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Appendix U - Updated Volume 4

Updated Incidental Take Permit Form

Attachment U.4

Updated Burrowing Owl Management Plan

Darden Clean Energy Project

Burrowing Owl Management Plan

prepared for

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1 Introduction

This Burrowing Owl Management Plan (BOMP) outlines the procedures and protocols to fully minimize and mitigate potential impacts to western burrowing owl (*Athene cunicularia*; also referred to as "burrowing owl" or "BUOW") at the proposed Darden Clean Energy Project (Project). This BOMP requires preconstruction surveys, construction monitoring, burrow avoidance, and/or passive relocation and burrow excavation/collapse as well as installation of artificial burrows, restoration of foraging habitat, and additional O&M Phase measures. This BOMP has been prepared by Rincon Consultants, Inc. (Rincon) based on Section 5.12 *Biological Resources* and Biological Resources Assessment (BRA) of the Project's California Energy Commission (CEC) Opt-in Application (Rincon 2023a) and has incorporated the California Department of Fish and Game (CDFG), now California Department of Fish and Wildlife (CDFW), *Staff Report on Burrowing Owl Mitigation* (CDFG 2012), and the Burrowing Owl Conservation Strategy for Large-scale Solar Photovoltaic and Battery Energy Storage Projects in California (Large-Scale Solar [LSA] Association 2024). The BOMP would avoid, minimize, and fully mitigate Project impacts to western burrowing owl, a candidate for listing as a threatened or endangered species under the California Endangered Species Act (CESA)[1]. As a result, no additional mitigation would be required.

This BOMP has been prepared in accordance with relevant Mitigation Measures from Section 5.12 *Biological Resources* of the Project's CEC Opt-in Application (Rincon 2023a) and subsequent CEC Data Request Response Sets (Rincon 2024c, 2024d). The management approach included in this BOMP is designed to minimize potential impacts to burrowing owl from site development.

Additional biological resources management plans that will be implemented concurrently for the Project include:

- **PV and Gen-tie Biological Resources Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the photovoltaic arrays (PV), battery energy storage system (BESS), and generation intertie line (gen-tie) components of the Project (Rincon 2024a).
- **Utility Switchyard Biological Resources Management Plan.** This plan outlines the biological resources mitigation, monitoring, and reporting procedures that shall be implemented during construction of the utility switchyard (Rincon 2024b).
- **Swainson's Hawk Conservation Strategy.** This conservation strategy addresses potential effects to Swainson's hawk (*Buteo swainsoni*) nesting and foraging habitat on the Project during construction, and operations, and maintenance (O&M) phases (Rincon 2023b).

[1] The western burrowing owl was accepted for consideration for listing as a threatened or endangered species under CESA by the California Fish and Game Commission on October 10, 2024 (Center for Biological Diversity 2024; California Fish and Game Commission 2024). CESA protections for the burrowing owl are effective once the California Fish and Game Commission publishes notice of its decision to affected and interested parties, which occurred on October 15, 2024 (California Fish and Game Commission 2024).

1.1 Project Description

The overall Project consists of the construction, operation, and eventual repowering or decommissioning of a 1,150 megawatt (MW) solar PV facility, an up to 4,600 megawatt-hour (MWh) BESS, a 34.5-500 kilovolt (kV) grid substation, a 15-mile 500 kV gen-tie line, a 500 kV utility switchyard along the Pacific Gas and Electric Company (PG&E) Los Banos-Midway #2 500 kV transmission line, and appurtenances. Construction of the Project is anticipated to take between 18 and 36 months to complete and the Project would be operational by 2028. The Project would operate for approximately 35 years, at which time Project facilities would be either repowered or decommissioned. Following decommissioning, the Project site would be restored and reclaimed to the extent practicable to pre-construction conditions consistent with site lease agreements.

1.2 Project Location

The Project site is located in an agricultural area of unincorporated Fresno County south of the community of Cantua Creek (Figure 1). The proposed PV solar facility, BESS, and substation would be located on approximately 9,100 acres of land owned by Westlands Water District, between South Sonoma Avenue to the west and South Butte Avenue to the east (Figure 2). The proposed gen-tie line (approximately 15 miles) would span west from the intersection of South Sonoma Avenue and West Harlan Avenue to immediately west of Interstate 5, where it would connect to the new utility switchyard (Figure 2).

Land cover types include fallow lands, tilled and disked fields containing ruderal vegetation, orchards, and other active farming on the Project site. In this BOMP, non-active agriculture fields prior to vegetation growth are referred to as “fallow,” and as “disked” if evidence of disking was present. Surrounding properties include fallow and agricultural lands. The Project’s gen-tie line spans privately-owned land on the western portion of the Project site with land-cover types including active agriculture (primarily orchards) and fallow fields. The California Aqueduct bisects the gen-tie parcels, running generally north-south. Compacted dirt and paved roads border and separate each land-cover type.

Figure 1 Regional Location Map

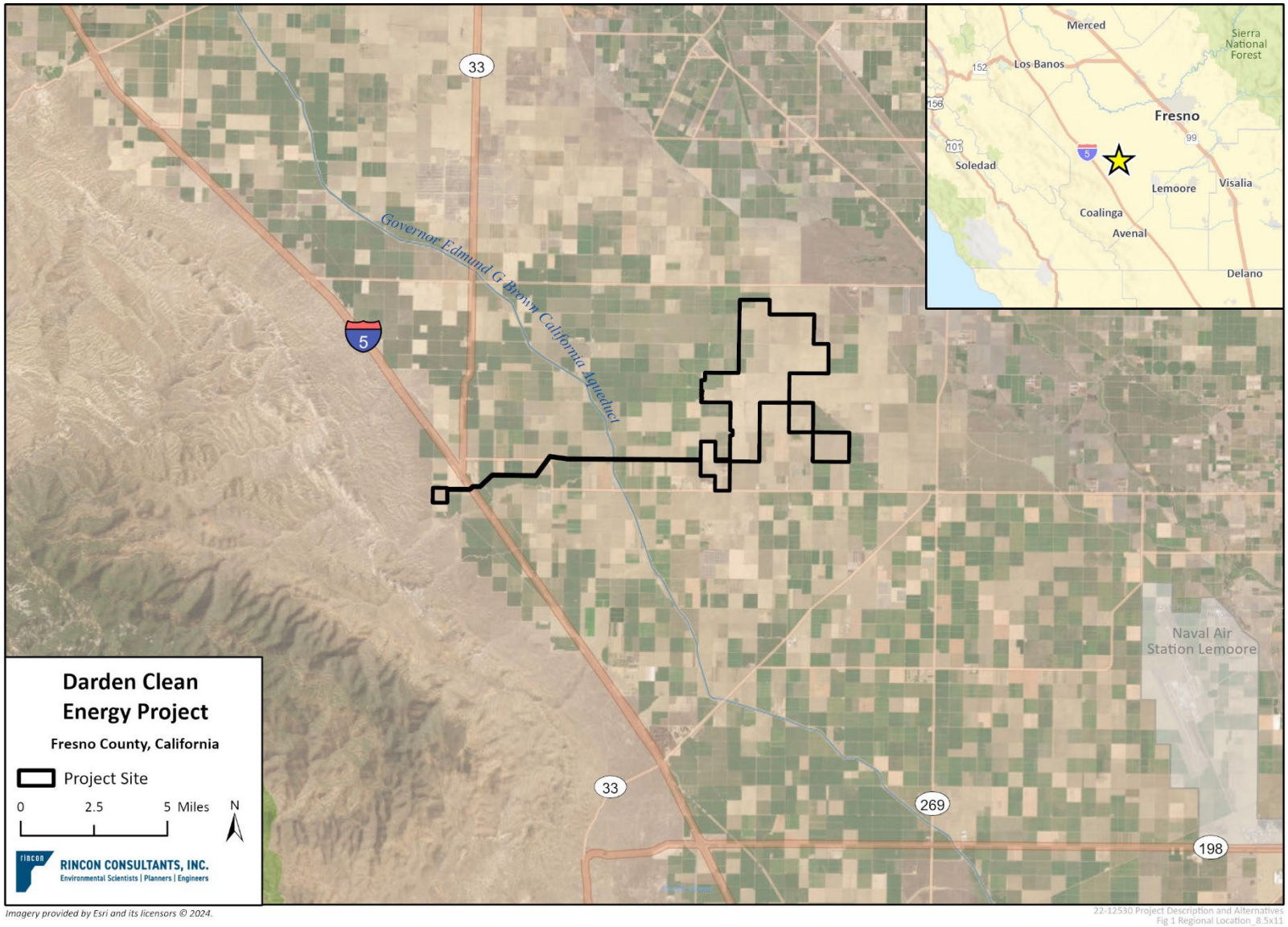
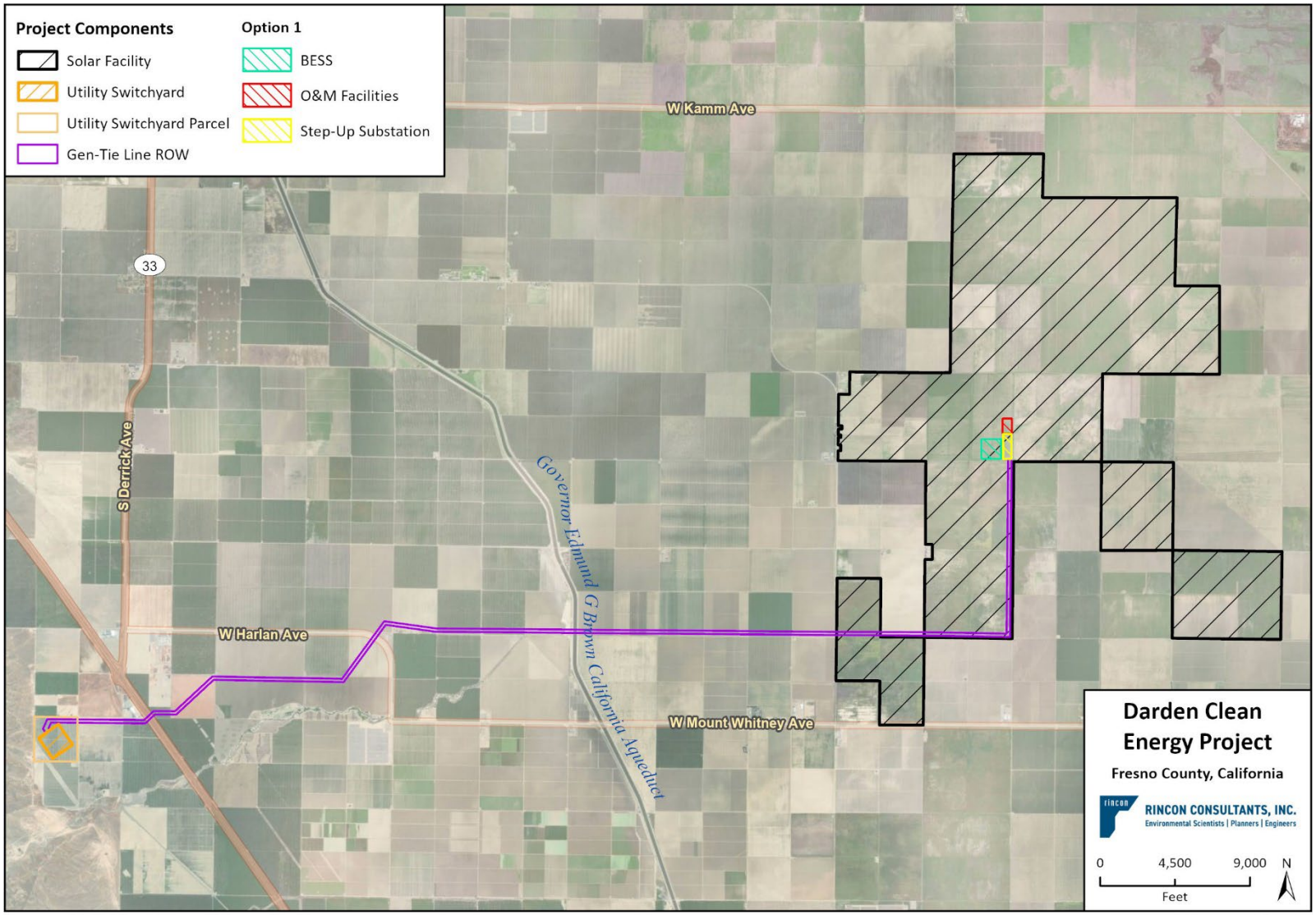


Figure 2 Project Map



2 Existing Conditions

Western burrowing owl is designated as a United States Fish and Wildlife Service (USFWS) bird species of conservation concern and was accepted by the California Fish and Game Commission for consideration for listing as a threatened or endangered species under CESA in October 2024 (California Fish and Game Commission 2024). CESA protections for the burrowing owl are effective once the California Fish and Game Commission publishes notice of its decision to affected and interested parties, which occurred on October 15, 2024 (California Fish and Game Commission 2024).

Burrowing owl is found throughout much of the western United States and southern interior of western Canada. Habitat types conducive to burrowing owl presence are typically arid and open with opportunities for burrowing, which can include active or fallow agricultural fields, creosote scrub, desert saltbush, ephemeral washes, and ruderal areas. Burrowing owls do not dig their own burrows and are therefore dependent on other species, such as ground squirrels and other fossorial species, to dig burrows for them each season, which they use to nest and roost. The breeding season for burrowing owl occurs approximately between February 1 and August 31.

2.1 General Site Conditions

2.1.1 Topography and Geography

The Project site is located in unincorporated Fresno County in the San Joaquin Valley. The San Joaquin Valley is bounded by the Sacramento – San Joaquin River Delta to the north, the Diablo Mountain Range to the west, the Sierra Nevada Mountains to the east, and the Tehachapi Range to the south. The region is primarily composed of agricultural land dating back to as early as the 1940s, and cattle grazing land, with areas of residential and industrial development primarily concentrated near Fresno. Vegetation occurring in the San Joaquin Valley mostly consist of annual/ruderal grassland, pasture, cropland, valley-foothill riparian, vernal pool, alkali scrub, and orchard-vineyard (Fresno County 2000). The Project's Biological Study Area (BSA)–the approximately 9,500-acre Project site encompassing all proposed Project components and a general 100-ft buffer—is relatively flat, with elevations ranging from approximately 186 to 644 feet above mean sea level, increasing in elevation from the east to the west and southwest towards the Diablo Range. Geography in the vicinity of the BSA includes agriculture with a few small scattered rural residential areas and small solar facilities, and the base of the Ciervo Hills to the west.

