aquatic Organisms Observed (list): None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Adjacent to plowed agricultural field.			
Observation Notes: Ditch is likely dry during most of the year. It was conveying flood water during the site visit.			

APPENDIX D REPRESENTATIVE PHOTOGRAPHS OF THE STUDY AREA



Photograph 1: Ditch 1 midpoint, located west of Project Area, approximately 15% vegetative cover on bank. East aspect. 3/22/23



Photograph 2: Culvert 1 underneath County Road 27. Northeast aspect. 3/22/23

Appendix D – Site Photographs





Photograph 3: Ruderal / disturbed habitat adjacent to Culvert 4. East aspect. 3/23/23.



Photograph 4: Culvert 2 and Ditch 2b along north side of Project Area. Debris and trash observed at culvert opening. East aspect. 3/22/23

Appendix D – Site Photographs





Photograph 5: Ditch 1 and adjacent vegetation near Yolo Land Trust easement. South aspect. 3/22/23



Photograph 6: Disturbed/developed land compacted by equipment adjacent to agricultural land, south of the Project Area. East aspect. 3/22/23

Appendix D – Site Photographs





Photograph 7: Project Area from the southwest corner of the substation. Northeast aspect.
5/18/22



Photograph 8: Substation and Ditch 1. South aspect. 5/18/22

Appendix D – Site Photographs





Photograph 9: Ditch 2a and adjacent agricultural field. East aspect. 5/18/22



Photograph 10: Ditch 4 and agricultural field northwest of the Project Area, north of County Road 27. West aspect. 3/22/23

Appendix D – Site Photographs

