Appendix E2
Biological Survey Report

BIOLOGICAL SURVEY REPORT

Janus Solar Project
Colusa County, California

February 11, 2021

RWE Solar Development, LLC

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ACRONYMS/ABBREVIATIONS

BESS	battery energy storage system
BSA	biological study area
BUOW	burrowing owl
Cal-IPC	California Invasive Plant Council
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Gen-tie	generator tie line
GPS	Global Positioning System
MBTA	Federal Migratory Bird Treaty Act
MCVII	Manual of California Vegetation, Second Edition
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
Project	Janus Solar Project
Report	Biological Survey Report
RWE	RWE Solar Development, LLC
Tetra Tech	Tetra Tech, Inc.
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) prepared this Biological Survey Report (Report) for the proposed Janus Solar Project (Project). RWE Solar Development, LLC (RWE) proposes to develop approximately 986 acres of land (Project site) on three parcels that total 1,023.9 acres located in Colusa County, California for the development of a solar energy facility. Biological field surveys of the Project site and a 150-meter buffer zone were performed. Together, the Project site and the 150-meter buffer zone are the biological study area (BSA). Biologists visited the BSA in 2020 and 2021 and conducted the following surveys:

- Rare plant surveys.
- Raptor nest survey.
- Protocol burrowing owl (BUOW) burrow survey.
- Protocol breeding season and winter season BUOW surveys.
- Jurisdictional wetlands/waters of the United States (U.S.).

The purpose of this Report is to discuss the methods and results of the rare plant and raptor nest surveys and provide maps of any special-status species observed. Results of the BUOW surveys and jurisdictional delineation are provided in separate reports.

1.1 PROJECT SITE AND ENVIRONMENTAL SETTING

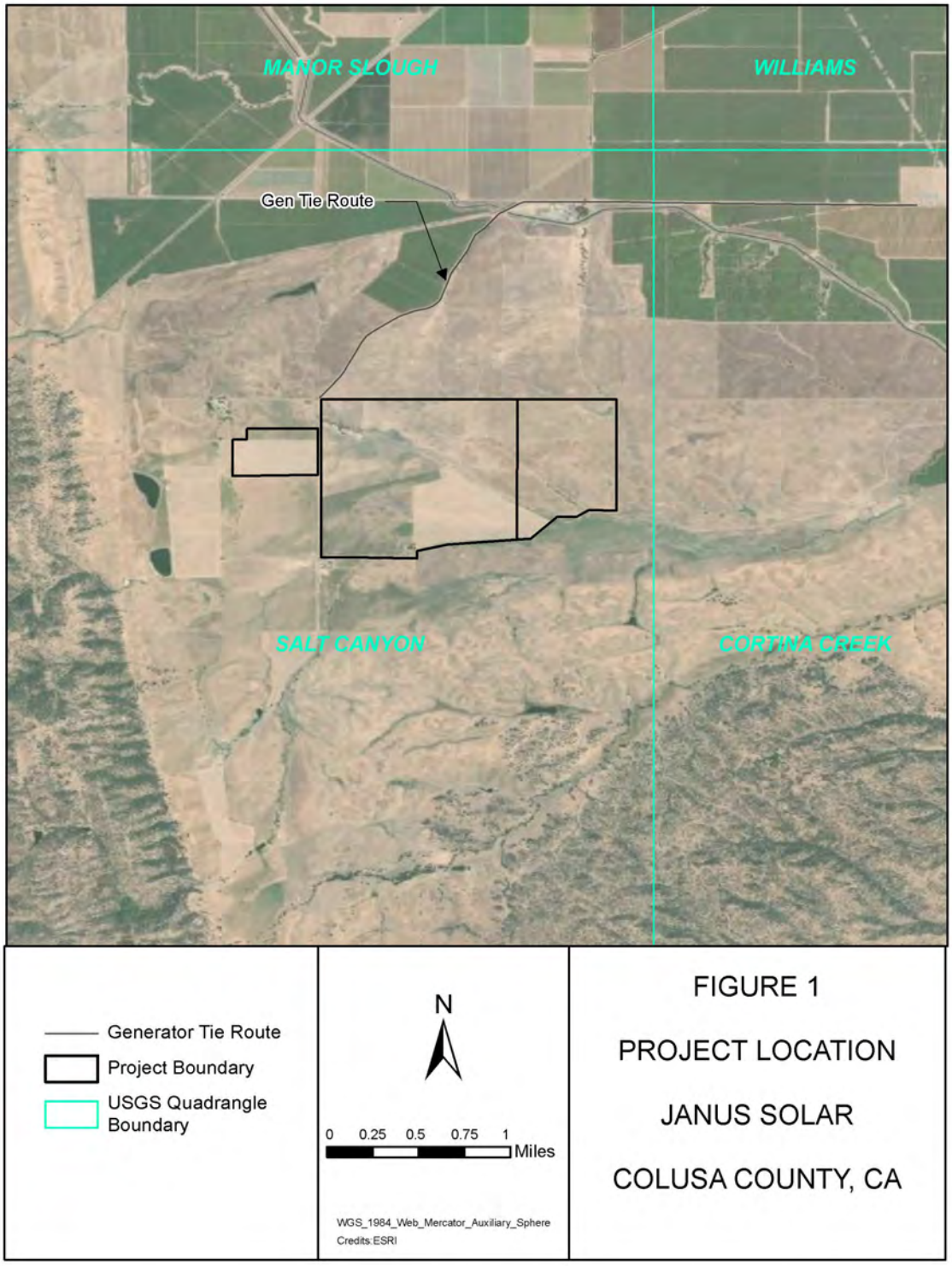
1.1.1 Project Site Location

The Project site is located on private property in an area of Colusa County primarily used for cattle grazing (Figure 1). From the Project site, the nearest community is Williams, approximately 7.5 miles to the northeast. The Project site includes three parcels with Assessor's Parcel Numbers 018-050-005-000, 018-050-006-000, and 018-050-013-000, which total 1,023.9 acres. The Project site excludes the Favero Retained Area (approximately 56 acres) but includes the Favero Corral Area (approximately 41 acres). The Project site also includes a generator tie line (gen-tie) that would connect to the Cortina Substation (Figure 1). The Cortina Substation is located on Walnut Drive, approximately 2 miles northeast of the site.

The Project site is in the United States Geological Survey (USGS) Salt Canyon 7.5-Minute Topographic Quadrangle and the gen-tie extends into the western edge of the USGS Cortina Creek Quadrangle, within Townships 14N and 15N, Ranges 3W and 4W, Sections 1, 2, 3, 25, 26, 29, 30, and 35. Spring Valley Road cuts through the western portion of the Project site from north to south and Baker Road borders the westernmost portion of the site. There are no access limitations to the Project site and one can reach the site from State Route 20, Walnut Drive, Spring Valley Road, and interior unpaved access routes. Most roadways in the Project vicinity are unimproved or paved without curb or sidewalk improvements. Interstate 5 is a major California freeway located approximately 9 miles east of the Project site.

1.1.2 Environmental Setting

The Project site is located in northern California within the Sacramento Valley Subregion of the Great Central Valley Region (Jepson Flora Project [eds.] 2020). This region experiences hot, dry summers, mild winters, and annual rainfall averaging between roughly 5 and 25 inches. Elevation at the Project site ranges from approximately 44 to 101 meters. The Project site currently supports cattle grazing and grain cultivation. Vegetation on the Project site includes non-native grassland, cultivated grain fields, low growing herbaceous plants, and disturbed riparian areas and drainages with sparse native and non-native trees, as well as non-native cultivated trees rows along the proposed gen-tie. Standing water, drainages, potential wetlands, and riparian areas that occur within the Project site are described and mapped in the *Janus Solar Project Habitat Characterization Report* (Tetra Tech 2020).


MANOR SLOUGH
WILLIAMS
Gen Tie Route
SALT CANYON
CORTINA CREEK
Generator Tie Route
Project Boundary
USGS Quadrangle Boundary
N
0 0.25 0.5 0.75 1
Miles
WGS_1984_Web_Mercator_Auxiliary_Sphere
Credits:ESRI
FIGURE 1
PROJECT LOCATION
JANUS SOLAR
COLUSA COUNTY, CA

2.0 PROJECT DESCRIPTION

The Project consists of constructing and operating a photovoltaic solar electricity generating facility, battery energy storage system (BESS), and associated infrastructure on approximately 986 acres of privately-owned grazing and agricultural land. The Project would include the construction of:

- Gen-tie to Cortina substation;
- Project electrical substation;
- Project BESS;
- Solar panel arrays

Project design details and components may be modified during finalization of the site plan. Project construction would occur between 7:00 a.m. and 10:00 p.m. in accordance with the Colusa County Noise Standards. A variety of equipment may be used during the construction phase, such as skid steers, water trucks, welder, pickup trucks, bulldozers, front end loaders, graders, roller compactors, trenchers, forklifts, pile drivers, backhoes, crane, and/or aerial lifts. Construction would include site preparation, grading, preparing staging areas, and construction of the Project facilities.

3.0 METHODS

3.1 LITERATURE REVIEW

A literature and data review of pertinent background information for the Project site was completed in the *Janus Solar Project Habitat Characterization Report* (Tetra Tech 2020) and has been updated in this Report. These included California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) data (CDFW 2020), USGS topographic maps, California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants data (CNPS 2020), satellite and aerial imagery from Google Earth, National Wetlands Inventory (NWI) data (United States Fish and Wildlife Service [USFWS] 2020a), United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils data (USDA NRCS 2020), and the *Janus Solar Project – Foothill Agriculture Site Critical Issues Analysis Memo* prepared by Stantec (2018). The literature review determined the special-status species known to occur or that could potentially occur in the region, as well as the location of designated Critical Habitat and potential wetlands. Special-status species are defined herein as plants and wildlife holding a status of sensitive, threatened, endangered, rare, or candidate as defined by CDFW, USFWS, CNPS, or the Bureau of Land Management. The Project site falls within the USGS Salt Canyon Quadrangle; therefore, a search containing this quadrangle and the eight surrounding quadrangles was conducted to capture any species with potential to occur (CDFW 2020; CNPS 2020).