2.1.2 Vegetation and Other Land Cover

During biological surveys in 2022 and 2023, the BSA was dominated by active and seasonally managed non-active agricultural fields. Most of the non-active parcels were grown over with mustard (*Brassica nigra*), then were disked in May. Surveys conducted in 2024 verified all parcels within the PV solar array area consisted of non-active agriculture (recently disked bare ground). Plant species observed included black mustard (*Brassica nigra*), bread wheat (*Triticum aestivum),* great valley phacelia (*Phacelia ciliata)* and field bindweed (*Convolvulus arvensis*). Larger trees were generally restricted to windrows or situated around structures and included red gum eucalyptus (*Eucalyptus camaldulensis*), arroyo willow (*Salix lasiolepis*), Fremont cottonwood (*Populus fremontii*) and local agricultural trees including olive, almond, and various fruit.

The Project site is otherwise comprised completely of lands that have been retired from agricultural cultivation or are orchards. No crop fields such as alfalfa, wheat, or other grain fields occur within the BSA or within the surrounding landscape. The Project site occurs within a region that has limited water availability due to the critically overdrafted groundwater subbasin. As a result, the region is dominated by retired agricultural lands that are disked or no longer in production. These retired agricultural lands that are regularly disked to control invasive weed such as mustard and Russian thistle represent poor habitat for burrowing owls. The intervening growth of weeds creates cover that is too tall for burrowing owls to have a clear viewshed for foraging and predator avoidance, and the regular disking prevents the establishment of long-term burrows for breeding or winter cover. Suitable habitat is predominantly limited to the margins of the managed fields where irrigation ditches and berms occur.

2.2 Burrowing Owl Survey History

Biological studies of the Project's BSA included a reconnaissance-level field survey in 2022 and 2023 and monthly site inspections in 2023 to assess annual patterns in site conditions and wildlife activity.

Eight individual BUOW were detected during the surveys, six of which were at a burrow or agricultural irrigation pipes. Seventeen burrows with recent BUOW sign (i.e., whitewash, pellets, feathers) and an additional five burrows with older BUOW sign were documented within the BSA. All BUOW or their sign documented during surveys were located in the Project's PV array area, primarily on the outer edges of the site as a result of historical and ongoing disking activities. Figure 3a through Figure 3e depict the locations of BUOW and BUOW burrows on the Project site.

Non-breeding season BUOW surveys will be conducted at the Project site November 2024 through January 2025.

Figure 3a BUOW within the BSA (Mapbook 1)

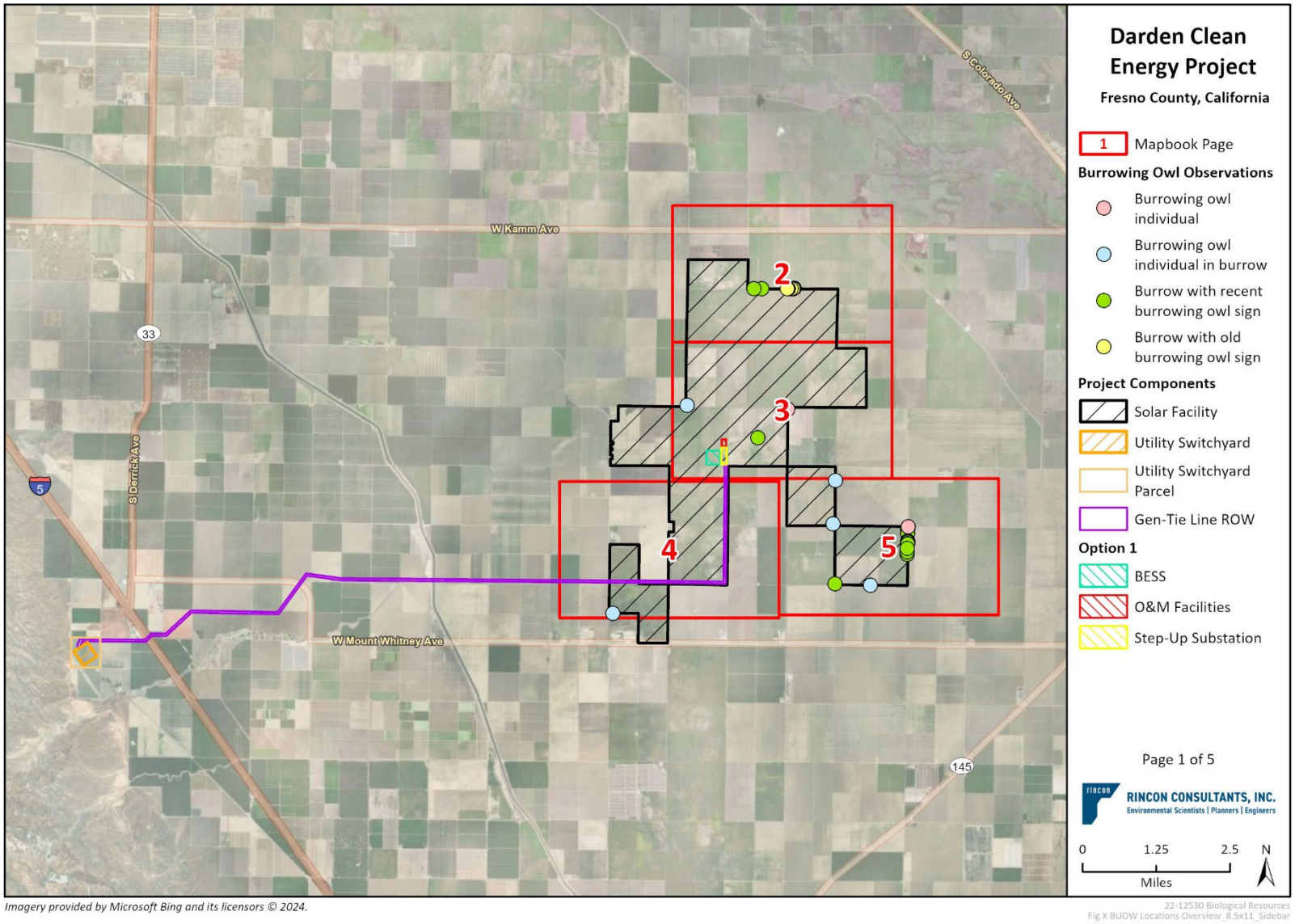


Figure 3b BUOW within the BSA (Mapbook 2)

Figure 3c BUOW within the BSA (Mapbook 3)

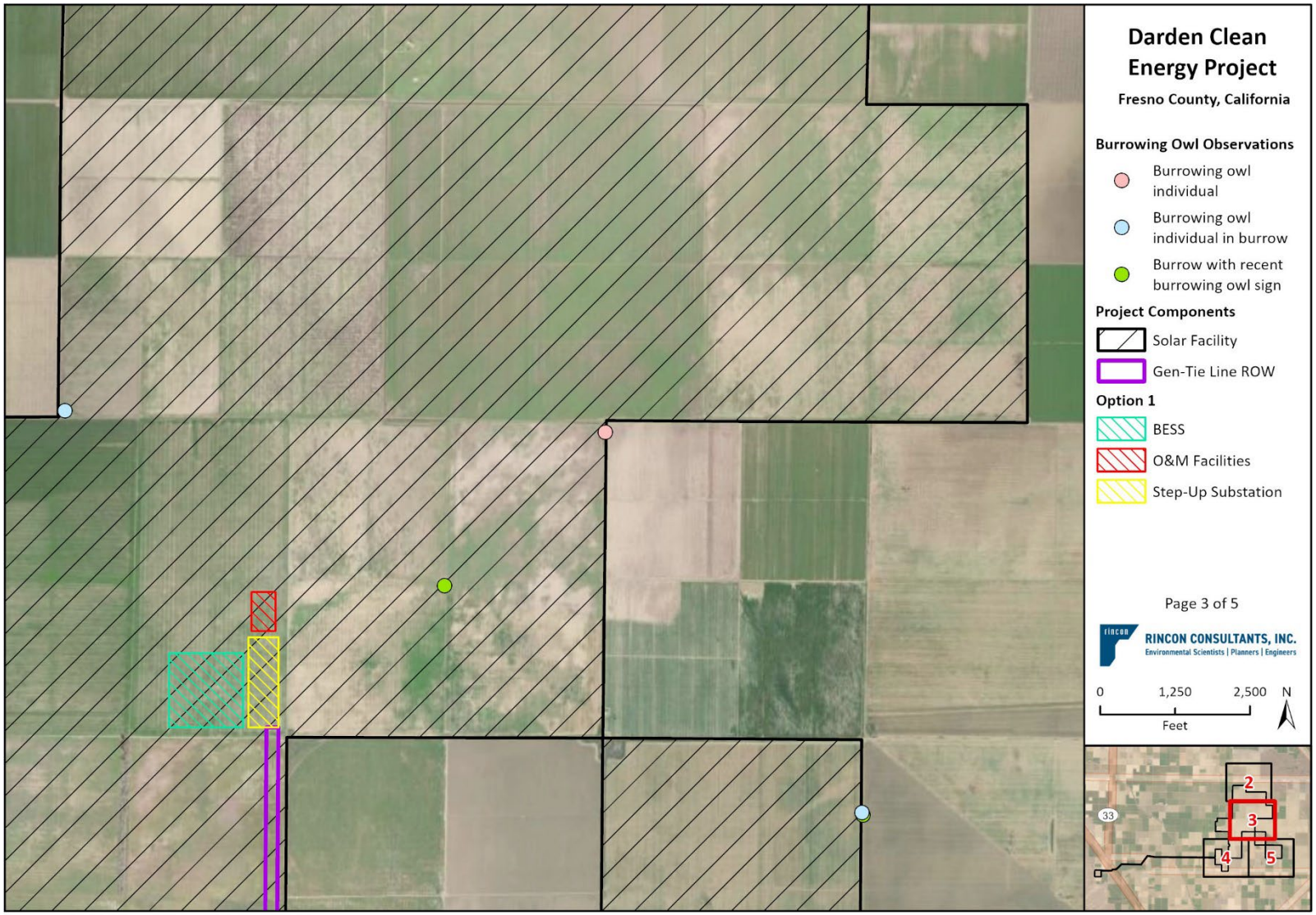


Figure 3d BUOW within the BSA (Mapbook 4)

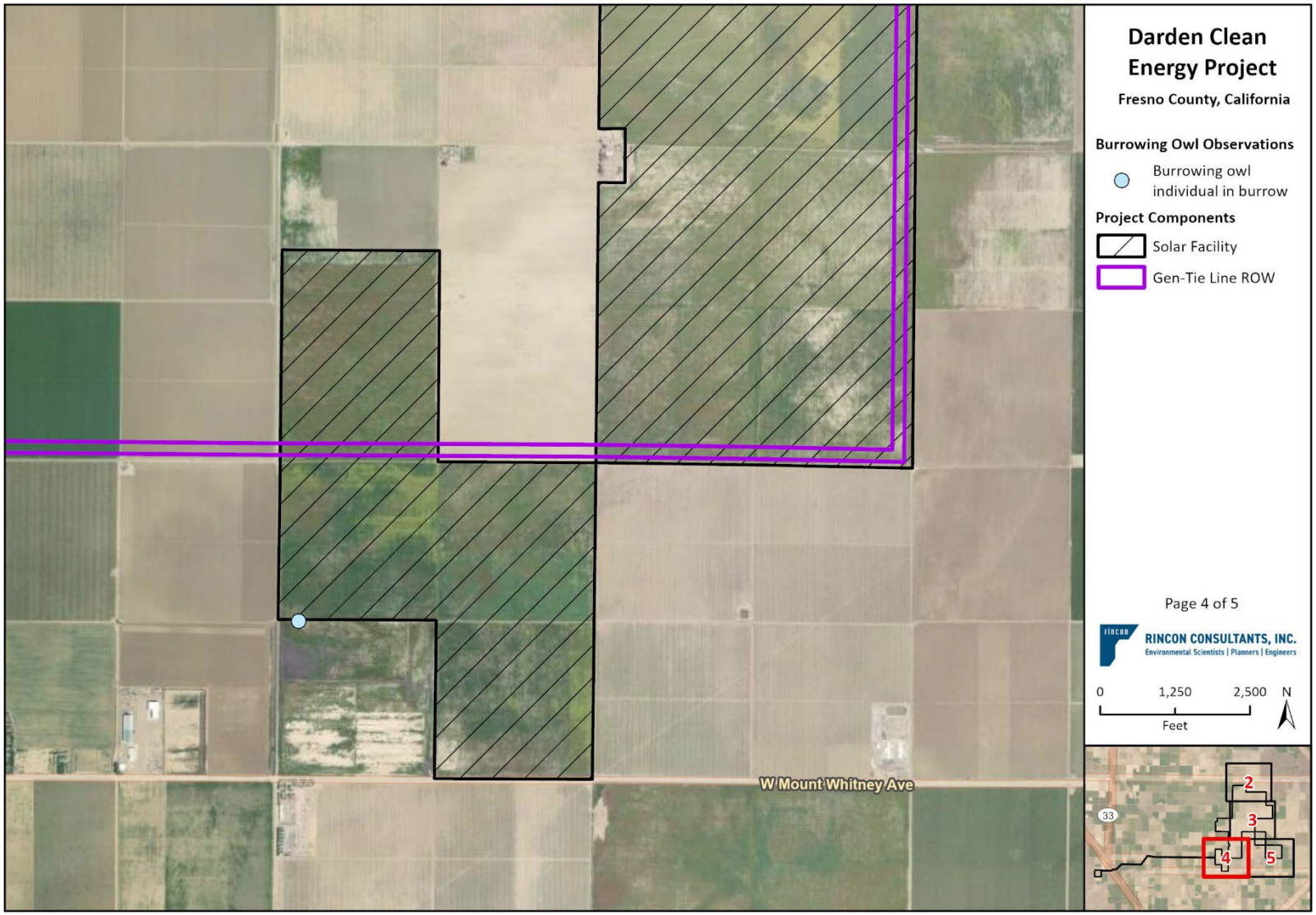


Figure 3e BUOW within the BSA (Mapbook 5)

3 Management Strategy

This section describes management activities for BUOW that will be implemented at the Project site and are designed to avoid, minimize, and fully mitigate impacts to the species.