3.2 RARE PLANT SURVEYS

Rare plant surveys were conducted within the Project site during the spring and summer of 2020. Surveys were conducted on-foot during daylight hours and not during abnormal or excessive cold, heat, wind, rain, or other inclement weather. The spring rare plant survey was conducted in April 2020 to search for special-status plants that bloom in spring. For example, adobe-lily (*Fritillaria pluriflora*) was identified as having a moderate potential to occur on the Project site and blooms from February to April (Tetra Tech 2020). During the spring survey, a team of 3 biologists conducted pedestrian survey transects within the Project site and a 150-meter buffer around the site (i.e., the BSA). Transects were spaced no more than 30 meters apart. The westernmost portion of the 150-meter buffer was surveyed on foot because it has the same property owner as the Project site. Due to access limitations, the remainder of the 150-meter buffer around the Project site was surveyed using binoculars. Observations were also made with aerial imagery for inaccessible areas. The spring rare plant survey was conducted concurrently with the Phase II BUOW burrow survey.

The summer rare plant surveys were conducted in June and July 2020 to search for special-status plants that bloom in late spring/summer. For example, pappose tarplant (*Centromadia parryi* ssp. *parryi*) was identified as having a high potential to occur on the Project site and blooms from May to November, and Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*) was identified as having a moderate potential to occur on the site and blooms from May to October (Tetra Tech 2020). Areas that were determined to have potential to support special-status plants were searched on-foot during the summer surveys. These included wet or previously wet areas in the disturbed *Salix gooddingii - Salix laevigata* Forest and Woodland Alliance and other drainages within the Project site, areas where dead individuals of special-status plant genera were located during previous surveys, and areas with low non-native plant cover. During the spring and summer rare plant surveys, all special-status and common plants found within the BSA were recorded. Likewise, all special-status and common wildlife species and any signs of wildlife, including animal tracks, burrows, dens, nests, nest sites, scat, or remains, were recorded. Biologists mapped occurrences of any special-status plants and wildlife that were found using a sub-meter Global Positioning System (GPS) unit and a tablet loaded with the ArcGIS Collector application. For each occurrence, the number of individuals observed was recorded. For special-status plants, the numbers of individuals were visually estimated for large populations, and populations were considered separate if they were greater than 20 feet apart. Photographs are provided in Appendix A.

3.3 RAPTOR NEST SURVEY

A raptor nest survey was conducted within the Project site and a 5-mile buffer around the site in April 2020. Biologists used binoculars to survey trees and other features (e.g., power poles) from multiple angles to detect nests or perched raptors. Biologists looked for territorial and courtship displays and raptors circling the nest territory. Biologists also listened for vocalizations as vocal communication is frequent throughout the nesting season. The survey was performed during the period when Swainson's hawks (*Buteo swainsoni*) return to the Central Valley and begin occupying their nest territories (March 20 to April 20). The survey occurred between sunrise to 12:00 p.m. or 4:30 p.m. to sunset in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). Biologists recorded notes on all raptor observations, including species, number of individuals observed, and behavior. All active nests observed within the 5-mile buffer were mapped using a sub-meter GPS unit and a tablet loaded with the ArcGIS Collector application. Due to access limitations, portions of the 5-mile buffer were surveyed at a distance using binoculars and primarily relied on vocalizations and/or observations of in-flight raptors. The locations of any active nests within these areas were estimated using aerial imagery. For any Swainson's hawk nest that was found, additional nest checks were conducted concurrently with protocol BUOW breeding season surveys to record nesting data (e.g., nest status, number Swainson's hawks observed, behavior, and evidence of chicks or fledglings).

3.4 VEGETATION COMMUNITIES

During the surveys in spring and summer 2020, biologists also updated the existing vegetation communities map from November 2019 (Tetra Tech 2020). Vegetation communities within the BSA were mapped in accordance with the *Manual of California Vegetation, Second Edition* (MCVII; Sawyer et al. 2009). Vegetation was mapped to the alliance level, which is defined by plant species composition and identified by the most dominant tree, shrub, or herb in the vegetation community. A best attempt was made to categorize vegetation communities according to Sawyer et al. However, in the case that membership rules/community definitions were not met, a new alliance was named according to a best fit for the dominant species observed, aligned to the MCVII structure. Vegetation was mapped using a sub-meter GPS unit, a tablet loaded with the ArcGIS Collector application, and aerial imagery.

3.5 FIELD SURVEYS CONDUCTED

Table 1 lists the field surveys that were conducted in 2020 and 2021.

Table 1. Field Surveys Conducted

Field Surveys Conducted	Dates	Notes
Spring rare plant survey	April 6-9, 2020	Survey was conducted concurrently with the protocol BUOW burrow survey.
Summer rare plant surveys	June 9-10, 2020; July 8-9, 2020	Surveys were performed at areas with the highest potential to support special-status plants.
Raptor nest survey	April 10-11, 2020	None.
Swainson's hawk nest checks	June 10, 2020; July 9, 2020	Additional checks of active Swainson's hawk nests were conducted.
Protocol BUOW burrow survey*	April 6-9, 2020	Survey was conducted concurrently with the spring rare plant survey.
Protocol breeding season BUOW surveys*	April 10, 2020; June 9-10, 2020; July 8-9, 2020	A winter BUOW survey will be conducted between December 1, 2020 and January 31, 2021.
Protocol winter season BUOW surveys*	January 20-21, 2021	Survey was conducted concurrently with jurisdictional delineation.
Jurisdictional delineation*	January 18-21, 2021	Jurisdictional delineation was conducted sitewide.

Note: *Results of the BUOW surveys and Jurisdictional Delineation are provided in separate reports.

4.0 RESULTS

Results of the rare plant surveys and raptor nest survey are presented in the sections below. Vegetation communities, plants and wildlife, and special-status species have been updated based on the results of the surveys conducted in 2020.

4.1 RARE PLANT SURVEYS

One rare annual forb, Parry's rough tarplant (CNPS Rank 4.2), was positively identified within the Project site during the rare plant surveys. Samples of this species were collected and provided to Dr. Bruce Baldwin with the Jepson Herbarium and Department of Integrative Biology, University of California, Berkeley. Dr. Baldwin is an expert in the *Centromadia* genus and confirmed identification of the samples as Parry's rough tarplant (B. Baldwin, personal communication, 2020). This species is known to occur in valley and foothill grassland and vernal pool habitats as well as disturbed areas. CNPS Rank 4 is the watch list, indicating that the species is of limited distribution or infrequent throughout a broad area in California; CNPS Threat Rank 0.2 indicates that the species is moderately threatened in the state (20 to 80 percent of occurrences are threatened). This species was found in small populations throughout the Project site. The populations were generally located on previously disturbed soils with relatively higher cover of bare ground and lower cover of non-native grasses. Details on each population of Parry's rough tarplant are provided in Table 2 and the locations are shown in Figure 2. No other special-status plants were found during the surveys.

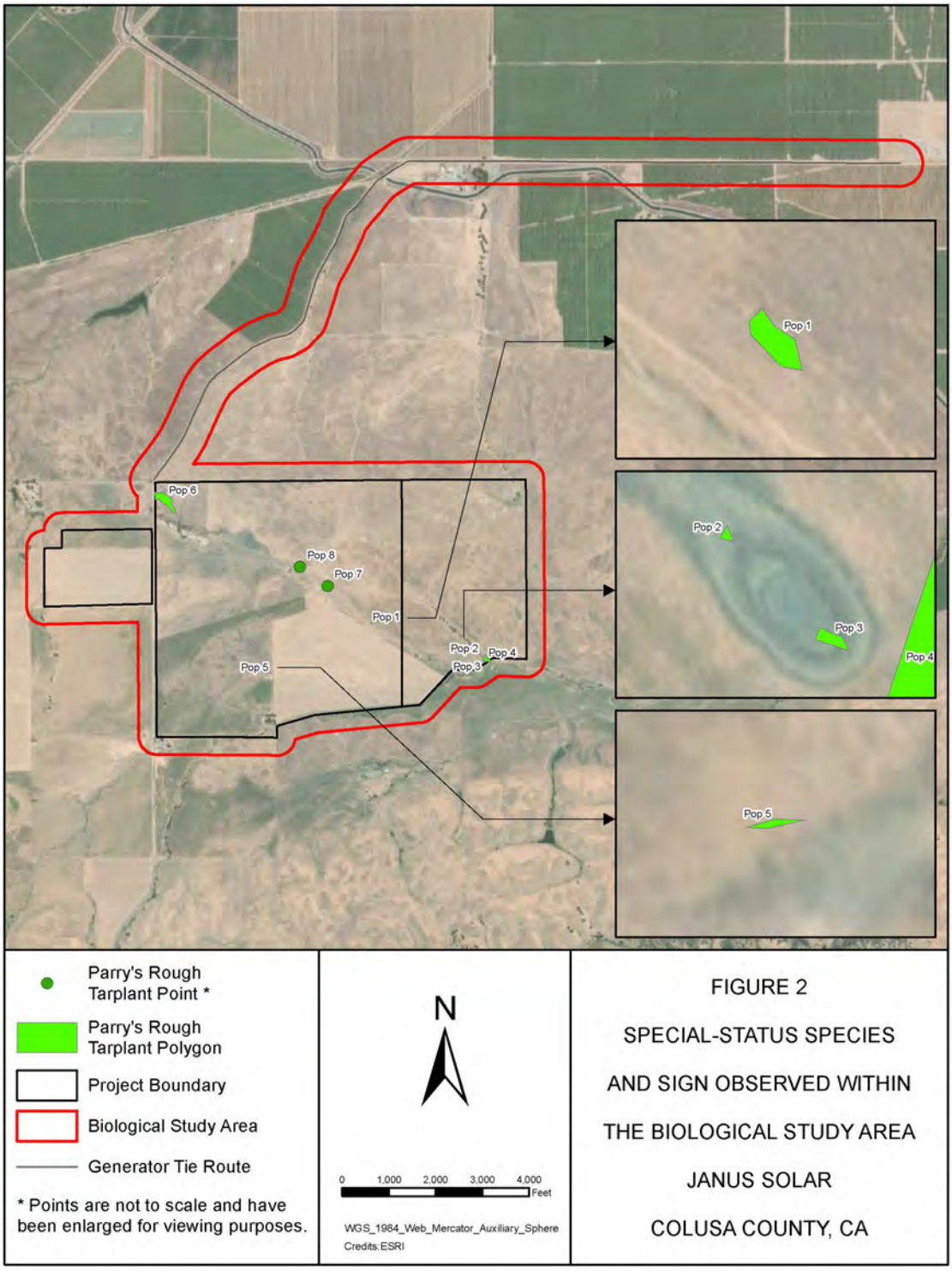
Table 2: Parry's Rough Tarplant Occurrences Within the BSA

Parry's Rough Tarplant Population ID	Number of Individuals	Vegetation Community
Pop. 1	50-100	*Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance
Pop. 2	5	*Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance
Pop. 3	30-50	*Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance
Pop. 4	300	*Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance
Pop. 5	3	*Amsinckia menziesii - Achyrachaena mollis* Herbaceous Alliance
Pop. 6	700	*Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance
Pop. 7	4	*Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance / *Amsinckia menziesii - Achyrachaena mollis* Herbaceous Alliance
Pop. 8	1	*Amsinckia menziesii - Achyrachaena mollis* Herbaceous Alliance
Total	**1,163***	

Note: *For Population 1 and Population 3, the upper bound of estimated individuals was used to calculate the total number of individuals.

4.2 RAPTOR NEST SURVEY

A raptor nest survey was conducted on and within 5 miles of the Project site. Native and non-native mature trees suitable for raptor nesting were found within the Project site, including willows (*Salix* spp.) in the disturbed *Salix gooddingii - Salix laevigata* Forest and Woodland Alliance, a small stand (approximately nine trees total) consisting of northern California black walnut (*Juglans hindsii*), pepper tree (*Schinus molle*), elm (*Ulmus* sp.), and fan palm (*Washingtonia* sp.) in the southwestern portion of the Project site, and additional trees including eucalyptus (*Eucalyptus* sp.) within the developed area in the northwestern portion of the site. Dense trees on mountainsides and numerous additional isolated trees were also found outside the Project site within the 5-mile buffer. Potential raptor foraging habitat was found within the Project site and throughout the 5-mile buffer, which included grazing lands and agricultural areas. A total of four active nests were found during the survey, one of which was occupied by Swainson's hawk.


Pop 1
Pop 6
Pop 8
Pop 7
Pop 1
Pop 2
Pop 4
Pop 3
Pop 5
Pop 2
Pop 3
Pop 4
Pop 5
Parry's Rough Tarplant Point *
Parry's Rough Tarplant Polygon
Project Boundary
Biological Study Area
Generator Tie Route
* Points are not to scale and have been enlarged for viewing purposes.
N
0 1,000 2,000 3,000 4,000
Feet
WGS_1984_Web_Mercator_Auxiliary_Sphere
Credits:ESRI
FIGURE 2
SPECIAL-STATUS SPECIES
AND SIGN OBSERVED WITHIN
THE BIOLOGICAL STUDY AREA
JANUS SOLAR
COLUSA COUNTY, CA

Two additional nest checks were conducted at the Swainson's hawk nest during subsequent site visits (June 10, July 9). Three inactive raptor nests in close proximity were found in trees within the Project site ("Three Inactive Raptor Nests" point in Figure 3). Details on all active nests found during the survey are provided in Table 3 and the locations are shown in Figure 3.

Table 3: Raptor Active Nest Survey Results

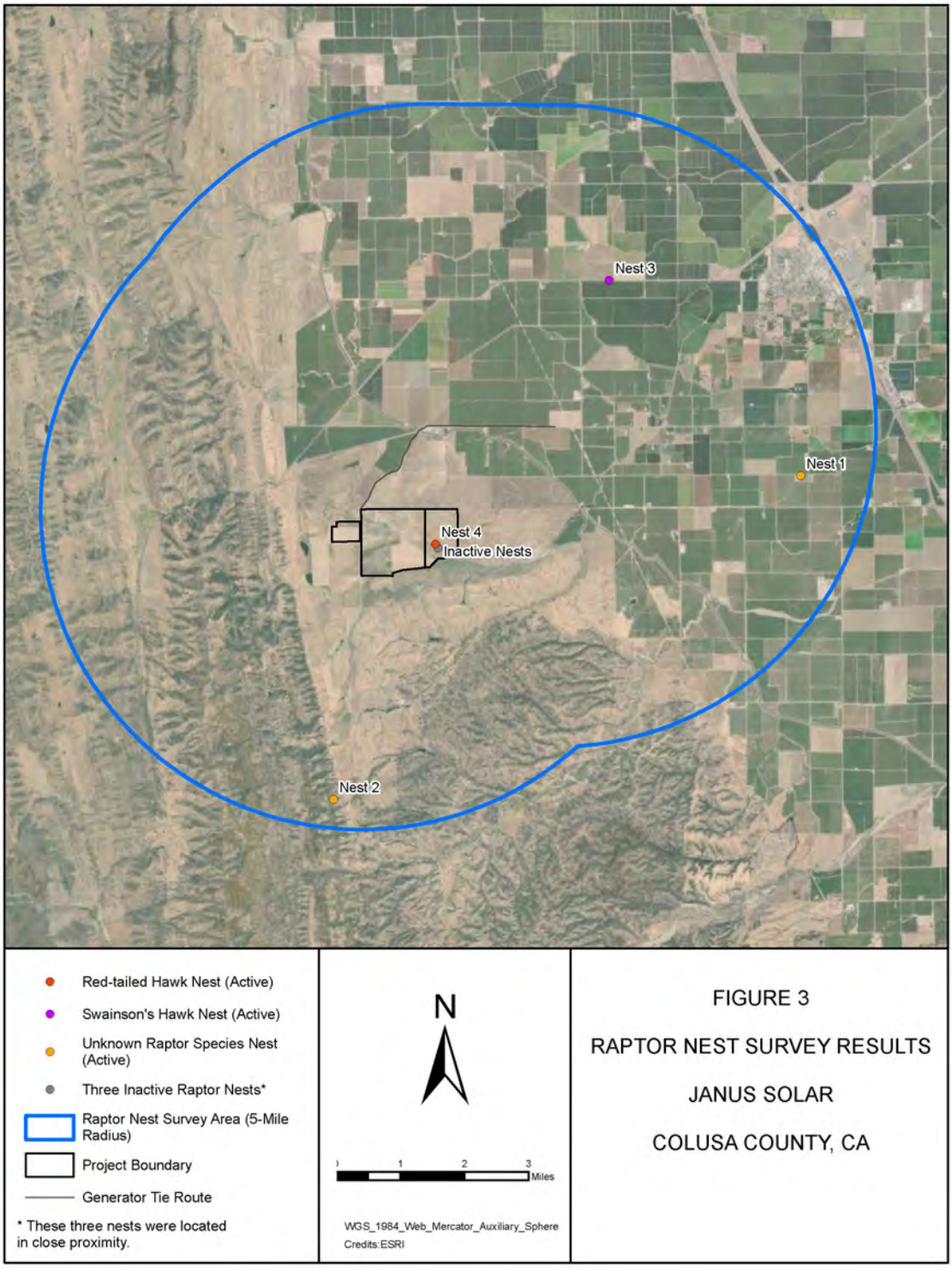
Nest ID	Scientific Name	Common Name	Project Site Location	Notes (2020)
1	Unknown species	Unknown species	Over 5 miles from the main site boundary, approximately 4 miles from the northeast end of the generator tie line (gen-tie).	One adult and one chick in nest within a tree. Unable to identify raptor species due to far distance of the nest from the closest available vantage point.
2	Unknown species	Unknown species	Approximately 3.5 miles from the main site boundary, over 4 miles from the southwest end of the gen-tie.	One individual in nest within a tree. Unable to identify raptor species due to far distance of the nest from the closest available vantage point.
3	*Buteo swainsoni*	Swainson's hawk	Over 4 miles from the main site boundary, approximately 2.5 miles from the northeast end of the gen-tie.	One adult in nest within a willow tree and soaring nearby (April). One adult perched near nest and one chick in nest (June). One individual perched on power pole near nest but no activity in nest (July).
4	*Buteo jamaicensis*	Red-tailed hawk	Within the eastern portion of the main site (Figure 3).	One individual in nest within a tree. The individual was seen soaring and returning to the nest. The nest occurred in a flat area with slopes of 10 percent on either side.

4.3 VEGETATION COMMUNITIES

Vegetation communities were updated and mapped within the BSA during the surveys (Figure 4). Changes from the vegetation map in the *Janus Solar Project Habitat Characterization Report* (Tetra Tech 2020) include the following:

- Vegetation was mapped within the 150-meter buffer.
- Vegetation communities were mapped to alliance level in accordance with the MCVII (Sawyer et al. 2009) and consistent with the BUOW protocol survey reporting requirements.
- Acres of the *Amsinckia menziesii* - *Achyrachaena mollis* Herbaceous Alliance (i.e., native forbs community) were increased. Higher cover of native forbs was found in these areas in the spring and summer of 2020, as compared to the previous survey in November 2019.
- The previous unvegetated agricultural fields community was found to be planted with common wheat (*Triticum aestivum*) and was renamed to planted common wheat fields.
- Vegetation community descriptions were updated.

No CDFW sensitive natural communities were found. All vegetated areas of the Project site have previously been or are currently being used for grazing and/or cultivation of common wheat. Table 4 summarizes the vegetation communities observed and their corresponding acreage; acreage includes the Project site and 150-meter buffer (i.e., the BSA). Descriptions of the communities are provided below. Standing water, drainages, potential wetlands, and riparian areas that occur within the Project site are described and mapped in the *Janus Solar Project Habitat Characterization Report* (Tetra Tech 2020).