3.1 Qualified Biologist

The Qualified Biologist will have relevant experience with burrowing owl in California. The Qualified Biologist role may be satisfied by one or more individuals depending on qualifications and experience with burrowing owl.

The Qualified Biologist's responsibilities include leading and/or oversight of the following:

- Pre-project and pre-construction surveys
- Burrow occupancy determinations
- Monitoring occupied burrows and adjacent construction activities
- Establishing appropriate buffers around active nests
- Authorizing reduced activity buffers, where appropriate
- Halting construction at any time to protect burrowing owls
- Burrow excavations and passive relocation
- Management of burrowing owl monitoring data
- Report preparation
- Liaising with CDFW on burrowing owl management issues that may arise in the field during construction monitoring
- Other burrowing owl-related activities that may be required during Project construction

The Qualified Biologist will lead and oversee a team of experienced avian monitors that will support implementation of the above activities across the Project site.

3.2 Pre-construction Surveys

Pre-construction surveys consistent with survey methods outlined in Appendix D of the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) shall be conducted by a Qualified Biologist no more than 14 days prior to ground disturbing activities.

As the Project site is large and will be disturbed in phases within discrete areas of the site, pre-construction surveys will be phased such that surveys are conducted no more than 14 days prior to initial ground disturbing activities in each area. Initial pre-construction surveys will cover all areas within 500 feet of all disturbance areas. If no occupied breeding or wintering BUOW burrows are identified, no further action will be required.

If work is halted in a given area for 14 days or greater, pre-construction surveys will be repeated in work areas that are not fully cleared of vegetation following the initial pre-construction survey until all vegetation is cleared. Once vegetation is cleared and construction is ongoing, no additional surveys are required.

3.3 Determination of Occupancy

If suitable burrows for BUOW are identified during pre-construction surveys, burrows will be visited, mapped, and evaluated for the presence of burrowing owl sign:

- Suitable burrows within 150 meters of the Project site will be visited and evaluated for owl presence, where accessible. Only burrows with sign, or burrows that are potentially occupied as determined by the Qualified Biologist, will require monitoring to determine occupancy.
- For on-site suitable burrows, burrowing owl sign (feathers, whitewash, pellets) will be documented and removed.
- Suitable burrows with sign will be visited twice daily for two days (48 hours) for surveillance purposes, to look for any new sign of burrowing owl.
- Motion-activated game cameras will be used in combination with burrow visits to determine burrow occupancy. Cameras will be placed within 10 meters of potentially occupied on-site burrows for a minimum of 48 hours. Cameras will be placed as close as possible to off-site burrows, where accessible, to document owl activity.
- If owls are determined to be present by the Qualified Biologist after 48 hours of continuous camera monitoring and/or documented presence of new burrowing owl sign, the appropriate exclusion buffer will be delineated and marked.
- If 48 hours of continuous monitoring and site visits demonstrate no presence of owls, a burrow may be determined to be unoccupied.

On-site burrows that are determined by the Qualified Biologist to be unoccupied using the above criteria, may be excavated and either blocked or collapsed as described in Section 3.9 *Burrow Excavation*. Unoccupied burrows located outside the Project site will not be excavated.

On-site occupied burrows that will be directly impacted by Project activities may be prepared for passive relocation during the non-breeding season, as described in Section 3.8 *Passive Relocation and Exclusion*.

3.4 Nesting Deterrence

As construction activities may have adverse effects on burrowing owls, it may be most protective of owls to deter nesting behaviors at the Project site just prior to the start of construction during the non-breeding season. Suitable burrows that may or may not be occupied by burrowing owls or other protected species may be made less desirable for nesting by the Qualified Biologist by placing small rocks, sticks, or other natural debris near the entrance of the suitable burrow, without blocking it or preventing ingress or egress by any protected species. Nest deterrence shall be conducted by the Qualified Biologist. Deterrence shall not be conducted for sites that lack proximate suitable burrowing habitat. If nesting deterrence activities are shown to have an adverse effect on burrowing owls present in the area, all activities will stop.

Alternatively, or in combination with deterrence, BUOW attractants may be installed in offsite natural or agricultural areas that are not anticipated to have human disturbance, or in onsite wildlife buffer areas, in order to encourage returning BUOW to favor these locations for nesting compared with locations that may be preparing for construction work to begin during the next breeding season. BUOW attractants may include perches or rock piles.

3.5 Construction Monitoring

Monitoring of occupied BUOW burrows by a Qualified Biologist is required for all work within defined buffer areas and when sound or visual barriers are used in conjunction with reduced buffer areas, as described in Section 3.6 *Burrow Avoidance and Activity Buffers* and Section 3.7 *Sound or Visual Barriers*. All work completed outside buffer areas defined in Section 3.6 *Burrow Avoidance and Activity Buffers* will not require monitoring by a Qualified Biologist.

During monitoring, the Qualified Biologist will assess BUOW behavior, proximity of work activities, and effectiveness of implemented buffer areas and/or sound or visual barriers to confirm they are functioning as intended. The Qualified Biologist will have the authority to cease construction activities in the vicinity of the buffer area if BUOW become agitated, and will provide recommendations for when work may resume. Sound and visual barriers may be re-evaluated and buffer areas increased, if needed. Biological monitoring for any given activity can be reduced or discontinued once it can be demonstrated that BUOW are not disturbed by the activity, as determined by the Qualified Biologist.

At a minimum, the following information will be documented for each monitored burrow:

- Date burrow first observed/detected
- Status of burrow and outcome (e.g., incubating, brooding, young rearing) if observed
- Distance of the burrow to Project activities
- Type of Project activity occurring within the vicinity of the burrow
- Recommended buffer size including modifications to buffer size
- Recommended sound and/or visual barrier(s) including modifications to barriers

3.6 Burrow Avoidance and Activity Buffers

Occupied burrows shall not be disturbed during the nesting season (February 1 through August 31) unless the Qualified Biologist verifies, through noninvasive methods, that the burrow is not an active nesting burrow. Owls present after February 1 shall be assumed to be nesting unless evidence indicates otherwise. Nest-protection buffers described below shall remain in effect until August 31 or, based upon evidence collected from direct monitoring, until all juvenile owls are foraging independently or the nest has failed as determined by the Qualified Biologist.

Site-specific no-disturbance buffer zones shall be established and maintained between Project activities and occupied burrows that will not be passively evicted and excavated or temporarily closed during construction. Temporary activity buffers will be established under the supervision of the Qualified Biologist to minimize disruption to BUOW based on BUOW activity period and anticipated level of disturbance. Table 1 includes minimum temporary buffer distances and Table 2 includes standard buffer distances. Minimum temporary buffer distances require approval of the Qualified Biologist, and other conditions may apply, including, but not limited to: installation of sound and/or visual barriers (refer to Section 3.7 *Sound or Visual Barriers*), other minimization measures, and enforcement of increase in buffer from minimum to standard as soon as the activity is complete.

Construction activities have been assigned a disturbance level: minimal, low, moderate, high (Table 3). Smaller disturbance buffers are proposed for those activities that are substantially similar or less disruptive compared to agricultural activity that has been occurring at the Project site (e.g.,

site prep work that would be similar to harvesting and disking). Larger disturbance buffers are proposed for Project activities that differ substantially from that of agricultural activity (e.g., pile driving and other high-decibel construction activity).

Table 1 Minimum Temporary Buffer Distance

	Buffer Distance with Barriers (in meters) and Time of Year		
Project Activity Intensity Level	February 1 – April 15	April 16 – August 31	September 1 – January 31
Minimal	0	0	0
Low	30	25	20
Moderate	90	65	35
High	150	90	50

Table 2 Standard Buffer Distance

	Buffer Distance without Barriers (in meters) and Time of Year		
Project Activity Intensity Level	February 1 – April 15	April 16 – August 31	September 1 – January 31
Minimal	0	0	0
Low	100	75	35
Moderate	200	100	50
High	300	250	100

Table 3 Typical Project Activities and Their Intensity Levels

Project Phase	Activity	Activity Description	Intensity Level
Preconstruction	Site Visits	Short-duration, on foot, driving on established roads, quiet	Minimal
	Environmental Resource Surveys and Monitoring	Short-duration, on foot, driving on established roads, quiet	Minimal
	Activity Buffer Staking and Flagging	Short-duration, on foot, driving off-road after wildlife surveys, quiet	Minimal
	Civil Survey, Staking, and Flagging	Short-duration, on foot, driving off-road after wildlife surveys, quiet	Minimal
	Met Tower Installation	Short-duration, on foot, driving off-road after wildlife surveys, quiet	Low
	Geotechnical Testing	Short-duration, on foot, driving off-road after wildlife surveys, quiet	Low
	Trenchless Wildlife Exclusion Fence Installation	Short-duration in any one location, driving off-road after wildlife surveys, fairly quiet	Low
	Trenched Wildlife Exclusion Fence Installation	Short-duration in any one location, trenching, driving light and heavy equipment, low-moderate noise	Moderate
Site Preparation	Environmental Monitoring	Short-duration, passive observation of natural resources conducted by trained environmental field professionals on foot and in vehicles	Minimal
	Vegetation Mowing (4+ inches)	Mowing well above the ground surface to de-bulk grassland, cropland, or weedy vegetation, single pass, short duration in any single location	Moderate

Project Phase	Activity	Activity Description	Intensity Level
	Vegetation Mowing (0-4 inches)	Mowing of vegetation very close to the ground surface, single pass, short duration in any single location, low to moderate soil disturbance, noise, and vibration	High
	Woody Vegetation Removal and Site Grubbing	Removal, chipping, and grubbing of soils to remove woody bulk, medium duration, targeted in locations with high woody vegetation content, extensive soil disturbance, noise, and vibration	High
	Site Grading	Movement of soil and recontouring of site topography, medium duration, may be targeted in localized areas, extensive soil disturbance, noise, and vibration	High
	BMP Installation (Hand Tools)	Short-duration, on foot, driving on established roads, quiet	Low
	BMP Maintenance (Hand Tools)	Short-duration, on foot, driving on established roads, quiet	Low
	BMP Installation (Light Machinery)	Short-duration, using light equipment, driving on established roads and offroad	Low
	BMP Installation (Heavy Machinery)	Short- to moderate-duration, using heavy equipment, driving on established roads and offroad, extensive soil disturbance, noise, and vibration	High
	Security Fence Installation	Shallow foundation excavation, concrete pouring, and post establishment, and laying fencing fabric, short duration in any one location	Low
	Road Compaction	Use of graders and rollers, extensive noise and vibration, moderate duration in any one location	High
	Equipment and Material Laydown	Movement and staging of equipment and materials, extensive noise and vibration, moderate duration in a few locations	Moderate
Major Equipment Installation, Site Cleanup, Restoration	Cable Trenching (Ditch Witch)	Single-pass cable zippering with minimal soil disturbance, extensive noise and vibration, short duration in any one location	Moderate
	Cable/Fiber Trenching (Excavate Full Trench)	Trench excavation with heavy machinery, extensive noise and vibration, moderate duration in any one location	High
	Pile Driving	Vibratory pile driving, low noise and moderate vibration, moderate duration in any one location	Moderate
	Panel Installation	Use of hand tools to secure panels to mounts, short-distance driving, low noise, low duration in any one location	Low
	Inverter Installation	Skid assembly; inverter delivery; hand tools and light equipment; moderate noise; moderate duration in any one location	Moderate

Project Phase	Activity	Activity Description	Intensity Level
	Substation Assembly	Isolated to one location, hand tools and light equipment use, component deliveries, welding, high noise, moderate-to-high duration	Moderate
	BESS Delivery and Interconnection	Isolated to one location, hand tools and light equipment use, component deliveries, welding, high noise, moderate-to-high duration	Moderate
	Gen-tie Pole Foundation Excavation	Drilling and excavation with heavy machinery, extensive noise and vibration, moderate duration in any one location	High
	Helicopter Construction	High noise and creation of local wind and dust; moderate duration in any one location	High
	Water + Other Truck Use	Spraying water for dust suppression, low noise and vibration, low duration in any one location	Low
	Hydroseeding	Spraying seed mixture, low noise and vibration, low duration in any one location	Low
	Broadcast Seeding	Hand tools or light equipment use, quiet, single pass	Minimal
	Drone Use	Vertical distance, low noise, no vibration, low duration in any one location	Low
	Directional Drilling	High noise and vibration, isolated, moderate duration in any one location	Moderate
O&M	Drone Inspections	Vertical distance, low noise, no vibration, low duration in any one location	Low
	General Maintenance of Equipment	No ground-disturbing, hand tools or light equipment use, low duration in any one location	Low
	Soil Binder Application	Spraying mixture, low noise and vibration, low duration in any one location	Low
	Fenceline Trash Cleanup	Hand tools or light equipment, low duration in any one location	Low
	Panel Washing	Spraying water for panel cleaning, low noise and vibration, low duration in any one location	Low
	Ground-disturbing O&M Activities	Major equipment replacement or maintenance requiring ground disturbing (excavation, drilling, etc.)	Moderate-High

3.7 Sound or Visual Barriers

Temporary sound and/or visual barriers will be implemented to reduce visual and audible disturbance where deemed necessary by the Qualified Biologist. Barriers should be placed between construction activities and the occupied burrows, at the maximum distance feasible from the occupied burrows. Barriers should be placed to interrupt the line of sound/sight between construction activities and occupied burrows. Project activities would be allowed to proceed with a reduced buffer if barriers are installed, based on the Project activity and relative level of disturbance (as outlined in Section 3.6 *Burrow Avoidance and Activity Buffers*).