Nest 3
Nest 1
Nest 4
Inactive Nests
Nest 2
Red-tailed Hawk Nest (Active)
Swainson's Hawk Nest (Active)
Unknown Raptor Species Nest (Active)
Three Inactive Raptor Nests*
Raptor Nest Survey Area (5-Mile Radius)
Project Boundary
Generator Tie Route
* These three nests were located in close proximity.
N
0 1 2 3 Miles
WGS_1984_Web_Mercator_Auxiliary_Sphere
Credits:ESRI
FIGURE 3
RAPTOR NEST SURVEY RESULTS
JANUS SOLAR
COLUSA COUNTY, CA

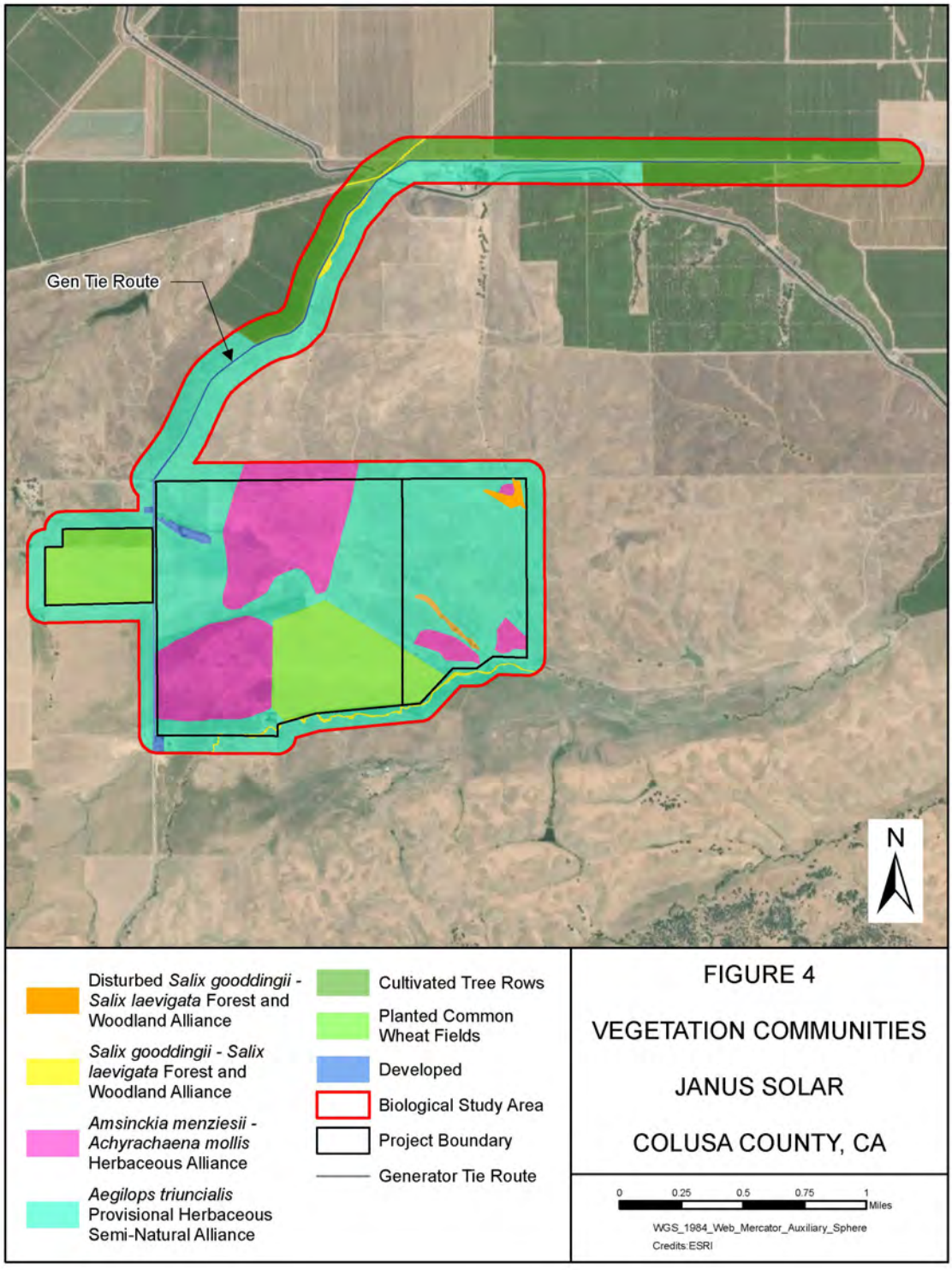

Gen Tie Route
N
Disturbed *Salix gooddingii - Salix laevigata* Forest and Woodland Alliance
Salix gooddingii - Salix laevigata Forest and Woodland Alliance
Amsinckia menziesii - Achyrachaena mollis Herbaceous Alliance
Aegilops triuncialis Provisional Herbaceous Semi-Natural Alliance
Cultivated Tree Rows
Planted Common Wheat Fields
Developed
Biological Study Area
Project Boundary
Generator Tie Route
FIGURE 4
VEGETATION COMMUNITIES
JANUS SOLAR
COLUSA COUNTY, CA
0 0.25 0.5 0.75 1 Miles
WGS_1984_Web_Mercator_Auxiliary_Sphere
Credits:ESRI

Table 4: Vegetation Communities

Vegetation Communities	Acres within BSA
Aegilops triuncialis Provisional Herbaceous Semi-Natural Alliance	885.4
Amsinckia menziesii - Achyrachaena mollis Herbaceous Alliance	286.0
Cultivated Tree Rows	247.1
Planted Common Wheat Fields	225.4
Developed	24.1
Salix gooddingii - Salix laevigata Forest and Woodland Alliance	14.2
Disturbed *Salix gooddingii - Salix laevigata* Forest and Woodland Alliance	9.0
Total	**1691.2***

Note: Total acres include the Project site and 150-meter buffer.

Over 50 percent of the BSA consisted of non-native grasslands in the *Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance. This alliance is considered a semi-natural alliance, which is defined as a vegetation community dominated by non-native plants that are naturalized (i.e., growing in the wild and reproducing) in California. In addition, nearly 30 percent of the BSA consisted of cultivated tree rows, planted common wheat fields, or developed areas, which provide poor quality habitat for native plants and wildlife. Trees in the cultivated trees rows or developed areas can provide nesting habitat for birds. The remainder of the BSA consisted of areas dominated by native forbs in the *Amsinckia menziesii - Achyrachaena mollis* Herbaceous Alliance, and small areas dominated by native willows in the *Salix gooddingii - Salix laevigata* Forest and Woodland Alliance.

Mature trees were found within the Project site, including native willows in the disturbed *Salix gooddingii - Salix laevigata* Forest and Woodland Alliance, a small stand (approximately nine trees total) consisting of native northern California black walnut, non-native pepper tree, non-native elm, and fan palm in the southwestern portion of the site, and additional trees including non-native eucalyptus within the developed area in the northwestern portion of the site.

***Aegilops triuncialis* Provisional Herbaceous Semi-Natural Alliance.** This non-native grassland community was the most common community throughout the Project site and was dominated by non-native barbed goat grass (*Aegilops triuncialis*) and non-native oat (*Avena* sp.). Other species that were common in this community were non-native yellow star thistle (*Centaurea solstitialis*) and native hayfield tarweed (*Hemizonia congesta*). Barbed goat grass and yellow star thistle are both rated high (i.e., highly invasive) by the California Invasive Plant Council (Cal-IPC; Cal-IPC 2020). Cal-IPC defines invasive plants as: plants that are not native to an environment, and once introduced, they establish, quickly reproduce and spread, and cause harm to the environment, economy, or human health (Cal-IPC 2020). All areas of this community on Project site were actively grazed by cattle.

***Amsinckia menziesii - Achyrachaena mollis* Herbaceous Alliance.** This native forb community was dominated by native common fiddleneck (*Amsinckia menziesii*) and native soft blow wives (*Achyrachaena mollis*). Other species found in this community were native miniature lupine (*Lupinus bicolor*), native purple owl's-clover (*Castilleja exserta*), native Tejon cryptantha (*Cryptantha microstachys*), native vinegarweed (*Trichostema lanceolatum)*, non-native yellow star thistle, and non-native oat. Cover of native forbs in this community in April ranged from 50 percent in the northwestern portion of the Project site to 10-20 percent in the northeastern, southeastern, and southwestern portions of the site.

Cultivated Tree Rows. These areas consisted of cultivated almond (*Prunus dulcis*) tree rows.

Planted Common Wheat Fields. These areas consisted of densely planted common wheat for grain production. Soils within this community are actively disked/tilled.

Developed. These areas included houses, barns/storage sheds, paved and dirt roads, and non-native ornamental species such as eucalyptus and rosemary (*Rosmarinus officinalis)*.

***Salix gooddingii* - *Salix laevigata* Forest and Woodland Alliance.** This native riparian community was dominated by native Goodding's black willow (*Salix gooddingii*) and native red willow (*Salix laevigata*). Other species found in this community were native Fremont cottonwood (*Populus fremontii*), native northern California black walnut, and non-native edible fig (*Ficus carica*). This community primarily occurred outside of the Project site within the 150-meter buffer. Within the Project site, this community occurred in a drainage in the southernmost portion of the site, running along the site boundary. The drainage ranged from approximately 5 to 15 feet wide, a defined bed and bank was present throughout, and standing water and wet soils were observed. Wetland hydrology and hydrophytic vegetation were also present (Tetra Tech 2020).

Disturbed *Salix gooddingii* - *Salix laevigata* Forest and Woodland Alliance. This native riparian community was similar to the version above but was heavily disturbed by intensive cattle grazing. This community occurred in the northeast and southeast portions of the Project site and was dominated by sparse native Goodding's black willow and native red willow. Native Fremont cottonwood was also found in this community.