The barriers will be established with the following general guidelines regarding configuration to ensure effective sheltering of active burrows:

- Barriers may be created with hay bales, fencing, or another physical barrier between the occupied burrow and construction activities
- Installation of barriers will be monitored by a Qualified Biologist
- Burrows will be monitored routinely by a Qualified Biologist during any construction activity that is within reduced buffers with barriers
- The biologist will have the authority to cease construction activities in the vicinity of the buffer area if BUOW become agitated
- All barriers will be removed, under the supervision of a Qualified Biologist, after construction is complete

3.8 Passive Relocation and Exclusion

If avoidance of occupied BUOW burrows is infeasible, the Qualified Biologist may passively relocate BUOW found within construction areas during the non-breeding season, September 1 to January 31, but may also occur in the late summer months (August and September) if the Qualified Biologist determines that the burrow is no longer active. Passive relocation is a technique to exclude burrowing owls from the Project site by first providing replacement burrows off site (if needed), blocking or collapsing all unoccupied burrows within the construction site, and finally installing one-way doors on occupied burrows to evict the burrowing owl without handling it.

If an occupied burrow within the Project footprint cannot be avoided and requires passive relocation, the Qualified Biologist will conduct the following:

- Determine if suitable burrows are located outside the impact area that would be acceptable for the BUOW to take refuge in during the relocation process;
- Verify that potential offsite refuge burrows are not currently occupied;
- Identify burrows and/or other structures in the impact footprint that may need to be collapsed, removed, or blocked;
- Assess the need for creation of artificial burrows, if necessary (i.e., there are insufficient burrows outside the impact area). If necessary, for each owl that is evicted, two artificial burrows shall be installed in suitable nearby habitat areas, per the *Users Guide to Installation of Artificial Burrows for Burrowing Owls* (Johnson et al. 2010; Appendix A).

The use of passive relocation techniques in a given area shall be determined by the Qualified Biologist based on existing and future conditions (e.g., time of year, vegetation/topographic screening, and disturbance regimes). It is assumed passive relocation, if necessary, may occur in areas of moderate to high intensity construction activities. Passive relocation of burrowing owls shall be limited in areas adjacent to Project activities that have a sustained or low-level disturbance regimen; this approach shall allow BUOW that are tolerant of existing agricultural and Project activities to occupy quality, suitable nesting and refuge burrows. Substantial agricultural land located adjacent to and on all sides of the Project site provides suitable habitat for BUOW. It is expected that any owls evicted from currently occupied burrows will naturally disperse to nearby suitable habitat outside the Project construction area. If needed, artificial burrows may be installed within a nearby suitable location following guidelines in the Mitigation Methods section of the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

3.8.1 Artificial Burrows

Artificial burrows may be constructed off site to replace on-site occupied burrows that are removed for Project construction. The number of artificial burrows (if any) will depend on the availability of suitable unoccupied burrows in the surrounding area and on the number of burrowing owls evicted from the site.

- Artificial burrows will be placed 110 meters to 300 meters from suitable natural burrows or from other artificial burrows to minimize territorial conflicts and nest abandonment by neighboring burrowing owl pairs (if any are present).
- Artificial burrows will be located at least 50 meters outside any temporary or permanent Project impact areas, but as close as possible to the original burrow and no more than one mile from the original burrow location if possible. Artificial burrows will be located in coordination with CDFW.
- Artificial burrows will be designed, constructed, and installed following guidelines the *Users Guide to Installation of Artificial Burrows for Burrowing Owls* (Johnson et al. 2010) referenced in CDFG 2012. Perching locations such as low mounds (e.g., 17 to 20 centimeters) or short perches (less than 60 centimeters) will be added outside (in front of) the burrow. Rocks will be placed at the entrance to prevent trampling and deter predator digging.
- The locations of all natural and artificial burrows will be recorded, and the burrows will be photographed. Distances to the nearest construction activity, road, drainage, and any other natural and artificial burrows will also be recorded. A comparison of vegetation, habitat types, fossorial species usage, and other features will be made between the occupied and artificial burrow sites and will be recorded. All data will be included in progress reports.
- Artificial burrows shall be left in place throughout all phases of the Project.
- All artificial burrows and mapped natural burrows will be monitored for burrowing owl use at least once per quarter throughout the construction phase of the Project. During monitoring visits, the burrows will also be inspected to ensure they are still suitable for burrowing owls.
- As needed, artificial burrows may be cleaned and maintained to ensure suitability for burrowing owl use during the construction phase.
- If natural burrows are no longer suitable for burrowing owl use (e.g., due to mammal digging), new artificial burrows may be constructed as replacements, or additional inventories of natural burrows may be needed to ensure sufficient availability.
- After the construction phase of the Project ends, monitoring and maintenance of artificial burrows will be subject to O&M phase monitoring requirements, in coordination CDFW.

3.8.2 Burrowing Owl Exclusion

Following elimination of all suitable inactive burrows within the construction area and installation of artificial burrows, exclusion of BUOW from occupied burrows or potentially occupied burrows (or complex of burrows) will occur through the installation of one-way doors. One-way doors will be installed on all confirmed and potential access points to the burrows for at least 48 hours prior to initiating burrow excavation or left in place during construction activities. Doors will be placed to fully seal the burrow access points and will be secured in place using native soils, wire pins, or similar methods. If small gaps occur around the edges of the one-way doors, burlap cloth or similar material may be used to prevent small wildlife from accessing the burrow.

During the initial installation of one-way doors, the Qualified Biologist will record the presence and/or absence of BUOW sign at all burrow locations. All sign (tracks, molted feathers, pellets, prey remains, whitewash, nest material/decorations, and other items indicative of BUOW occupancy) will be subsequently cleared from the site in order to document the potential recurrence of BUOW presence at the burrow. Scoping and/or remote cameras may be used to confirm the absence of burrowing owls after the 48-hour exclusion period and prior to burrow excavation. Following confirmation that burrows are unoccupied, the burrows may be excavated as described in Section 3.9 *Burrow Excavation*.

If burrows will not be directly impacted by Project development, the one-way doors will remain in place throughout the construction phase of the Project and the burrows will not be excavated. Regular monitoring will be conducted to ensure the one-way doors remain operational and the burrows remain unoccupied.

3.9 Burrow Excavation

For burrows that are determined by the Qualified Biologist to be unoccupied (refer to Section 3.3 *Determination of Occupancy*) or from which burrowing owl have been excluded (refer to Section 3.8 *Passive Relocation and Exclusion*), the Qualified Biologist will excavate each burrow or burrow complex slated for eviction and collapse using hand tools or small tracked equipment.

Once excavation of an entire burrow/complex is complete, the Qualified Biologist will verify that no BUOW or wildlife reside within the burrow and the site will be backfilled with native soils to prevent future occupancy. Once excavation and closure of the burrow is complete, the site will be photographed to document completed exclusion and effectiveness.

If BUOW are observed within the burrow during excavation, the activity will be halted immediately. One-way doors will be immediately re-installed; and, if necessary, piping large enough to allow BUOW to exit the burrow will be placed to prevent collapse of the occupied burrow. Monitoring of the site will resume until the burrow is determined to be unoccupied. If eggs are observed, all one-way doors will be immediately removed from the burrows, excavation activities will cease, and CEC and CDFW will be notified.

Following completion of all burrow excavations within the Project site, the site will be monitored for BUOW until initiation of construction to ensure that BUOW have not returned to the burrow or burrow area. A Qualified Biologist will be present to monitor the initiation of Project construction activities around the BUOW burrow excavation area to verify that the site has not been recolonized by owls and to avoid take of BUOW.

4 Reporting

If BUOW exclusion and passive relocation is conducted, a report will be submitted to the CEC and CDFW with the following details:

- A description and representative photographs of BUOW sign observed prior to exclusion and/or burrow excavation;
- A full account of one-way doors installed, locations, methods, and photographs;
- Passive and active monitoring methods and observations;
- A description of equipment and methods used in burrow excavation (hand tools, piping, etc.) and any general wildlife relocated from the burrow;
- Photographic documentation of completed burrow excavation and completion of backfill of burrows showing effectiveness;
- Project maps showing BUOW observations, burrows excluded, and burrows excavated;
- Dates that each avoidance and minimization measure was implemented;
- Results of monitoring conducted to demonstrate effectiveness of the measures;
- Dates and description of the initial construction activities.

Any BUOW burrow discovered during the construction phase will be documented in monthly reports as outlined in the PV and Gen-tie Biological Resources Management Plan and the Utility Switchyard Biological Resources Management Plan (Rincon 2024a, Rincon 2024b).

5 Mitigation

Eight individual BUOW, seventeen burrows with recent BUOW sign (i.e., whitewash, pellets, feathers) and an additional five burrows with older BUOW sign were documented within the BSA. Of these eight individuals and twenty-two burrows, seven individuals and twenty-one burrows were located along the margins of seasonally managed non-active agricultural fields in areas that will likely be avoided during construction. The solar facility parcels are currently managed under an ongoing regimen of regular disking to manage weed infestations that is not conducive to nesting and provides inconsistent quality of foraging habitat.

While the exact number and location of BUOW individuals on the Project site may change (and will be verified through pre-construction surveys) prior to construction, based on existing conditions, the majority of BUOW are expected to be located in areas along the edge of the Project site outside of the Project development footprint (i.e., burrows would not require excavation and collapse). Therefore, avoidance and implementation of minimization measures outlined in Section 3 *Management Strategy* is expected for most individuals and burrows. Project operations would continue to avoid these areas and maintenance activities would result in less disturbance to BUOW than current disking practices.

In limited cases where avoidance is not feasible, mitigation for permanent direct impacts to occupied BUOW burrows would occur through installation of artificial burrows, if necessary (i.e., when there are insufficient burrows outside the impact area), within a nearby suitable location following guidelines in the Mitigation Methods section of the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Prior to excavation, the Qualified Biologist shall verify that evicted owls have access to multiple, unoccupied, alternative burrows outside of the projected disturbance zone, and as close to the evicted burrow as feasible given Project work areas. If no suitable alternative natural burrows are available for the owls within ¼ mile, then, for each owl that is evicted, two artificial burrows shall be installed in suitable nearby habitat areas, per the *Users Guide to Installation of Artificial Burrows for Burrowing Owls* (Johnson et al. 2010) referenced in CDFG 2012. The artificial burrow design and installation shall be consistent with the methods described in the Burrowing Owl Exclusion Plan per Appendix E of the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

In addition, implementation of the Project's Vegetation Management Plan would result in post-construction restoration of the Project site to a mix of native and naturalized grassland and forb species which would provide a more consistent source of foraging habitat for the species than currently exists under the regular disking regimen. One of the primary goals would be to restore habitat to a vegetation community with a maximum height of 12 inches, reducing the need for mowing as part of long-term habitat management. Reduction of mowing would substantially reduce the potential for impacts to species that may occupy the site during the O&M phase of the project. Implementation of the Vegetation Management Plan is expected to result in restoration of approximately 9,000 acres to permanent annual grassland habitat. Based on an estimated foraging range of approximately 300 acres per BUOW, once restored the Project site would include enough foraging habitat to support over 30 BUOWs which is over three times the number of owls that were observed onsite.

In addition to all previously outlined measures, as applicable, the following O&M measures will be implemented during O&M activities.

1. O&M phase WEAP
    a. The O&M Phase WEAP will include all of the content relating to BUOW included in the construction WEAP (i.e., biological information on BUOW, their legal protections, the consequences of impacts to the species, and the required measures and procedures to avoid impacts to this species), updated for the O&M activity, staff and applicable contact information.
2. Speed Limits
    a. O&M Phase site speed shall be limited to 15 mph on unimproved roads and 25 mph on improved roads.
3. Pre-Mowing Surveys
    a. A Qualified Biologist shall conduct pre-activity surveys within 7 days prior to mowing following the survey guidelines outlined in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Surveys shall be required during the initial phases of site restoration (up to 3 years) when mowing may be required to manage invasive weeds.
4. Pre-Activity Surveys
    a. A Qualified Biologist shall conduct burrowing owl clearance surveys 7 days prior to maintenance activities that would require clearing, grubbing or other ground disturbance following the survey guidelines outlined in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).
5. Active Burrow Avoidance
    a. A Qualified Biologist shall implement BUOW avoidance buffers for any active burrows documented during clearance surveys, following the procedures outlined in Section 3 *Management Strategy*.
6. Biological Monitoring
    a. A Qualified Biologist shall monitor any maintenance activity occurring within avoidance buffers of an active burrow, following the procedures outlined in Section 3.5 *Construction Monitoring*. The Qualified Biologist shall have cease-work authority if burrowing owls are observed to be disturbed from maintenance activity.
7. Reporting
    a. Pre-activity and monitoring reports shall be prepared following the guidelines outlined in Section 4 *Reporting*. Reports shall be submitted to the CEC. If the species is still a candidate for listing or listed under the CESA at the time of reporting, reports shall also be submitted to CDFW.

The outlined strategy of: 1) avoidance and minimization of impacts to the majority of BUOW individuals and burrows located along the margins of the Project site; 2) installation of artificial burrows at a 2:1 ratio for a limited number of burrows that are directly impacted by Project activities; 3) restoration of the Project site to improve overall habitat suitability and foraging conditions for the species; and 4) O&M phase avoidance and minimization measures would result in full mitigation of potential impacts to the species and no net loss of habitat for BUOW.