In the northeast portion of the Project site, this community contained muddy soils and the low point had standing water. Disturbed native willows, one mature native Fremont cottonwood, canary grass (*Phalaris* sp.), non-native bindweed (*Convolvulus arvensis*), and non-native goosefoot (*Chenopodium* sp.) were present in this area. Based on aerial imagery and NWI data, this area appeared to be fed by a drainage extending to the north. Wetland hydrology was present in this area and it has the potential to be a vernal pool (Tetra Tech 2020).

In the southeast portion of the Project site, plant species in this community included native willows and native Fremont cottonwood. While no standing water or mud was observed, based on the depth of cattle footprints in the area, it appeared that the ground is wet for part of the year. A defined bed and bank was not observed in this area. Based on aerial imagery and NWI data, this area appears to have historically connected to other drainages to the north and south; however, due to intensive grazing of the Project site, this connection was not visible. Hydrophytic vegetation is likely present in this area (Tetra Tech 2020).

4.4 PLANTS AND WILDLIFE

All plant and wildlife species observed in the BSA during the surveys were recorded. The plant and wildlife species from the *Janus Solar Project Habitat Characterization Report* have been updated based on the results of the 2020 and 2021 surveys (Tetra Tech 2020). These species are listed in Tables 5 and 6.

Table 5: Plant Species Observed Within the BSA

Scientific Name	Common Name
Achyrachaena mollis(2)	soft blow wives
Aegilops triuncialis(2)*	barbed goat grass
Amaranthus retroflexus(2)*	redroot pigweed
Ambrosia psilostachya(1)(2)	western ragweed
Amsinckia menziesii(2)	common fiddleneck
Asclepias eriocarpa(1)(2)	kotolo
Asclepias fascicularis(1)(2)	narrow-leaf milkweed
Avena sp.(1)(2)*	oat
Bromus diandrus(1)(2)*	ripgut grass
Bromus hordeaceus(1)(2)*	soft brome
Calandrinia menziesii(2)	red maids

Scientific Name	Common Name
Capsella bursa-pastoris(2)*	shepherd's purse
Castilleja attenuata(2)	valley tassels
Castilleja exserta(2)	purple owl's-clover
Centaurea calcitrapa(1)(2)*	purple star-thistle
Centaurea solstitialis(1)(2)*	yellow star-thistle
Centromadia fitchii(2)	spikeweed
Centromadia parryi ssp. *rudis*(1)(2)**	Parry's rough tarplant
Chenopodium album(1)(2)*	lamb's quarters
Chenopodium murale(1)(2)*	nettle leaf goosefoot
Convolvulus arvensis(1)(2)*	bindweed
Croton setiger(1)(2)	doveweed
Cryptantha microstachys(2)	Tejon cryptantha
Cynara cardunculus(2)*	artichoke thistle
Cynodon dactylon(1)(2)*	Bermuda grass
Cyperus esculentus var. *leptostachyus*(2)	yellow nutsedge
Dipsacus fullonum(2)*	wild teasel
Dipterostemon capitatus(2)	blue dicks
Echinochloa crus-galli(2)*	barnyard grass
Eleocharis macrostachya(2)	common spikerush
Erigeron sp.(1)(2)	fleabane daisy
Erodium sp.(1)(2)*	filaree
Eryngium sp.(2)	button-celery
Eucalyptus sp.(1)(2)*	eucalyptus
Festuca perennis(2)*	rye grass
Ficus carica(2)*	edible fig
Galium sp.(2)	bedstraw
Hemizonia congesta(1)(2)	hayfield tarweed
Hirschfeldia incana(2)*	Mediterranean hoary mustard
Hordeum murinum(2)*	wall barley
Hordeum vulgare(2)*	barley
Juglans hindsii(1)(2)	northern California black walnut
Juncus effusus(1)(2)	soft rush
Juncus torreyi(1)(2)	Torrey's rush
Lactuca sp.(1)(2)*	lettuce
Lepidium latifolium(2)*	perennial pepperweed
Lepidium nitidum(2)	peppergrass
Lupinus bicolor(2)	miniature lupine
Lupinus microcarpus(2)	chick lupine
Lupinus succulentus(2)	arroyo lupine
Lythrum hyssopifolia(2)*	hyssop loosestrife
Malva parviflora(1)(2)*	cheeseweed
Malvella leprosa(2)	alkali-mallow
Marrubium vulgare(1)(2)*	white horehound
Matricaria discoidea(2)	pineapple weed
Medicago polymorpha(2)*	California burclover
Melilotus indicus(2)*	sourclover
Micropus californicus(2)	q-tips
Myoporum sp.(2)*	myoporum
Persicaria sp.(2)	smartweed

Scientific Name	Common Name
Phalaris sp.[1][2]	canary grass
Plantago erecta[2]	California plantain
Platanus sp.[2]	sycamore
Poa bulbosa[2]*	bulbous blue grass
Polygonum aviculare[2]*	knotweed
Polypogon monspeliensis[2]*	annual beard grass
Populus fremontii[1][2]	Fremont cottonwood
Proboscidea sp.[2]*	unicorn-plant
Prunus dulcis[1][2]*	almond
Pseudognaphalium sp.[1][2]	cudweed
Quercus agrifolia[1][2]	coast live oak
Rosmarinus officinalis[1][2]	rosemary
Rumex sp.[1][2]	dock
Salix gooddingii[1][2]	Goodding's black willow
Salix laevigata[1][2]	red willow
Schinus molle[1][2]*	pepper tree
Schismus barbatus[2]*	Common Mediterranean grass
Schoenoplectus sp.[2]	bulrush
Senecio sp.[2]	ragwort
Silybum marianum[2]*	blessed milk thistle
Sonchus oleraceus[2]*	common sow thistle
Spergularia sp.[2]	sand-spurrey
Stellaria sp.[2]	chickweed
Taraxacum officinale[2]*	common dandelion
Trichostema lanceolatum[1][2]	vinegar weed
Trifolium hirtum[2]*	rose clover
Triticum aestivum[2]*	common wheat
Typha sp.[1][2]	cattail
Ulmus sp.[2]*	elm
Vicia villosa[2]*	hairy vetch
Washingtonia sp.[1][2]	fan palm
Xanthium spinosum[2]*	spiny cocklebur
Xanthium strumarium[1][2]	cocklebur

Notes:

(1) Observed in 2019.

(2) Observed in 2020.

(3) Observed in 2021.

*Non-native species

**CNPS Rank 4.2: Limited distribution or infrequent throughout a broad area in California, and moderately threatened in the state (20 to 80 percent of occurrences are threatened).

Table 6: Wildlife Species Observed Within the BSA

Scientific Name	Common Name
Mammals	
Bos taurus[1][2]	domestic cow
Canis latrans[1][2]	coyote
Equus ferus caballus[2]	domestic horse
Felis catus[2]	domestic cat

Scientific Name	Common Name
Lepus sp.[2]	jackrabbit
Spermophilus sp.[1][2]	ground squirrel
Birds	
Agelaius phoeniceus[1][2]	red-winged blackbird
Athene cunicularia[3]	Burrowing owl
Branta canadensis[2]	Canada Goose
Bubo virginianus[2]	great horned owl
Buteo jamaicensis[1][2]	red-tailed hawk
Buteo swainsoni[2]**	Swainson's hawk
Callipepla californica[3]	California quail
Cathartes aura[1][2]	turkey vulture
Charadrius vociferus[2]	killdeer
Circus hudsonius[1][2]*	northern harrier
Columba livia[2]	rock pigeon
Corvus corax[2]	common raven
Eremophila alpestris[1][2]	horned lark
Euphagus cyanocephalus[1][2]	Brewer's blackbird
Falco columbarius[1]*	merlin
Falco mexicanus[2]*	prairie falcon
Falco sparverius[1][2]	American kestrel
Haemorhous mexicanus[2]	house finch
Lanius ludovicianus[1][2]*	loggerhead shrike
Mimus polyglottos[2]	northern mockingbird
Molothrus ater[1][2]	brown-headed cowbird
Passerculus sandwichensis[1][2]	savannah sparrow
Pica sp.[2]	magpie
Plegadis chihi[3]*	white-faced ibis
Sayornis nigricans[1][2]	black phoebe
Sayornis saya[1][2]	Say's phoebe
Spinus psaltria[2]	lesser goldfinch
Streptopelia decaocto[1][2]	Eurasian collared-dove
Sturnella neglecta[1][2]	western meadowlark
Sturnus vulgaris[2]	European starling
Troglodytes aedon[2]	house wren
Tyrannus sp.[2]	kingbird
Tyto alba[2]	barn owl
Zenaida macroura[1][2]	mourning dove
Zonotrichia leucophrys[1][2]	white-crowned sparrow
Invertebrates	
Bombus sp.[2]***	bumble bee
Danaus plexippus[1][2]	monarch
Erythemis sp.[2]	pondhawk
Hemipepsis or *Pepsis* sp.[2]	tarantula hawk
Mantodea[2]	mantis
Vanessa cardui[2]	painted lady
Reptiles and Amphibians	
Anaxyrus boreas halophilus[2]	California toad
Elgaria sp.[2]	alligator lizard
Pituophis catenifer catenifer[2]	Pacific gophersnake

Scientific Name	Common Name
Pseudacris sp.(2)	treefrog
Sceloporus occidentalis occidentalis(2)	northwestern fence lizard

Notes:

(1) Observed in 2019.

(2) Observed in 2020.

(3) Observed in 2021.

*CDFW Species of Special Concern or Watch List

**State Threatened species

***The State Candidate Endangered crotch bumble bee (*Bombus crotchii*) is not known to occur within 15 miles of the Project site (CDFW 2020). This species is unlikely to nest on the Project site because soils on the site are hard and heavily compacted by consistent active grazing or are routinely planted with dense common wheat. Minimal thatch in the form of dead non-native herbs was found during the surveys, but dead vegetation primarily occurred as standing dead plants. Moreover, while California burclover (*Medicago polymorpha*), a suitable floral resource for the crotch bumble bee, was found on the Project site, it was sparse and predominately occurred along existing roads. Therefore, the bumble bee observed was determined to be a common species.