6 References

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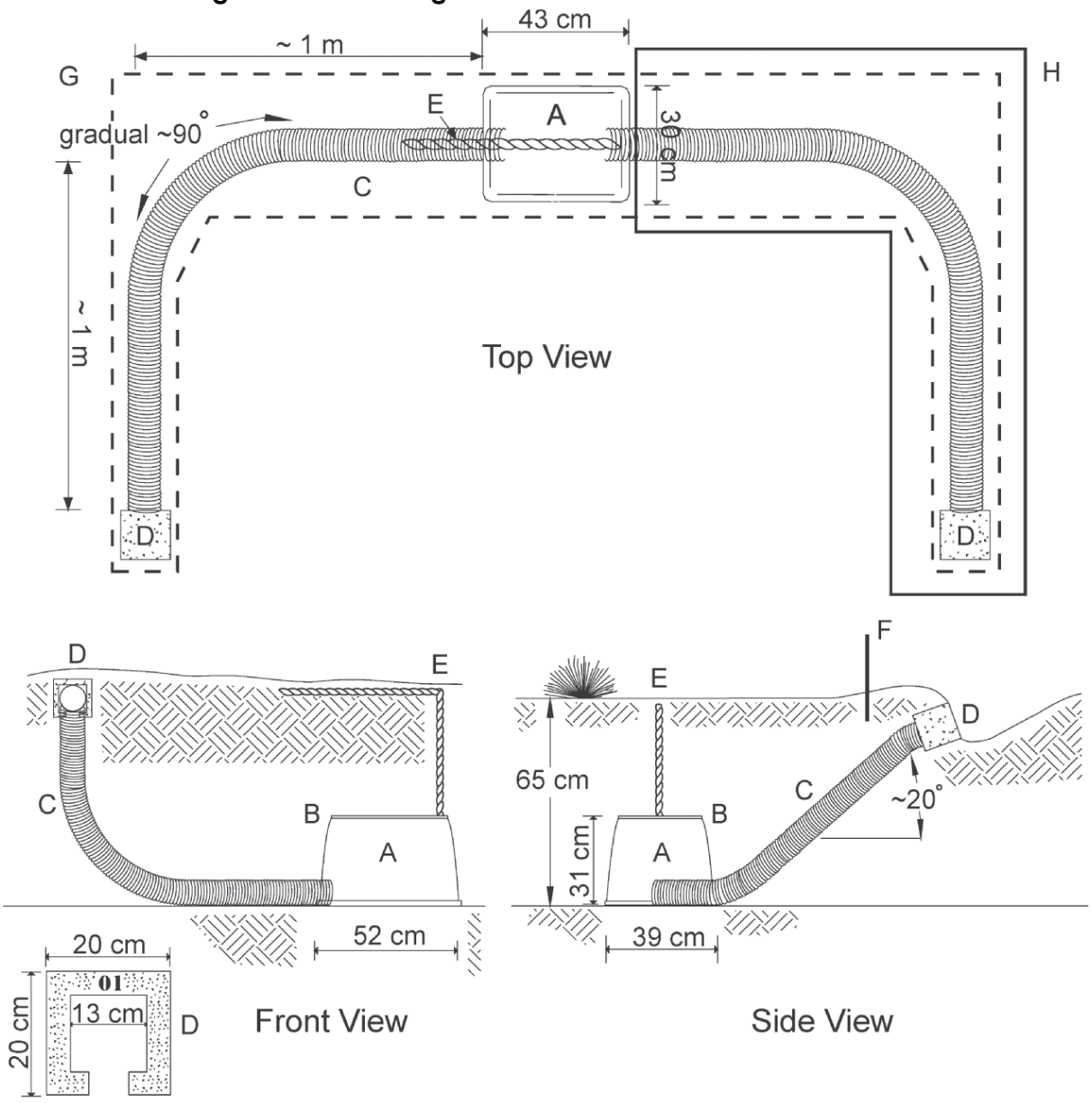
_____. 2024c. Darden Clean Energy Project CEC Data Request Response Set #4. May 2024.

_____. 2024d. Darden Clean Energy Project CEC Supplemental Data Request Response Set #1. December 2024.

Appendix A

Artificial Burrowing Owl Burrow Design

Artificial Burrowing Owl Burrow Design



A - Plastic irrigation valve box, 48 cm long x 35 cm wide x 27 cm high (inside dimensions)
B - Removable lid
C - Ca. 2 m of 10-cm diameter perforated flexible plastic pipe
D - 20 x 20 x 15 cm hollow concrete block
E - Plastic rope or chain marking location of nest chamber on ground surface
F - 0.5 m perch post (optional)
G - Excavation footprint for installation – – –
H - Optional second entrance

Attachment U.5

CEC Data Request Response Set #4

Darden Clean Energy Project (23-OPT-02)

CEC Data Request Response Set #4

prepared by

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3 Biological Resources

3.1 Data Requests DR BIO-1 through DR BIO-47

3.1.1 Data Request DR BIO-1

DR BIO-1: Please describe the placement of the gen-tie poles or structures at the intersection of where the gen-tie line crosses over Cantua Creek. Information should include where and at what distance apart the gen-tie poles or structures would be placed east and west of Cantua Creek and any known potentially state-jurisdictional water features in an area which could be impacted by placement of gen-tie poles or structures (see also DR-BIO-26). Include any measures that would be taken to protect and avoid impacts to Cantua Creek.

Response: The gen-tie does not cross the jurisdictional limits of Cantua Creek at any point along its corridor. The creek's channel features terminate approximately 1,100 feet west of the California Aqueduct. At its closest point, Cantua Creek is within approximately 200 feet south of and parallel to the gen-tie corridor (refer to Appendix Q – Volume 1 Biological Resources Assessment Section 1.1.1, *Solar Facility, Step-Up Substation, and Gen-tie*, and Section 3.1.2, *Watershed and Drainages*; Appendix Q – Volume 2 and 3, Appendix Q-9, Aquatic Resources Delineation and Appendix Q-10, Aquatic Resources Representative Photographs).

The gen-tie poles will be spaced approximately 1,300 feet apart and will span the aqueduct. The final locations of the gen-tie poles will be confirmed during later stages of design, and the precise distance of the structures from the aqueduct has not been finalized at this time. No impacts to, or work within the jurisdictional limits of Cantua Creek will occur. As described in Section 5.13, *Water Resources* of the Opt-in Application in the Impact WAT-1 discussion, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared and implemented during construction of the gen-tie to apply best practices to control erosion and sedimentation and protect local surface water drainages and water quality.

3.1.2 Data Request DR BIO-2

DR BIO-2: Please provide a map that shows the placement of gen-tie poles or structures to the east and west of Cantua Creek where the gen-tie line crosses.

Response: Please refer to the response to DR BIO-1 above.

3.1.3 Data Request DR BIO-3

DR BIO-3: Please discuss the hydrology of the entire project site as it pertains to the canals and whether any of the canals drain into the Fresno Slough.

Response: The hydrology of the entire Project site was evaluated and characterized in Appendix Q – Volume 1 Biological Resources Assessment, Section 2.3.5, *Aquatic Resources Delineation*, Section 3.1.2, *Watershed and Drainages*, and Appendix Q-9, Aquatic Resources Delineation, and potentially jurisdictional features were discussed in Section 5.12.1.3, *Sensitive Biological Resources* "Jurisdictional Waters and Wetlands" (page 5.12-32) and Appendix Q – Volume 1 Biological Resources Assessment, Section 4.3, *Jurisdictional Waters and Wetlands*. In the Project area, U.S. Geological Survey (USGS) topographic mapping illustrates Cantua Creek and drainages on the hills to

the west of Project's proposed utility switchyard development area, but no streams or other natural water bodies are mapped on the Project site. The California Aqueduct bisects the Project's gen-tie corridor, and the Fresno Slough is located approximately 2.8 miles northeast of the Project area. The NHD depicts an approximately 1.3-mile flowline segment at the northeast corner of the Project site but this location was examined in the field and no stream or hydrologic feature exists at the mapped location.

Field delineation indicated that all of the on-site agricultural ditches, basins, and canals are manmade and part of a site drainage and irrigation system, which forms an isolated interconnected system. There is no downstream connection from the on-site ditches to any receiving water inclusive of the Fresno Slough, nor do they receive flow from any natural upstream waters, inclusive of the Fresno Slough. Rather, the ditches appear to collect agricultural runoff and direct it to pumps (presumably for irrigation re-use) or allow it to infiltrate.

3.1.4 Data Request DR BIO-4

DR BIO-4: Please describe the different water source(s) for irrigation of the farmlands in a one-mile buffer around the project site and 1,000-foot buffer of the linear corridors (project site and linear buffers) identify if any water sources come from ground water. This information will allow California Department of Fish and Wildlife (CDFW) and CEC staff to fully evaluate the potential for impacts to occur within CDFW's jurisdiction under Fish and Game Code section 1600 et seq.

Response: CDFW's section 1600 jurisdiction only extends to activities that would "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" (Fish and Game Code section 1602(a)). The Project will not impact any rivers, streams, lakes, or other jurisdictional water features. As described in Section 5.13, *Water Resources* of the Opt-in Application in the Impact WAT-1 discussion, a SWPPP will be prepared and implemented during construction of the Project to apply best practices to control erosion and sedimentation and protect local surface water drainages and water quality. These practices will prevent impacts to jurisdictional water resources outside the Project footprint.

Publicly available data regarding water resources within the Project region is presented in Section 5.13, *Water Resources* of the Opt-in Application. As discussed in the response to DR BIO-3 above, the agricultural ditches within the Project site form a closed loop and do not drain into or receive water from jurisdictional waters, such as the Fresno Slough or Crescent Ditch.

3.1.5 Data Request DR BIO-5

DR BIO-5: Please provide a table showing impacts by acreage (temporary and permanent), by project feature and land cover type.

Response: The Applicant is unclear on how the CEC is defining the term "impacts" in the context of this data request. The Applicant would not consider the conversion of either (a) agricultural land consisting of orchards or occasionally cultivated vegetable crops only during years with greater-than-normal precipitation, or (b) non-active, non-irrigable agricultural land (under an ongoing regimen of regular disking to manage weed infestations) to a solar farm and associated infrastructure as an "impact" under the California Environmental Quality Act (CEQA) for any biological resources other than Swainson's hawk and burrowing owl (as described in Appendix Q – Volume 1 Biological Resources Assessment). Additionally, areas of "temporary impacts" would be

restored to habitat of higher quality for Swainson's hawk foraging, burrowing owl occupation, and potentially other special-status and non-special-status species, including pollinators, under the procedures outlined in the Swainson's Hawk Conservation Strategy (refer to Mitigation Measure BIO-9 in the response to DR BIO-41) and the Vegetation Management Plan (refer to Mitigation Measure BIO-10 in the response to DR BIO-42). The total permanent and temporary impacts provided in Table 2 below are similar to those provided in the submitted documentation (refer to Appendix Q-8, *Analysis of Project Impacts to Swainson's Hawk Foraging Habitat*); however, permanent impacts in the PV Development Footprint are based on the number and size of panel racking piles and inverter-transformer stations needed.

Table 2 DR BIO-5 Maximum Permanent and Temporary Impacts According to Project Component and Land Cover

Project Feature	Land Cover Type	Permanent Impacts (acre)	Temporary Impacts (acre)
PV Development Footprint	Non-active agriculture; Agriculture: occasionally cultivated vegetable crops during years with greater-than-normal precipitation	10.23*	9,120
O&M structures (Option 1 and Option 2)	Non-active agriculture	11	-
Green Hydrogen Facility and Step-Up Substation (Options 1 and Options 2)	Non-active agriculture	242	-
Alt Green Hydrogen Switchyard and Substation (if required)	Non-active agriculture	120	-
Utility Switchyard	Agriculture: Orchard	35	-
Battery Storage (BESS) (Option 1 and Option 2)	Non-active agriculture	32	-
Gen-tie Corridor (not including extension into PV footprint or utility switchyard)	Non-active agriculture; Agriculture: Orchard and occasionally cultivated vegetable crops during years with greater-than-normal precipitation	1.85	233.15
Maximum Total Impacts		**452.08**	**9,353.15**

*Panel racking piles and inverter-transformer stations within the PV Development Footprint. Each pile would be approximately 6x9 inches; approximately 452,000 piles would be required for a total of 24,408,000 square inches or 3.89 acres. Each inverter-transformer station would be approximately 40x25 feet; approximately 276 inverter-transformer stations would be required for a total of 276,000 square feet or 6.34 acres. Total permanent impact in the PV Development Footprint would be 10.23 acres.

The solar array blocks (PV modules), in combination with the BESS, substation, and green hydrogen facility, will cover or permanently impact an estimated maximum of 452.08 acres. This is based on the number and size of panel racking piles and inverter-transformer stations needed in the PV development footprint, which totals approximately 10.23 acres of permanent impacts.

Permanent impacts within the gen-tie corridor are based on a 0.05-acre disturbance footprint for each of the 37 anticipated poles for a total impact area of 1.85 acre. This is a conservative estimate based on H-frame poles; if monopoles are used each pole will have a smaller disturbance footprint.

No Project impacts, permanent or temporary, will occur outside of the proposed Project site shown in Figure 2-2 of Chapter 2, *Project Description* of the Opt-in Application.

3.1.6 Data Request DR BIO-6

DR BIO-6: Please explain why the applicant's proposed measure (APM) APM BIO-1 is in Chapter 2 Project Description, while Mitigation Measures BIO-1 through BIO-8 occur in Section 5.12 Biological Resources. Explain why there are two different types of measures proposed for impacts to biological resources (APM and BIO)?

Response: APM BIO-1 provided in Chapter 2, *Project Description* of the Opt-in Application, includes actions and plans the Applicant has proposed to prepare and implement as an integrated part of Project design that folds into a partnership for a Swainson's hawk conservation research program. Much of the proposed Swainson's Hawk Conservation Strategy goes beyond simply mitigating for impacts, and includes research intended to better inform restoration success on this and future renewable energy projects in the San Joaquin Valley. The conservation plan needs the flexibility to establish and adaptively manage a complex research design, so cannot be overly prescriptive at this stage of development. Based on feedback from CEC, Mitigation Measure BIO-9 for the Swainson's Hawk Conservation Strategy is provided in the response to DR BIO-41.

3.1.7 Data Request DR BIO-7

DR BIO-7: Please provide monitoring plan details (particularly during construction and operation) for San Joaquin kit fox (*Vulpes macrotis*), American badger (*Taxidea taxus*), and burrowing owl (*Athene cunicularia*), as well as blunt-nosed leopard lizard (*Gambelia sila*), if necessary, based on DR BIO-9. The monitoring plans should include methods for pre-construction surveys, and avoidance and minimization measures proposed for construction and operations.

Response: Please refer to the responses to DR BIO-9, DR BIO-10, and DR BIO-11 regarding blunt-nosed leopard lizard.

A Burrowing Owl Management Plan has been prepared (Appendix B to this document) which outlines the procedures and protocols to fully minimize and mitigate potential impacts to burrowing owl. The Burrowing Owl Management Plan would be implemented regardless of the listing status of burrowing owl; however, because the plan would avoid, minimize, and fully mitigate impacts to western burrowing owl, no additional mitigation would be required in the event the species becomes a candidate under the California Endangered Species Act (CESA).

The following plans have been prepared, which detail the monitoring approach for San Joaquin kit fox and American badger during construction activities:

- PV and Gen-tie Biological Resources Management Plan (Appendix C to this document)
- Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan (Appendix D to this document)

Mitigation Measure BIO-11 has been added for preparation of the Burrowing Owl Management Plan, and Mitigation Measure BIO-12 has been added for preparation of an Operations and Maintenance Biological Resources Management Plan.

Mitigation Measure BIO-11 Burrowing Owl Management Plan

The Applicant shall prepare a Burrowing Owl Management Plan that will address the following topics to fully minimize and mitigate potential impacts to the species, particularly in the case that it becomes a candidate species under the California Endangered Species Act (CESA). The management plan will include the following:

1) Burrowing owl existing conditions, including site conditions and burrowing owl observations
2) Management Strategy
    a. Pre-construction surveys
    b. Construction monitoring
    c. Sound or visual barriers
    d. Burrow avoidance and buffers
    e. Passive relocations and exclusion, including installation of artificial burrows if necessary
    f. Burrow excavation
3) Reporting
4) Operation and Maintenance Measures

Mitigation Measure BIO-12 Operations and Maintenance Biological Resources Management Plan

The Applicant shall prepare an Operations and Maintenance Biological Resources Management Plan to be implemented during Project operations that incorporates elements of final Project layout and design and baseline conditions. The plan will address the following topics to avoid and minimize potential impacts to sensitive biological resources including San Joaquin kit fox, American badger, and Swainson's hawk, including from vehicle use; solar panel, facility, and equipment maintenance and repair; and vegetation management activities; among other operations activities. The management plan will be prepared prior to initiation of Project operations and will include the following:

1) Existing conditions, including sensitive biological resources
2) Management Strategy
    a. Worker Environmental Awareness Program
    b. Avoidance and minimization measures
    c. Surveys
    d. Monitoring
3) Reporting

The plan will be reviewed and updated every 5 years to incorporate changed conditions and adaptive management, as needed.

3.1.8 Data Request DR BIO-8 [Reserved]

3.1.9 Data Request DR BIO-9 and DR BIO-10

DR BIO-9: Please provide a habitat assessment or survey results for blunt-nosed leopard lizard for the entire project site and linear buffers.

DR BIO-10: Please explain and provide supporting information for why the applicant considers there to be no suitable habitat or potential for blunt-nosed leopard lizard to occur in the project area.

Response: Section 2.3.1, *Field Reconnaissance Survey* of the Biological Resources Assessment (Appendix Q – Volume 1) describes the reconnaissance surveys completed throughout the Project site to evaluate land cover and habitat and determine the potential for any areas to support special-status plant and wildlife species. These surveys included evaluation for blunt-nosed leopard lizard. The summarized conclusion for blunt-nosed leopard lizard occurrence in the Project area is identified on page Q-2-10 of Appendix Q-2, *Special-Status Species Evaluation Tables*, as having No Potential to occur on the Project site.

The results of the initial habitat evaluation determined that no suitable habitat is present within the Project due to extensive disturbance and agricultural practices. A formal habitat assessment report for blunt-nosed leopard lizard was not drafted because the very nature of all lands within the Project limits was unsuitable for blunt-nosed leopard lizard (i.e., regularly disked inactive crop fields and one orchard). The undeveloped lands west of the Project include grasslands within the Ciervo Hills representing marginally suitable habitat due to high topographic relief, dense vegetation, no areas of bare ground, and no shrubs or other vegetation for shade or cover. There are no known occurrences of blunt-nosed leopard lizard in the past 30 years within 10 miles of the Project site.

Based on these results it was determined the blunt-nosed leopard lizard is not expected to occur within the Project site and a stand-alone habitat assessment was not warranted.

3.1.10 Data Request DR BIO-11

DR BIO-11: Please provide proposed mitigation measures needed to fully avoid impacts to blunt-nosed leopard lizard if an individual were to wander into the project area or be encountered during construction and operation activities.

Response: Blunt-nosed leopard lizard is not expected to occur within any of the Project component locations due to the lack of suitable habitat, and the low potential of occurrence in adjacent marginal grassland habitat west of the Project footprint (utility switchyard). Potential impacts to blunt-nosed leopard lizard will be avoided through implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 (refer to Section 5.1.2, *Biological Resources* of the Opt-in Application).

3.1.11 Data Request DR BIO-12

DR BIO-12: Please provide a complete list of plant species observed during surveys on the project site and linear facility corridor buffers.

Response: The tables below include the plant species observed during the surveys, as provided in Appendix Q-5, *Species Compendia*, and Appendix Q-11, *Delineation Data Sheets*.

Plant Species Observed During Biological Surveys

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Eucalyptus camaldulensis	red gum eucalyptus	None	Introduced
Populus fremontii	Fremont cottonwood	None	Native
Salix lasiolepis	arroyo willow	None	Native
Herbs			
Brassica nigra	black mustard	Cal-IPC Moderate	Introduced
Triticum aestivum	bread wheat	None	Introduced
Phacelia ciliate	great valley phacelia	None	Native
Convolvulus arvensis	field bindweed	None	Introduced

Plant Species Observed During Jurisdictional Delineation Surveys*

Scientific Name	Common Name	Status	Native or Introduced
Trees			
Tamarix parviflora	smallflower tamarisk	Cal-IPC High	Introduced
Herbs			
Atriplex lentiformis	big saltbush	None	Native
Helianthus annuus	common sunflower	None	Native
Lactuca serriola	prickly lettuce	None	Introduced
Typha latifolia	broadleaf cattail	None	Native
Salsola tragus	Russian thistle	Cal-IPC Limited	Introduced
Schoenoplectus acutus	hardstem bulrush	None	Native

*Impacts to jurisdictional resources will be avoided (refer to response to DR BIO-26). Many of the above species were observed in basins used for agricultural purposes near the center of the Project, which will not be impacted by Project activities.

CEC Comment Regarding Lost Hills Crownscale: Lost Hills crownscale (*Atriplex coronata var. vallicola*) and other Atriplex spp., palmate-bracted birds's-beak *(Chloropyron palmatum)*, as well as other species with similar habitat requirements:

The "potential to occur" listed for several plant species is inconsistent with the "Habitat Suitability/Observations" column. Specifically, for Lost Hills crownscale it states this species has a "Low Potential" to occur and that "suitable chenopod scrub, valley and foothill grassland does occur within the BSA but does not occur within 200 ft. of the Project Site (utility switchyard)". However, other Atriplex spp., as well as several other species (e.g. palmate-bracted bird's beak) that have similar habitat requirements, it states that these species have "No Potential" to occur and "suitable chenopod scrub, valley and foothill grassland does not occur within the BSA."

These discrepancies should be resolved as part of the response to data requests (DR BIO-13 and BIO-14) as discussed during the meeting and the applicant should explain why the potential to occur differs for this host of species that occur in similar habitats.

Response: Grassland is present within the western edge of the BSA adjacent to and outside of the Project boundary at the utility switchyard. Based on the presence of this adjacent grassland habitat and the definitions listed in Section 4, *Sensitive Biological Resources* of the Biological Resources Assessment (Appendix Q), the following species with similar habitat requirements as Lost Hills

crownscale, with elevation ranges that include the BSA and with CNDDB records within 5 miles of the BSA, have "Low Potential" to occur within grassland habitat west of the utility switchyard site:

- San Joaquin woollythreads (*Monolopia congdonii*) – CNDDB records of this species are from 1941 or earlier
- Showy golden madia (*Madia radiata*) – this species can occur in grasslands, but typically occurs in adobe clay soils, which are not present where the grasslands occur west of the utility switchyard site

Lost Hills crownscale is the only special-status plant species documented within 1 mile of the BSA (approximately 0.5 mile west of the utility switchyard location in 2002 within the Ciervo Hills; refer to Appendix Q – Volume 1 Biological Resources Assessment Section 4.1.1, *Special-Status Plant Species*). The utility switchyard has been continually disturbed by agricultural activities since at least July 2004; therefore, the species listed above are not expected to occur within the utility switchyard location or anywhere else within the Project site.

3.1.12 Data Request DR BIO-13

DR BIO-13: Please define and describe survey buffers used for all surveys. There were some areas of the project that did not include the 1,000-foot linear facility corridor buffer. Please explain why this buffer was not surveyed.

Response: A variety of survey areas were used based on the purpose and standard protocols for each survey conducted. General reconnaissance surveys and annual site inspections were conducted within a BSA that was defined for this Project as the approximately 9,500-acre Project site (encompassing all Project components, including the gen-tie line corridor) and a 100-foot survey buffer where publicly accessible. General reconnaissance surveys were not conducted out to a 1,000-foot buffer because the Applicant does not have permissions to access private lands outside the Project site. The biological study area for Swainson's hawk was expanded to include local protocol Swainson's hawk surveys to assess nesting within 0.5 mile of the Project site, and regional Swainson's hawk nest surveys to inform a Swainson's hawk foraging analysis. These studies incorporated species-specific buffers of 0.5 mile for the protocol surveys and 10 miles for the foraging analysis. The Aquatic Resources Delineation study area included the Project site and a 250-foot buffer (refer to Appendix Q – Volume 1 Biological Resources Assessment Section 2.1, *Biological Study Area*).

In addition, please refer to the response to DR BIO-14.

3.1.13 Data Request DR BIO-14

DR BIO-14: If a minimum of at least a 1,000-foot buffer was not used for biological resources surveys around the entire project site and gen-tie line ROW, perform surveys in the 1,000-foot buffer.

Response: The Applicant does not have landowner permissions to access areas within a 1,000-foot buffer around the Project site.

The reference to the 1,000-foot buffer in Appendix B (g)(13)(B) is in the section requesting a high level "regional overview and discussion of terrestrial and aquatic biological resources" and not in section D(i) describing biological surveys. A regional overview was provided in the Biological Resources Assessment Section 3, *Existing Conditions*, and Appendix R, Species Observed and with

Potential to Occur and 10-mile CNDDB. With respect to field surveys, section D(i) instructs applicants to prepare surveys using "appropriate field survey protocols" identified in consultation with state and federal resource agencies. The Project's Swainson's hawk surveys and aquatic resources delineation were prepared consistent with applicable survey protocols. As such, we do not believe that Appendix B requires survey buffers to be extended to the one-mile and 1,000-foot buffers referenced in the deficiency letter and it would not be practical to do so.

CEC Comment Regarding California Tiger Salamander (CTS): The Special-Status Species Evaluation Table (Appendix Q-2, p. Q-2-9) states: "A perennial pond for grazing cattle with nearby ground squirrel burrows occurs west of the utility switchyard within the BSA. However, there is no suitable habitat in the BSA within the 1.2-mile dispersal distance of this species". However, according to staff's review of applicant's data (including shapefiles), Impoundments 1 and 2 (TN 253038-3, pps. 31 of 57 and 32 of 57) are located immediately adjacent to the border of the "Utility Switchyard Parcel" and less than 0.26 and 0.16 miles (respectively) from the boundary of the "Utility Switchyard".

These locations may contain suitable habitat for CTS and are well within dispersal distance of 1.2 miles. There is also another immediately offsite portion described under San Joaquin coachwhip as "An area of suitable open dry habitat with nearby ground squirrel burrows occurs west of the switch yard within the BSA." (p. Q-2-11), that could be potentially suitable habitat for CTS within dispersal distance. Portions of the utility switchyard and gen tie line may also provide suitable habitat for CTS with the presence of ground squirrel burrows.

These mapping discrepancies should be resolved as part of the response to data requests (DR BIO-13, BIO-14 and BIO-34). Please ensure the responses provide additional information on the applicant's determination that there is no potential for CTS to occur and include the results of any offsite survey data.

Response: The entire Project site consists of agricultural lands that are disked and managed as retired agricultural parcels, with a small number of orchards and occasionally active agriculture fields cultivated with vegetables in years with greater-than-normal precipitation (refer to the response to DR BIO-5). While marginally suitable habitat and marginal aquatic habitat are present in the vicinity as described below, the Project site itself supports no suitable aquatic or refugia habitat for CTS.

California tiger salamander inhabits annual grasslands and open woodlands and requires upland habitat with underground refugia and seasonal water sources for breeding. The species spends most of its life with little movement in underground small mammal burrows; however, during the breeding season typically between November and February, this species migrates at night during rain events, traveling between upland habitat and breeding ponds (Orloff 2011). This species is closely associated with California ground squirrel underground burrows (Trenham 2001), and active populations of burrowing rodents are likely required to sustain California tiger salamanders as inactive burrow systems collapse and become progressively unsuitable over time (Loredo et al. 1996). Aquatic breeding sites include vernal pools and other seasonal ponds and stock ponds that typically have minimal emergent vegetation, lack predatory fish or bullfrogs, and are inundated for at least 12 weeks during the breeding season to allow for larval metamorphosis to be completed.

The utility switchyard and gen-tie line are in areas of agricultural production comprised of actively managed orchards, occasional vegetable crops tilled and planted only during years of greater-than-normal precipitation, retired agricultural parcels that are regularly disked, or disturbed areas that are graded and non-friable (as shown in Photographs 1 through 9 in Appendix Q-4, Site

Photographs). While California ground squirrels were observed within the BSA along roadsides, and around the edges of the alternate green hydrogen component location, most of the Project site (including the orchard within the utility switchyard footprint, as shown in Photograph 1 in Appendix Q-4, Site Photographs) is unsuitable for California ground squirrels. Annual grassland occurs along the western edge of the Ciervo Hills. Two seasonal cattle ponds (Impoundments 1 and 2) are within the non-native grassland, approximately 0.46 mile west of, and immediately adjacent to the Project site. Both ponds are small (approximately 0.07 and 0.09 acre), intermittently dry, and isolated (no other ponded water occurs within California tiger salamander dispersal range of Impoundments 1 and 2).

As identified on page Q-2-9 of Appendix Q-2, *Special-Status Species Evaluation Tables*, there are no California tiger salamander occurrences within 10 miles of the BSA. Additionally, there are no known occurrences of this species on the eastern edge of the Ciervo Hills. As such, there is low potential for this species to occur within the grassland habitat or cattle ponds outside the Project site. While a limited number of California ground squirrels occur along roadsides in the vicinity of the utility switchyard and gen-tie line, there is low potential for California tiger salamander to occur within these areas, as the only potential dispersal location is the grassland habitat to the west, which has a low potential for this species to occur, as described above. Additionally, the land cover within the utility switchyard Project area consists of an actively managed orchard and areas that are regularly disked. This area does not present suitable dispersal habitat and California tiger salamander are not expected to occur within the Project site.