4.5 SPECIAL-STATUS SPECIES

Special-status plant and wildlife species and habitats that could support these species were recorded within the BSA. No Critical Habitat occurs within the BSA (USFWS 2020b). Conclusions and recommendations for these species are discussed in Section 6 of this Report. One rare annual forb, Parry's rough tarplant (CNPS Rank 4.2), was found during the surveys. This species is described in Section 4.1. Approximately 1,163 individuals were found within the Project site (Figure 2).

It was determined that the Project site is in the known distributional range of the BUOW and the site contains potentially suitable BUOW habitat due to low-growing grazed vegetation and agricultural use. The closest BUOW occurrence from CNDDB is 2 miles from the Project site. BUOW is a CDFW Species of Special Concern. BUOWs breed and live in burrows and use coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean Desert scrub, Sonoran Desert scrub, and valley and foothill grassland habitats as well as agricultural areas or any open dry area with low vegetation. Multiple BUOW individuals were observed during a cultural survey in November 2020 and during the protocol winter season survey in January 2021. Feathers and whitewash were also observed at some burrows. Results of the BUOW surveys are provided in a separate report.

The Swainson's hawk is listed as Threatened in California and is known to occur in Great Basin grassland, riparian forest, riparian woodland, and valley and foothill grassland habitats. This species nests in California in trees and on man-made structures such as power poles between March 1 and September 15. Two adult Swainson's hawks were observed within the central portion of the Project site. The two individuals were observed briefly on the ground, perched on a cattle fence, and flying overhead during the rare plant survey on April 9, 2020. One active Swainson's hawk nest was found within the 5-mile buffer, approximately 2.5 miles from the northeast end of the gen-tie at the Cortina substation and over 4 miles from the main Project site boundary (Figure 3). Details on this nest are provided in Section 5.4 of this Report.

The northern harrier (*Circus hudsonius*) and loggerhead shrike (*Lanius ludovicianus*) are CDFW Species of Special Concern, and the prairie falcon (*Falco mexicanus*), merlin (*Falco columbarius*), and white-faced ibis (*Plegadis chihi*) are CDFW Watch List. Northern harriers nest on the ground mostly within patches of dense, often tall, vegetation and use coastal scrub, Great Basin grassland, marsh and swamp, riparian scrub, valley and foothill grassland, and wetland habitats as well as weed fields and croplands. Loggerhead shrikes nest within trees and shrubs and use broadleaved upland forest, desert wash, Joshua tree

woodland, Mojavean Desert scrub, piñon and juniper woodlands, riparian woodland, and Sonoran Desert scrub habitats. Prairie falcons most often nest in cliffs or bluffs, and inhabit dry, open level or hilly terrain. Merlins inhabit open forests and grasslands but do not nest in California. The white-faced ibis nests in dense, freshwater emergent wetland, extensive marshes, and rarely in trees, but no longer breeds regularly anywhere in California (California Department of Fish and Game 2005). The white-faced ibis prefers to forage in freshwater emergent wetland, shallow lakes, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Transient individuals of these five species were observed foraging and perching in the vicinity of the Project site but no nests were found.

Native birds and their nests are protected under the Federal Migratory Bird Treaty Act (MBTA). One active red-tailed hawk (*Buteo jamaicensis*) nest was found within the Project site (Figure 3). While this species is not federally or state listed, active nests are protected under the MBTA. Details on this nest are provided in Section 5.4 of this Report. No other active nests were found within the Project site.

No large underground holes or dens were found that would be considered suitable for habitation by the American Badger (*Taxidea taxus*), a CDFW Species of Special Concern. Culverts are sometimes used by this species for refuge or to pass safely beneath roads. Seven culverts that were of sufficient size for American badger were found within the BSA.

Potential and observed special-status plant and wildlife species that may occur within the Project site have been reviewed and updated, based on the results of the 2020 and 2021 field surveys. The potential to occur for each species has been analyzed. These species are presented in Table 7.