3.1.14 Data Request DR BIO-15

DR BIO-15: Please provide a habitat assessment, documentation, and proposed avoidance and minimization measures to avoid potential impacts to tricolored blackbird (*Agelaius tricolor*). Tricolored blackbird are known to nest in alfalfa, wheat, and other low agricultural crop fields and therefore they could nest within and/or adjacent to the project site.

Response: Section 2.3.1, *Field Reconnaissance Survey* of the Biological Resources Assessment (Appendix Q – Volume 1) describes the reconnaissance surveys completed throughout the Project site to evaluate land cover and habitat and determine the potential for any areas to support special-status plant and wildlife species. These surveys included evaluation for tricolored blackbird. The species is also discussed in the Biological Resources Assessment Section 4.1.3, *Species Discussions*. These surveys and analysis determined tricolored blackbird have a low potential to forage within the BSA and no potential to nest within the BSA. Based on these results it was determined tricolored blackbird are not expected to occur within the Project site and a stand-alone habitat assessment was not warranted. Proposed avoidance and minimization measures are described in the Biological Resources Assessment Section 5, *Impact Analysis and Recommended Measures*.

3.1.15 Data Request DR BIO-16

DR BIO-16: Please provide a discussion of all suitable habitat for tricolored blackbird in the project site and linear facility corridor buffers.

Response: Please refer to the response to DR BIO-15 above.

3.1.16 Data Request DR BIO-17

DR BIO-17: Please provide a map of all suitable habitat for tricolored blackbird in the project area including the 1,000-foot buffer.

Response: Please refer to the response to DR BIO-13 and DR BIO-15 above.

3.1.17 Data Request DR BIO-18

DR BIO-18: Please provide map(s) of land cover types at a scale consistent with Appendix B (g) (13) (B) (i).

Response: Maps in compliance with requirements in Appendix B (g) (13) (B) (i) were submitted in Section 5.12 *Biological Resources*, Appendix Q Section 4, *Sensitive Biological Resources*, and Appendix R, *Species Observed and with Potential to Occur and 10-mile CNDDB* of the Opt-in Application. Maps identifying land cover types are provided as Appendix E to this document. Data inputs for the maps includes observations during biological resources surveys and the agricultural uses map depicted in Figure 5.2-5a through Figure 5.2-5h in Section 5.2, *Land Use.* Land cover terminology is consistent with designations identified in Section 5.12, *Biological Resources*, including Orchard (active agriculture), Non-Active Agriculture, Developed (Interstate 5), Grassland (in the westernmost buffer area of the BSA outside the utility switchyard parcel), and Open Water (California Aqueduct).

3.1.18 Data Request DR BIO-19

DR BIO-19: Please provide map(s) of the project site and linear facility corridor buffers identifying where pedestrian and windshield surveys were conducted.

Response: Please refer to the response to DR BIO-13 for a discussion of the survey areas used.

- General reconnaissance and site inspection survey areas (Project site plus a 100-foot buffer where accessible) are depicted in Figure 3, Figures 4a-4f, and Figures 5a-5e of Appendix Q – Volume 1 Biological Resources Assessment.
- Protocol Swainson's hawk nesting survey areas (within 0.5 mile of the Project site) are depicted in Figure 3 of Appendix Q-7, *Swainson's Hawk Nesting Survey Report*.
- Swainson's hawk foraging analysis survey areas (within 10 miles of the Project site) are depicted in Figures 2-6 of Appendix Q-8, *Analysis of Project Impacts to Swainson's Hawk Foraging Habitat*.
- Aquatic resource delineation survey areas (Project site and a 250-foot buffer where accessible) are depicted in Appendix Q-9, *Aquatic Resources Delineation*.

Survey methodologies are described in Appendix Q – Volume 1 Biological Resources Assessment Section 2.3, *Field Surveys*.

3.1.19 Data Request DR BIO-20

DR BIO-20: Please perform nitrogen deposition modeling for the diesel-fueled emergency backup generators (backup generators), including the complete citation for references used (including the source document for documents not readily available online) in determining deposition rates and location. Specify the amount of total annual nitrogen deposition in kilograms of nitrogen per hectare per year (kg N/ha/yr) in special status species habitats and vegetation types for wet and dry

deposition. Describe each habitat and species potentially affected by nitrogen deposition. Please provide modeled nitrogen deposition rates, map(s), and other information as specified for the project's backup generators. See Appendix B (g) (13) (B) (ii), Appendix B (g) (13) (C) (iii), and Appendix B (g) (15) (B) (ii). Please include a discussion of the potential for all anticipated emissions that may adversely affect soil-vegetation systems.

Response: The Project includes emergency backup generators (LPG and diesel) and fire pump engines, which would operate during major power supply failures to ensure the safe and reliable shutdown of the green hydrogen facility. Criteria air pollutant emissions would be generated during the operation of emergency backup generators and fire pump engines, including nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulates (PM10 and PM2.5). Nitrogen oxide gases (NO, NO_2) convert to nitrate particulates suitable for uptake by most plants. Increases in nitrate from Project-related combustion could accumulate in soils, potentially promoting growth of nonnative or invasive plant species allowing them to outcompete native species adapted to soils with lower levels of nitrogen. Nitrogen deposition modeling was performed for the emergency backup generators and the methodology is detailed in Appendix F. Nitrogen deposition modeling results within special status species habitats and vegetation types, a discussion of potential impacts to habitats and species potentially affected by nitrogen deposition, and the references used in this analysis are detailed in Appendix F.

Operation of the Project's emergency backup generators and fire pump engines would not lead to nitrogen deposition levels that exceed critical thresholds associated with significant impacts to non-native grassland, dune or riparian vegetation communities in the vicinity of the Project site or special status species that may occur within the vegetation communities. Therefore, operation of the Project's emergency backup generators and fire pump engines would result in less than significant impacts to natural vegetation communities and special status species within 6 miles of equipment operation.

3.1.20 Data Request DR BIO-21

DR BIO-21: Please provide revised project GIS shapefiles identifying the proposed laydown area(s) and hydrogen pipeline stub.

Response: Laydown area locations will be finalized in later stages of design. Please see the response to DR BIO-22 for additional details on laydown areas. Updated GIS files were provided via Kiteworks on March 14, 2024 as part of Response Set #2 indicating potential pipeline stub locations (refer to the response to DR PD-2 in Response Set #2).

3.1.21 Data Request DR BIO-22

DR BIO-22: Please provide a discussion of where the laydown area(s) would be and what it would be used for, including what types of items would be stored in the laydown area, what grading or other surface preparation would be required. Include avoidance and minimization measures for potential impacts to species, such as burrowing owl and San Joaquin kit fox, which may utilize pipes and other equipment stored in these areas. Also, would the laydown area(s) be fenced, and if so, please describe the fencing.

Response: The number, size, and location of laydown areas will be defined during continuing design stages. A laydown area will be sited inside each of the separate fenced Project areas. No laydown areas will be located outside the Project boundary. Locations will be based on delivery routes,

construction access roads, avoidance areas, and easements. Sizes will vary from approximately 1 to 10 acres.

Laydown areas will be used for the temporary staging and storage of Project materials during construction such as tracker components, wire spools, module pallets, and steel piles. The laydown areas will generally be compacted native soils with compacted gravel overtop. Minimal grading will be required as the site is very flat, but graders will be used to compact the soil.

Please refer to the response to DR BIO-32 for fence information.

General measures to avoid and minimize potential impacts to biological resources are provided in Mitigation Measure BIO-1: Construction Worker Environmental Awareness Training and Education Program, and Mitigation Measure BIO-2: Construction Best Management Practices in Section 5.12, *Biological Resources*. Measures to avoid and minimize potential impacts to burrowing owl and San Joaquin kit fox are provided in the following plans prepared for the Project:

- Burrowing Owl Management Plan (Appendix B to this document)
- PV and Gen-tie Biological Resources Management Plan (Appendix C to this document)
- Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan (Appendix D to this document)

3.1.22 Data Request DR BIO-23

DR BIO-23: Please provide copies of all California Natural Diversity Database (CNDDB) forms for species listed by a state or federal agency and other special status species encountered during project surveys.

Response: CNDDB form data tables have been prepared for special-status species observations made during biological resources surveys. The CNDDB form data tables are provided in Appendix G to this document.

3.1.23 Data Request DR BIO-24

DR BIO-24: Please provide copies of any correspondence or records of conversations to confirm that CDFW was consulted regarding Swainson's hawk protocol guidance, per Appendix B (g) (13) (D) (i).

Response: Coordination with CDFW regarding Swainson's hawk survey protocol occurred via email and are documented in Appendix H to this document.

3.1.24 Data Request DR BIO-25

DR BIO-25: Please perform appropriate surveys for Crotch's bumble bee (*Bombus crotchii*) pursuant to CDFW protocol guidelines (CDFW 2023). Please coordinate with CDFW to ensure adherence to appropriate protocol (focal survey area(s) may be refined based upon the maps requested per DR Bio-18).

Response: No suitable vegetated habitat with appropriate floral resources for Crotch's bumble bee occurs within the Project BSA (refer to the responses to DR BIO-5 and DR BIO-9), and no current occurrences have been recorded within 10 miles of the Project site. While this species was historically common in the Central Valley of California, the 2014 IUCN Assessment indicates Crotch's bumble bee is considered by most authorities to be absent from most of the central portion of its historic range due to extensive agricultural intensification and increased use of pesticides (refer to

page Q-2-8 of Appendix Q-2, *Special-Status Species Evaluation Tables*). Therefore, Crotch's bumble bee has no potential to occur in the BSA and protocol surveys are not necessary, as confirmed through verbal consultation with CDFW (Julie Vance) on January 8, 2024.

3.1.25 Data Request DR BIO-26

DR BIO-26: Please justify the determination that there are no CDFW jurisdictional features as determined under Fish and Game Code section 1600 et seq. See also DR BIO-1 through BIO-4.

Response: The extent of CDFW jurisdiction over streams and basins within the Project site was determined based on a review of applicable statutes (CFGC Sections 1600 et seq.) and associated regulations, guidance, and case law. Justifications for the determinations regarding CDFW jurisdiction can be found in Appendix Q – Volume 1 Biological Resources Assessment Section 2.3.5, *Aquatic Resources Delineation*, Section 4.3, *Jurisdictional Waters and Wetlands*, Section 5.3, *Jurisdictional Waters and Wetlands*, and Appendix Q-9, *Aquatic Resources Delineation*). CDFW jurisdictional features identified within the Jurisdictional Study Area (Project site and 250-foot buffer) include: California Aqueduct, Cantua Creek, and four ephemeral swales (ES-1 through ES-4) near the utility switchyard. Cantua Creek and the four ephemeral swales are not within the Project footprint and will not be impacted by Project activities. Cantua Creek is approximately 200 feet south of the gen-tie corridor (see response to DR BIO-1); the four ephemeral swales are within 250 feet of the utility switchyard parcel, but more than 250 feet from the proposed utility switchyard footprint. The California Aqueduct bisects the gen-tie corridor approximately 3 miles west of the solar facility; however, gen-tie pole installation locations and activities will avoid impacts to the aqueduct (refer to the response to DR BIO-1 and Chapter 2, *Project Description*).

3.1.26 Data Request DR BIO-27

DR BIO-27: Please discuss potential impacts and avoidance measures, particularly during operations, when San Joaquin kit fox may be struck by vehicles, have dens crushed, or experience other direct impacts from project activities.

Response: Please refer to the responses to DR BIO-7. Based on the San Joaquin kit fox habitat assessment completed for the Project (refer to Appendix Q-6, San Joaquin Kit Fox Habitat Assessment) there is no expectation that San Joaquin kit fox will occur on the site during construction or operation. However, in the event that restoration of annual grassland habitat within the Project site ultimately results in a return of San Joaquin kit fox to this portion of the Central Valley, an Operations and Maintenance Biological Resources Management Plan will be prepared that will contain measures to avoid and minimize potential impacts to San Joaquin kit fox from vehicle use; solar panel, facility, and equipment maintenance and repair; vegetation management activities; and other operations activities.

3.1.27 Data Request DR BIO-28

DR BIO-28: Please discuss potential impacts to blunt-nosed leopard lizard, burrowing owl, or other protected species, from artificial nuisance attractants or "subsidies" (e.g., trash/food waste, water, and perching/nest sites) for common raven (Corvus corax), and any known methods to avoid such impacts, particularly those associated with facility structures such as buildings and poles mounted at the ends of sub-arrays and along the gen-tie line (Options 1 and 2). These structures provide artificial perching opportunities for hunting.

Response: Subsidization of common ravens has the potential to directly impact sensitive biological resources within the Project site; however, there is low or no potential for most special-status species to occur within the Project site. Increasing nesting opportunities and the potential for attractants (e.g., trash) during construction could result in increased predation on special-status species by common ravens. Potential impacts from artificial nuisance attractants or subsidies are addressed through Mitigation Measure BIO-2: Construction Best Management Practices. Trash will be placed in sealed containers and removed from the Project site at a minimum of once per week. Any open water sources, such as tanks, will be covered to prevent animals from entering. In addition, dust control will be done in a way as to minimize overwatering and pooling of water that could attract animals. Gen-tie structures and other facility structures will be designed in compliance with the Avian Power Line Interaction Committee (APLIC) Avian Protection Plan Guidelines (APLIC 2005). The measures within these guidelines have been created to discourage perching or nesting by raptors and other predatory birds (i.e., common raven).

3.1.28 Data Request DR BIO-29

DR BIO-29: Please provide a discussion of impacts resulting from artificial lighting, polarization of light, and any other potential adverse impacts to insects and avian fauna. Discuss also the potential "lake effect" of PV panels, which may act as an attractant to migratory birds. Also, provide a discussion of impacts on migratory birds, as well as potential adverse impacts to tricolored blackbird nesting habitat.