Table 7: Special-status Species with Potential to Occur on the Project Site

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Plants					
Acmispon rubriflorus	red-flowered bird's-foot trefoil	None	None/1B.1	Cismontane woodland, Valley and foothill grassland.	**Low**. The Project site contained primarily non-native grasslands and planted common wheat fields and is actively grazed. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Amsinckia lunaris	bent-flowered fiddleneck	None	None/1B.2	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland.	**Low**. While there are four known occurrences within the Salt Canyon quadrangle, the Project site contained primarily non-native grasslands and planted common wheat fields and is actively grazed. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Astragalus breweri	Brewer's milk-vetch	None	None/4.2	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland (open, often gravelly).	**Low**. The Project site contained primarily non-native grasslands and planted common wheat fields and is actively grazed. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Astragalus tener var. *ferrisiae*	Ferris' milk-vetch	None	None/1B.1	Meadow and seep, Valley and foothill grassland, Wetland.	**Low.** While this species is known to occur within 5 miles of the Project site, non-native grassland and wetland habitat and drainages on the site were highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Atriplex depressa	brittlescale	None	None/1B.2	Alkali playa, Chenopod scrub, Meadow and seep, Valley and foothill grassland, Vernal pool, Wetland.	**Low.** Non-native grassland and wetland habitat and drainages on the Project site were highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Balsamorhiza macrolepis	big-scale balsamroot	None	None/1B.2	Chaparral, Cismontane woodland, Ultramafic*, Valley and foothill grassland.	**Low**. The Project site contained primarily non-native grasslands and planted common wheat fields and is actively grazed. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Calystegia collina ssp. *tridactylosa*	three-fingered morning-glory	None	None/1B.2	Chaparral, Cismontane woodland, Ultramafic*.	**Low.** Preferred suitable habitat was not present on the Project site. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Castilleja rubicundula var. *rubicundula*	pink creamsacs	None	None/1B.2	Chaparral, Cismontane woodland, Meadow and seep, Ultramafic*, Valley and foothill grassland.	**Low**. While there is one known occurrence within the Salt Canyon quadrangle, non-native grassland and wetland habitat and drainages on the Project site were highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Centromadia parryi ssp. *parryi*	pappose tarplant	None	None/1B.2	Chaparral, Coastal prairie, Marsh and swamp, Meadow and seep, Valley and foothill grassland.	**Low.** There is one known occurrence within the Salt Canyon quadrangle. While the Project site is highly disturbed due to consistent active grazing, this species can persist in disturbed areas. This species was not found during the rare plant survey that was conducted during the blooming period. The dried-up population of *Centromadia* sp. that was identified during the field spot check in November 2019 was determined to be Parry's rough tarplant (*Centromadia parryi* ssp. *rudis*) during the surveys in 2020. Therefore, potential to occur is low.
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	None	None/4.2	Valley and foothill grassland, Vernal pools.	**Observed.** Nine populations of this species were found within the Project site (total of approximately 1,163 individuals). The populations were generally located on previously disturbed soils with relatively higher cover of bare ground and lower cover of non-native grasses.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Cryptantha rostellata	red-stemmed cryptantha	None	None/4.2	Cismontane woodland, Valley and foothill grassland.	**Low.** Grassland habitat on the Project site consisted of primarily non-native species and was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Delphinium recurvatum	recurved larkspur	None	None/1B.2	Chenopod scrub, Cismontane woodland, Valley and foothill grassland.	**Low.** Grassland habitat on the Project site consisted of primarily non-native species and was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Extriplex joaquinana	San Joaquin spearscale	None	None/1B.2	Alkali playa, Chenopod scrub, Meadow and seep, Valley and foothill grassland.	**Low**. While there is one known occurrence within the Salt Canyon quadrangle, non-native grassland and wetland habitat and drainages on the Project site were highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Fritillaria pluriflora	adobe-lily	None	None/1B.2	Chaparral, Cismontane woodland, Ultramafic*, Valley and foothill grassland.	**Low**. There are five known occurrences within the Salt Canyon quadrangle, and although the Project site is disturbed due to consistent active grazing, preferred clay soils are present throughout (USDA NRCS 2020). This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Hesperolinon bicarpellatum	two-carpellate western flax	None	None/1B.2	Chaparral, Ultramafic*.	**Low.** Preferred suitable habitat was not present on the Project site. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Hesperolinon drymarioides	drymaria-like western flax	None	None/1B.2	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Ultramafic*, Valley and foothill grassland.	**Low.** Grassland habitat on Project site consisted of primarily non-native species and was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Heteranthera dubia	water star-grass	None	None/2B.2	Marsh and swamp.	**Low.** While standing water and disturbed drainages were observed within the Project site, marsh and swamp habitat was not found. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Horkelia bolanderi	Bolander's horkelia	None	None/1B.2	Cismontane woodland, Lower montane coniferous forest, Meadow and seep, Valley and foothill grassland.	**Low**. While there is one known occurrence within the Salt Canyon quadrangle, non-native grassland and wetland habitat and drainages on the Project site were highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Layia septentrionalis	Colusa layia	None	None/1B.2	Chaparral, Cismontane woodland, Ultramafic*, Valley and foothill grassland.	**Low.** Grassland habitat on Project site consisted of primarily non-native species and was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Micropus amphibolus	Mt. Diablo cottonweed	None	None/3.2	Broad-leafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland.	**Low.** Grassland habitat on Project site consisted of primarily non-native species and was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Myosurus minimus ssp. *apus*	little mousetail	None	None/3.1	Valley and foothill grassland, Vernal pools (alkaline).	**Low.** Grassland habitat on Project site consisted of primarily non-native species and was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Navarretia leucocephala ssp. *bakeri*	Baker's navarretia	None	None/1B.1	Cismontane woodland, Lower montane coniferous forest, Meadow and seep, Valley and foothill grassland, Vernal pool, Wetland.	**Low.** Grassland habitat on Project site consisted of primarily non-native species and was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Navarretia nigelliformis ssp. nigelliformis	adobe navarretia	None	None/4.2	Valley and foothill grassland vernally mesic, Vernal pools sometimes.	**Low.** While there are four known occurrences within the Salt Canyon quadrangle, non-native grassland and wetland habitat on the Project site was highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Navarretia nigelliformis ssp. *radians*	shining navarretia	None	None/1B.2	Cismontane woodland, Valley and foothill grassland, Vernal pool, Wetland.	**Low**. Non-native grassland and wetland habitat and drainages on the Project site were highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Plagiobryoides vinosula	wine-colored tufa moss	None	None/4.2	Cismontane woodland, Mojavean desert scrub, Meadows and seeps, Pinyon and juniper woodland, Riparian woodland.	**Low.** Riparian woodland tree species were low in numbers and located in disturbed areas. Riparian habitat on the Project site was highly disturbed due to consistent active grazing. This species was not found during the rare plant surveys. Therefore, potential to occur is low.
Puccinellia simplex	California alkali grass	None	None/1B.2	Chenopod scrub, Meadow and seep, Valley and foothill grassland, Vernal pool.	**Low.** Non-native grassland and wetland habitat and drainages on the Project site were highly disturbed due to consistent active grazing. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Sidalcea keckii	Keck's checkerbloom	Endangered	None/1B.1	Cismontane woodland, Ultramafic*, Valley and foothill grassland.	**Low**. While there is one known occurrence within the Salt Canyon quadrangle, the Project site contained primarily non-native grasslands and planted common wheat fields and is actively grazed. This species was not found during the rare plant survey that was conducted during the blooming period. Therefore, potential to occur is low.
Birds					
Accipiter cooperii	Cooper's hawk	None	None/WL	Woodland, chiefly of open, interrupted or marginal type.	**Low.** Some perching and foraging habitat is available on the Project site. However, only limited potential nesting sites and disturbed woodland habitat is present. This species was not found during the raptor nest survey. Therefore, potential to occur is low.
Agelaius tricolor	tricolored blackbird	None	Threatened/ S, SSC, BCC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	**Low.** Preferred vast marshland habitat suitable to colonies of this species are not present on the Project site. Therefore, potential to occur is low.
Aquila chrysaetos	golden eagle	None	None/S, FP, WL, BCC	Rolling foothills, mountain areas, sage-juniper flats, and desert.	**Low.** The Project site is highly disturbed due to consistent active grazing, and preferred habitat is not present on the site. Therefore, potential to occur is low.
Athene cunicularia	burrowing owl	None	None/S, SSC, BCC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	**Observed.** Multiple BUOWs were observed during the November 2020 cultural survey and the winter season surveys in January 2021. Feathers and whitewash were also observed at some burrows.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Buteo swainsoni	Swainson's hawk	None	Threatened/ S, BCC	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	**Observed.** Foraging habitat and preferred nesting habitat of solitary or small groves of trees near agricultural fields are present on the Project site (The Cornell Lab 2019). Two adult Swainson's hawks were briefly observed within the central portion of the Project site on the ground, perched on a cattle fence, and flying overhead during the rare plant survey. In addition, one active Swainson's hawk nest was found within the 5-mile raptor survey buffer, approximately 2.5 miles from the northeast end of the gen-tie at the Cortina substation and over 4 miles from the main Project site boundary.
Circus hudsonius	northern harrier	None	None/SSC	Wetlands, grasslands, fields, estuaries, open floodplain, and marshes (The Cornell Lab 2019).	**Observed.** While this species did not appear in the CNDDB 9-quadrangle search, two individuals were observed flying overhead during the field spot check in November 2019 and approximately three individuals were observed during the surveys in 2020. Nesting is not likely on the Project site, as this species is not tolerant of disturbance when nesting (The Cornell Lab 2019).
Elanus leucurus	white-tailed kite	None	None/S, FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	**Low.** Some perching and foraging habitat is available on the Project site. However, only limited potential nesting sites and disturbed woodland habitat is present. This species was not found during the raptor nest survey. Therefore, potential to occur is low.
Falco columbarius	merlin	None	None/WL	Open forests and grasslands (The Cornell Lab 2019).	**Observed.** While this species did not appear in the CNDDB 9-quadrangle search, one individual was observed perching on the Project site during the field spot check in November 2019. Merlin nesting does not occur in California.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Falco mexicanus	prairie falcon	None	None/WL, BCC	Inhabits dry, open level or hilly terrain.	**Observed.** Preferred foraging habitat is available on the Project site. However, preferred cliff or bluff nesting habitat is not present. One individual of this species was observed foraging and perching in the vicinity of the Project site but no nests were found.
Lanius ludovicianus	loggerhead shrike	None	SSC	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean Desert scrub, pinon and juniper woodlands, riparian woodland, Sonoran Desert scrub.	**Observed.** Some perching and foraging habitat is available on the Project site. However, only limited potential nesting sites (i.e., trees and shrubs) are present on the Project site and the site is heavily disturbed by consistent active grazing. Individuals of this species were observed foraging and perching in the vicinity of the Project site but no nests were found.
Plegadis chihi	white-faced ibis	None	None/WL	Nests in dense, freshwater emergent wetland, extensive marshes, and rarely in trees, but no longer breeds regularly anywhere in California (California Department of Fish and Game 2005). Forages in freshwater emergent wetland, shallow lakes, muddy ground of wet meadows, and irrigated or flooded pastures and croplands.	**Observed.** Foraging habitat is available on the Project site. However, preferred nesting sites (i.e., dense, freshwater emergent wetland and extensive marshes) do not occur on the Project site and the site is heavily disturbed by consistent active grazing. Numerous individuals of this species were observed foraging in grasslands within the Project site but no nests were found.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Mammals					
Antrozous pallidus	pallid bat	None	None/S, SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	**Low.** Suitable open, non-urbanized, foraging habitat is available on the Project site. However, preferred rocky roosting sites are not available. Therefore, potential to occur is low.
Corynorhinus townsendii	Townsend's big-eared bat	None	None/S, SSC	Throughout California in a wide variety of habitats. Most common in mesic sites.	**Low.** The nearest CNDDB occurrence of this species is approximately 8 miles from the Project site. While suitable open, non-urbanized, foraging habitat is available on the Project site, this species is unlikely to roost on the site because caves, cliffs, and rock ledges do not occur. While this species may roost in man-made structures, few structures occur on the Project site and this species is extremely sensitive to human disturbance. Therefore, potential to occur is low.
Lasiurus blossevillii	western red bat	None	None/SSC	Roosts primarily in trees, 2-40 ft above ground	**Low.** The nearest CNDDB occurrences of this species are from 1954 and 1999 and are approximately 15 miles or more from the Project site. While suitable open, non-urbanized, foraging habitat is available on the Project site, this species is unlikely to roost on the site because trees within the desired height range are limited in numbers on the site and do not form dense stands that are used for roosting. Therefore, potential to occur is low.
Perognathus inornatus	San Joaquin Pocket Mouse	None	None/S	Grassland, oak savanna and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert.	**Low.** Non-native grassland is present on the Project site; however, it is highly disturbed by active grazing and formed dense swards, which are not preferable for pocket mouse burrows. Additionally, burrows that were observed on the Project site during the surveys were likely created by ground squirrels, and appeared too big to be suitable to mice. The nearest CNDDB occurrence is over 10 miles from the Site. Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Taxidea taxus	American badger	None	None/SSC	Open stages of most shrub, forest, and herbaceous habitats, with friable soils.	**Moderate.** There is one CNDDB occurrence approximately 1.5 miles from the Project site; however, the site is highly disturbed by consistent active grazing. This species was not observed during the surveys and no large underground holes or potential burrows/dens were found in the vicinity of the Project site that would be considered suitable for habitation by this species. Seven culverts of sufficient size, which were found along existing roads within the Project site and 150-meter buffer, are sometimes used by this species for refuge or to pass safely beneath roads. Therefore, potential to occur is moderate.
Amphibians					
Emys marmorata	western pond turtle	None	None/S, SSC	Ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	**Low.** While one drainage with flowing water was observed on the Project site, aquatic vegetation was sparse and highly disturbed by consistent active grazing. A lack of native habitat was present on the Project site and the nearest CNDDB known occurrence is approximately 5 miles from the site. Therefore, potential to occur is low.
Rana boylii	foothill yellow-legged frog	None	Candidate Threatened/ S, SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	**Low.** Although highly disturbed by consistent active grazing, one drainage with flowing water was observed on the Project site. However, this drainage was not observed to have a rocky substrate. The nearest CNDDB occurrence is over 4 miles south of the Project site in Cortina Creek from 1993. Therefore, potential to occur is low.
Spea hammondii	western spadefoot	None	None/S, SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands.	**Low.** While non-native grassland habitat is present on the Project site, it is highly disturbed due to consistent active grazing, and the nearest CNDDB occurrence is over 5 miles from the site. Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Invertebrates					
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Threatened	None	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*).	**Low.** Blue elderberry was not observed on the Project site during surveys. Therefore, potential to occur is low.
Lepidurus packardi	vernal pool tadpole shrimp	Endangered	None	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	**Low.** While all potential wetland areas on the Project site were highly disturbed due to consistent active grazing, two standing water features were observed in November 2019 (Tetra Tech 2020). All potential jurisdictional features, including these areas with standing water, will be avoided during Project implementation. The nearest CNDDB occurrence of this species is from 1993 and is approximately 7 miles from the Project site; this is the only known occurrence within 15 miles from the site. Only two vernal pool tadpole shrimp occurrences are recorded in Colusa County. Vernal pools in the Solano-Colusa Region are typically alkaline, may have whitish salt deposits, and support salt-tolerant plant species (California Department of Fish and Game 1998). Soils underlying the vernal pools in this Region most commonly include Pescadero Clay Loam, Sycamore, Willows, and Riz series (California Department of Fish and Game 1998). Neither salt deposits nor the plant species listed above were observed during surveys of the Project site. In addition, the soil series listed above do not occur on the Project site (USDA NRCS 2020). Moreover, plowed fields, such as those that occur on the Project site, and which could have historically held vernal pool habitat, do not typically support vernal pool species (Federal Register 1994). Therefore, potential to occur is low.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Habitat	Potential to Occur
Lytta molesta	molestan blister beetle	None	None	Known preferred habitat information for this species across California is sparse.	**Low.** The entire Project site is highly disturbed due to consistent active grazing, and the nearest CNDDB occurrence is over 10 miles from the Site. Therefore, potential to occur is low.
Saldula usingeri	Wilbur Springs shorebug	None	None	Requires springs/creeks with high concentrations of minerals.	**Low.** The entire Project site is highly disturbed due to consistent active grazing. No hot springs (waters commonly containing high mineral concentrations) were present on the Project site. Therefore, potential to occur is low.
Thamnophis gigas	giant gartersnake	Threatened	Threatened	Freshwater marsh and low gradient streams. Adapted to drainage canals and irrigation ditches.	**Low.** All potential wetland areas on the Project site were highly disturbed due to consistent active grazing; this species is highly associated with developed and irrigated agricultural fields. No irrigated agricultural fields are present on the Project site and only common wheat was in production on the site. The nearest CNDDB occurrence is approximately 4 miles away and within an agricultural area. Therefore, the potential to occur is low.

Notes:

*Ultramafic is a geologic term used to define a type of rock with very low silica content and rich in minerals such as hypersthene, augite, and olivine (Geoscience News and Information 2019).

Results are based on CNDDB and CNPS query for 9 regional quadrangles (Cortina Creek, Salt Canyon, Manor Slough, Williams, Rumsey, Glascock Mountain, Wilson Valley, Wilbur Springs, and Leesville). BCC = USFWS Birds of Conservation Concern; FP = CDFW Fully Protected; S = BLM Sensitive Species; SSC = CDFW Species of Special Concern; WL = CDFW Watch List.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The use of heavy machinery and ground disturbance during construction could impact special-status plants, BUOW, Swainson's hawk, raptors and other nesting birds such as loggerhead shrike, American badger, or other special-status species, if present. The jurisdictional delineation identified features that are under USACE, RWQCB, and/or CDFW jurisdiction. Future coordination with each of these agencies will be required if impacts to these areas are anticipated.

Special-status species and habitats observed at the site or with moderate to high potential to occur at the site are summarized in Table 8.

Table 8: Special-status Species and Habitat Summary

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Summary
Centromadia parryi ssp. *rudis*	Parry's rough tarplant	None	None/4.2	Nine populations of Parry's rough tarplant were found within the Project site (total of approximately 1,163 individuals) as shown in Figure 2. The populations were generally located on previously disturbed soils with relatively higher cover of bare ground and lower cover of non-native grasses.
Athene cunicularia	burrowing owl	None	SSC	BUOWs were observed during the November 2020 cultural survey and the January 2021 winter season survey.
Buteo swainsoni	Swainson's hawk	None	Threatened	Two adult Swainson's hawks were briefly observed within the central portion of the Project site on the ground, perched on a cattle fence, and flying overhead during the rare plant survey. In addition, one active Swainson's hawk nest was found within the 5-mile raptor survey buffer, approximately 2.5 miles from the northeast end of the generator tie line at the Cortina substation and over 4 miles from the main Project site boundary (Figure 3).
Circus hudsonius	northern harrier	None	SSC	Two northern harriers were observed flying overhead during the field spot check in November 2019 and approximately three harriers were observed during the surveys in 2020. Nesting is not likely on the Project site, as this species is not tolerant of disturbance when nesting (The Cornell Lab 2019).
Falco columbarius	merlin	None	None/WL	One merlin was observed perching on the Project site during the field spot check in November 2019. Merlin nesting does not occur in California.
Falco mexicanus	prairie falcon	None	None/WL, BCC	One prairie falcon was observed foraging and perching in the vicinity of the Project site but no nests were found. This species is unlikely to nest within the Project site because cliff/bluff nesting habitat is not present on the site.
Lanius ludovicianus	loggerhead shrike	None	SSC	Individuals of this species were observed foraging and perching in the vicinity of the Project site but no nests were found. The Project site provides only limited potential nesting sites (i.e., trees and shrubs) and is heavily disturbed by consistent active grazing.

Scientific Name	Common Name	Federal Status	State Status/ Other Status	Summary
Plegadis chihi	white-faced ibis	None	None/WL	Numerous individuals of this species were observed foraging in grasslands within the Project site but no nests were found. This species is unlikely to nest within the Project site because preferred nesting sites (i.e., dense, freshwater emergent wetland and extensive marshes) do not occur. In addition, this species no longer breeds regularly anywhere in California (California Department of Fish and Game 2005).
Native raptor and bird nests		Migratory Bird Treaty Act	Migratory Bird Protection Act	One active red-tailed hawk nest was found within the Project site (Figure 3). One individual was observed in the nest.
Taxidea taxus	American badger	None	SSC	American badger was not observed during the surveys and no large underground holes or potential burrows/dens were found in the vicinity of the Project site that would be considered suitable for habitation by this species. Seven culverts of sufficient size, which were found along existing roads within the Project site and 150-meter buffer, are sometimes used by this species for refuge or to pass safely beneath roads.

Notes: 4.2 = CNPS watch list; BCC = USFWS Birds of Conservation Concern; S = BLM Sensitive Species; SSC = CDFW Species of Special Concern; WL = CDFW Watch List.

The results of the surveys have been used to develop recommendations for pre-construction surveys and avoidance and minimization measures. These recommendations are preliminary and will be refined during the California Environmental Quality Act (CEQA) process as more details about the Project design and schedule are determined. If potential habitat for special-status species can be avoided during finalization and implementation of the Project, the avoidance and minimization measures may be reduced.

One rare plant species, Parry's rough tarplant (CNPS Rank 4.2), was found within the Project site. It is recommended that Project impacts avoid or provide other protection and/or relocation measures for the populations of this species shown in Figure 2. While Parry's rough tarplant is not federally or state listed, impacts to this species will need to be evaluated in the CEQA document and mitigation measures would be required if avoidance is not possible. Consultations with the USFWS or CDFW are not required for this species.

Impacts to BUOW during construction activities can be avoided through pre-construction surveys, and if found, the establishment of temporary no-work buffer zones or a passive relocation program if burrow avoidance is infeasible. A Project-specific mitigation plan shall be prepared for CDFW review and approval and implemented to protect BUOW and their nest sites. Recommendations for BUOW are provided in a separate report.

Raptors and other nesting birds have the potential to nest at the Project site. Therefore, the following measures are recommended for these species:

- Avoid ground-disturbing and vegetation removal activities during the nesting bird season (February 1 to September 15). If these activities must occur during the nesting season, a pre-construction nesting bird survey will be conducted by a qualified biologist on and within 500 feet of the construction area. The survey will be conducted no more than 14 days prior to initiation of these activities and repeated between delays of greater than 14 days during the nesting season.
- If an active nest is found, a minimum no-disturbance buffer of 50 feet around active nests of non-listed bird species and a minimum 200-foot no-disturbance buffer around active nests of non-

listed raptors species will be flagged around the nest (this distance may be modified by the qualified biologist based on the bird species found). Ground-disturbing or vegetation removal activities may only occur within the buffer at the discretion of the qualified biologist, after the nesting season has ended, or after the nest is vacated and juveniles have fledged, as determined by the qualified biologist.

Swainson's hawk has the potential to nest within or near the Project site. Additional analysis is recommended to determine if the Project would result in a considerable loss of Swainson's hawk foraging habitat based on the percentage of total suitable foraging habitat in the region that would be impacted by the Project. The following measure is recommended to protect nesting Swainson's hawks:

- Avoid ground-disturbing activities during the Swainson's hawk nesting season (March 1 to September 15). If these activities must occur during the nesting season, pre-construction Swainson's hawk surveys will be conducted by a qualified biologist in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). Surveys will occur no more than 10 days prior to the start of Project implementation. These surveys will be conducted on all areas within 0.5 miles of the construction area.
- If no active nests are discovered, no further action is required. If an active Swainson's hawk nest is found within 0.5 miles of the construction area, consultation with CDFW is required prior to starting any construction-related activities within 0.5 miles from the nest. Construction-related activities may commence in areas greater than 0.5 miles from the active nest. The active nest will be monitored periodically by a qualified biologist until the nesting season has ended or the nest is vacated and adult and juvenile Swainson's hawks have left the area, as determined by the qualified biologist. Restrictions on construction will be lifted when the nesting season has ended or the Swainson's hawks have left the area.

The following measure for American badger is recommended:

- If a burrow/den that could support American badger is found during the pre-construction surveys for burrowing owl, a minimum buffer of 100 feet will be established around the burrow/den. No construction work will occur within this buffer unless a qualified biologist determines that the burrow/den is not occupied.

The following measure for education of on-site construction workers regarding special-status species is recommended:

- Within 30 days prior to construction, all on-site construction workers will attend a training for special-status species. The training will be conducted by a qualified biologist and will include life history information, mitigation measures, and known locations or habitats on the Project site for special-status species. At a minimum, the training will include the following species: Parry's rough tarplant, burrowing owl, Swainson's hawk, American badger, and nesting raptors and other birds.

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APPENDIX A PHOTOGRAPHS

Photograph 1	
Notes: Representative photo of the *Amsinckia menziesii - Achyrachaena mollis* Herbaceous Alliance.	

Photograph 2	
Notes: Representative photo of densely planted common wheat fields.	

Photograph 3	
Notes: Representative photo of flowering Parry's rough tarplant within the Project site (Pop. 6).	

Photograph 4	
Notes: Swainson's hawk perched on cattle fence within the central portion of the Project site.	

Photograph 5	
Notes: Active Swainson's hawk nest outside the Project site within the 5-mile survey buffer (Nest 3).	

Photograph 6	
Notes: Active red-tailed hawk nest within the Project site (Nest 4).	

Photograph 7	
Notes: Representative photo of trees within the southeastern portion of the Project site in the disturbed *Salix gooddingii -Salix laevigata* Forest and Woodland Alliance. One active red-tailed hawk nest (Nest 4) and three inactive raptor nests were found in these trees.	