Response: The response to this comment includes individual discussions related to 1) artificial lighting; 2) polarization of light and the "lake effect;" 3) avian mortality related to the lake effect; and 4) polarization of light and the "lake effect" as it relates to invertebrates. Tricolored blackbird, and the lack of suitable breeding habitat was addressed in response to DR BIO-15.

Artificial Lighting

Context for artificial lighting impacts was presented in Section 5.5.1.2, *Visual Resources Project Appearance* of the Opt-in Application. Construction of the Project would generally occur during daytime hours. During limited times some construction activities, such as de-energizing and re-energizing existing lines along the Project footprint may be required or finished at night while electrical demand is low, and these activities would require lighting for safety. Any required lighting during construction would be limited to individual work areas and would be temporary in nature. Project lighting for operations would be restricted to areas required for safety, security, and operational activities, such as the operations and maintenance (O&M) facilities, step-up substation, green hydrogen facility, BESS, and entrance gates, and would be less than 1 percent of the total Project area. The level and intensity of lighting during operations would be the minimum needed and all lighting would be shielded and directed downward (full cut-off) to minimize the potential for glare or spillover into adjacent areas. As a result, the Project is not expected to significantly impact avian or invertebrate species as a result of artificial lighting, particularly in the context of the few species expected to occur at the site, including Swainson's hawk and burrowing owl.

Light Polarization and Lake Effect Regarding Avian Species

The lake effect hypothesis, which posits that aquatic birds misinterpret PV solar panels for water due to panels reflecting polarized light, was developed based on the occurrence of aquatic bird carcasses at a single PV solar facility in the Mojave Desert. Koschiuch et al. (2021) examined the lake effect hypothesis using data from numerous PV solar sites in the desert southwest and beyond, and

found aquatic bird mortality rates were low (less than 0.01 to 0.09 fatalities/ha/study period) and varied between grassland, agricultural, and desert habitats. Additionally, flocks of aquatic birds were not observed approaching PV solar sites exhibiting landing, circling, or approaching behavior, indicating aquatic birds were not misinterpreting PV solar panels for water on a large scale. While individuals of some aquatic bird species could be attracted to PV solar sites, the causal mechanisms are not understood and are likely site and landscape context dependent, mortality rates are low, and attraction of aquatic birds is not occurring on a widespread or large-scale basis, despite the widespread deployment of solar in places where large numbers of these aquatic bird species migrate through. In light of this, the Project is not expected to contribute significantly to avian mortality as a result of the lake effect hypothesis.

Avian Mortality at Solar Facilities

Substantial avian mortality monitoring efforts over the last 10 years and robust, data-driven scientific research projects over the last 5 years have attempted to identify whether solar facilities have an adverse effect on avian fauna due to attraction, interference with migration, or some other mechanism. Fatality monitoring has shown that there are avian injuries and fatalities associated with solar energy facilities, but the cause of the morbidity and mortality has been inconclusive (collision, predation, etc.), and there has been no report or evidence of large-scale avian fatality events at any PV solar project, and if avian carcasses are discovered, it is typically a single individual detection.

Research on background rates of mortality at reference sites demonstrates that avian fatalities at solar facilities are statistically equivalent to fatality rates at reference sites with one exception: solar sites in the desert southwest. Research shows that there is a very small, but statistically significant, attraction effect resulting in a small adverse attraction-related effect of solar facilities on avian species in the southern California and Nevada desert region, with a high-end fatality estimate of 2.49 birds per megawatt per year (Kosciuch et al. 2020). Attraction and resultant fatalities of avian species has not been demonstrated in other regions. A background fatality study conducted at the California Valley Solar Ranch project in San Luis Obispo County resulted in a similar number of carcasses per unit area found in the reference transects outside the solar project compared to the transects surveyed in the solar facility. In addition, the composition of the species was similar, providing evidence that background rates of avian mortality are equivalent to mortality rates at a solar facility in central California (EPRI 2021).

Research is ongoing, including work by Diehl, Roberson, and Kosciuch (with funding from the California Energy Commission), and from Walston and Hamada (Argonne National Labs with funding from Department of Energy), the latter of which is using computer vision to track avian activity at solar PV facilities across the United States, including partnering with Intersect Power's Oberon Renewable Energy Project in eastern Riverside County. Preliminary results of the Walston and Hamada work show no daytime collisions of birds with solar PV infrastructure despite 24/7 monitoring (unpublished presentation to REWI, November 2023).

Light Polarization and Lake Effect Regarding Invertebrate Species

Research on invertebrate attraction to solar panels is limited. One study in Africa on solar energy facility effects on invertebrates found no differences in abundance or order richness in epigaeic or flying invertebrate communities between solar fields or surrounding rangeland communities (Jeal et al 2019). Another study in Hungary found aquatic insects (mayfly, caddisfly, and empidoidea and tabanid flies) were attracted to and exhibited oviposition behavior above solar panels with higher

degrees of polarization (Horvath et al. 2010); however, the research was conducted on individual solar panels placed adjacent to a creek in a montane ecosystem. Aquatic invertebrate attraction to solar panel arrays on solar sites in more arid environments is not yet known, and distance from solar site to aquatic habitats has not yet been investigated as a determining factor. Additionally, decreased insect biodiversity in agricultural areas is well known (Raven and Wagner 2021), and invertebrate biomass in the Project BSA and surrounding region may be limited by historical and current agricultural practices within the region. In light of this, the Project is not expected to contribute significantly to changes in invertebrate populations, densities, or locations in the general region. Nor are significant impacts expected to avian species due to invertebrate prey attraction to solar panels.

Conclusion

Based on substantial evidence in the scientific and grey literature, the Project is not anticipated to result in direct or indirect avian morbidity or mortality above baseline conditions, and avian mortality monitoring is not proposed nor warranted beyond what is proposed in the Swainson's Hawk Conservation Strategy, and other Plans described in the response to DR BIO-7. It is possible and anticipated that the Project site, once revegetated and operational in accordance with the Swainson's Hawk Conservation Strategy, may improve habitat for nesting and foraging Swainson's hawks and other avian species, including migratory birds, as well as invertebrate species relative to baseline conditions.

Citations

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Kosciuch, K., D. Riser-Espinoza, M. Gerringer, and W. Erickson. 2020. A Summary of Bird Mortality at Photovoltaic Utility Scale Solar Facilities in the Southwestern U.S. PLoS ONE 15(4): e0232034. doi: 10.1371/journal.pone.0232034.

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3.1.29 Data Request DR BIO-30

DR BIO-30: Please provide a discussion of noise and vibratory impacts to sensitive wildlife, particularly on fossorial mammals (American badger, burrowing owl, and San Joaquin kit fox), and whether proposed buffers are sufficient to avoid impacts to nesting migratory birds and raptors, particularly Swainson's hawk.

Response: The Project will be implemented in accordance with the Mitigation Measures provided in Section 5.12, *Biological Resources*, the Swainson's Hawk Conservation Strategy, and the biological resources management plans prepared for the Project, described in the response to DR BIO-7. The Mitigation Measures and Plans include buffer distances identified for each species and/or taxa and monitoring during Project construction. As a result, construction noise and vibrations will not lead to significant impacts to fossorial mammals, nesting birds, or raptors.

In particular, construction will be limited to daytime periods when ambient noise levels are highest, and the Project is not proposing to use any equipment that will create unusual levels of noise and vibration. Construction of each Project component will be spatially distributed across the Project site, and the large average distance between areas actively under construction during different phases will ensure that noise generated does not compound. Operational activities of the constructed Project facility will not generate high noise levels,. Sources of operational noise will include general operation of the facility such as transformers, energy storage systems and substation equipment (refer to Section 5.3, *Noise*).

- **San Joaquin kit fox** is not expected to occur within the Project area for foraging or breeding. If a kit fox wanders into the Project site, Mitigation Measure BIO-4 (including no-work buffers of 500 feet) and the Project Plans described in the response to DR BIO-7 will be implemented to avoid significant noise and vibratory impacts to the species.
- **Burrowing owl and American badger:** Mitigation Measures BIO-3, BIO-5, and BIO-6, and the Project Plans described in the response to DR BIO-7 will minimize potential impacts to breeding and non-breeding burrowing owls and American badger to less than significant. The measures include preconstruction surveys, burrow occupancy and nesting determination, and establishment of no-disturbance buffer zones. Buffer distances for burrowing owls will be established and maintained using the distances recommended in the 2012 CDFW Staff Report on Burrowing Owl Mitigation, or any updated mitigation guidelines for the species. Buffer distances for American Badger include 50 feet for occupied dens and 250 feet for natal dens. All occupied burrows and dens will be monitored for signs of noise or vibratory disturbance during construction, and buffers will be increased as needed to avoid significant impacts.
- **Nesting birds:** Mitigation Measures BIO-7 and BIO-8 include pre-construction nesting bird surveys during the nesting season, and establishment of no-disturbance nest buffers around all active nests to reduce potential noise and vibratory impacts to less than significant. These measures specify that active nest buffer distances will be determined by a Qualified Biologist and established based on the species and nest location. Standard nest buffers are typically 200-500 feet for common raptors and 30-50 feet for most common passerines. The Qualified Biologist will monitor active nests for signs of disturbance during construction. If noise or vibratory disturbance is observed, the Qualified Biologist will increase the size of the no-disturbance nest buffer to ensure that impacts to nesting birds are avoided and minimized.
- **Swainson's hawk:** Mitigation Measure BIO-9 requires the preparation of the Swainson's Hawk Conservation Strategy (see response to DR BIO-41), which will include no-disturbance buffers ranging from 50 feet to 1,320 feet around all active Swainson's hawk nests depending on

construction activity intensity and duration. Active Swainson's hawk nests within 0.25 mile of construction activities will be monitored for signs of disturbance by a Qualified Biologist. If noise or vibratory disturbance is observed, the Qualified Biologist will increase the size of the nest buffer to ensure that impacts to Swainson's hawk are avoided and minimized to a less than significant level.

Per Mitigation Measure BIO-3, if other sensitive wildlife species are observed during preconstruction surveys or biological monitoring, the Qualified Biologist will monitor construction activities to avoid and minimize noise and vibratory impacts to less than significant.

3.1.30 Data Request DR BIO-31

DR BIO-31: If nitrogen deposition impacts to sensitive species or habitat are anticipated (based on analysis performed in support of DR BIO-20), please discuss these impacts on specific sensitive species or habitat that may be potentially adversely impacted.

Response: As discussed in DR BIO-20 above, nitrogen deposition impacts to sensitive species or habitat would not be significant based on the analysis performed.

3.1.31 Data Request DR BIO-32, DR BIO-33, and DR BIO-34

DR BIO-32: Please discuss if there would be any temporary or permanent fencing around the project elements and what type of fencing material would be used.

DR BIO-33: If there would be fencing, please provide a map of where the fencing would occur for both construction and operations.

DR BIO-34: If there would be a fence, please discuss the potential impacts to listed and special-status species and provide mitigation measures to reduce impacts.

Response: Permanent wildlife-friendly fencing will be installed along the perimeter of all PV areas. The use of wildlife-friendly fencing is intended to avoid and minimize potential impacts to special-status species through design. Security fencing will be installed around the O&M facility, BESS, hydrogen facility, step-up substation, and switchyard areas. Permanent fencing will be installed at the onset of construction so that it is in place during construction activities, as feasible. Typical fence details are provided in application materials in Appendix F page C.402. Temporary fencing such as orange plastic or snow fencing may be used during construction to identify areas of avoidance or to limit access. Temporary fencing will also include wildlife exclusion fencing and/or silt fencing, as needed, to exclude general and sensitive species from the construction areas. Final fence locations and specifications have not been finalized and will be determined during future stages of design.

Monitoring of fence installation and maintenance (and removal of temporary fencing) during Project construction and operation are also included to avoid and minimize potential impacts to special-status species (refer to the Mitigation Measures in Section 5.12, *Biological Resources*, and the biological resources management plans described in the response to DR BIO-7). As a result, significant impacts to special-status species from fence installation and maintenance are not expected.

3.1.32 Data Request DR BIO-35

DR BIO-35: Please discuss potential impacts to burrowing owl. CEC staff and CDFW disagree with the applicant that the duration of construction impacts (18 to 36 months) are temporary in nature. Please provide further analysis on available burrows, including satellite burrows both on the project site and within all areas that could directly or indirectly affect burrowing owl, as defined by Appendix B (g) (13) (E), as well as all information as required in the 2012 CDFG guidelines (CDFG 2012). See DR BIO-7.

Response: Direct and indirect impacts to burrowing owls are discussed in Section 5.12, *Biological Resources* and Appendix Q – Volume 1 Biological Resources Assessment Section 5.1.2 *Special-Status Wildlife Species*. Impacts to burrowing owls were discussed within the context of what is considered permanent impacts for any burrows or habitat that would be permanently impacted (i.e., burrows that would be evicted and collapsed because construction would occur at the burrow site), and those burrows that would experience only temporary impacts during the construction period (i.e., those burrows that would be evicted but not collapsed, or those burrows that would require avoidance buffers and visual barriers). As described in the Biological Resources Assessment and documented during site surveys, most of the burrowing owls or their signs on the site were located primarily on the outer edges of the PV solar site as a result of disking activities that have resulted in unsuitable burrowing habitat within the parcels. Only one individual and one occupied burrow were located within the interior of the site. No other burrows were found in the interior of the site. Accordingly, construction activities are expected to have minor direct or indirect impacts to burrowing owl, as the burrowing owls located on the edge of the site would not be within the Project's development footprint. Those burrows would not require eviction and collapse and, therefore, would not result in permanent impacts. Further, any temporary impacts from construction would be avoided and minimized through appropriate buffers, barriers, and monitoring (refer to the Burrowing Owl Management Plan provided in Appendix B to this document). Impacts to burrowing owl habitat are considered temporary in all areas designated for restoration, as those areas will be restored to suitable foraging and breeding habitat. The entire site will not be disturbed for the full length of the construction timeframe due to construction phasing and construction methods designed to limit overall grading of the site. Construction phasing and preliminary construction schedules are discussed in the Project Description in Section 2.3, *Project Construction* in the original application materials. Minimal grading is anticipated across the PV solar area due to existing flat conditions with minimal grade changes and current land use practices that regularly disk the lands. Further, current site conditions provide poor quality habitat for burrowing owl—the Project site consists of retired agricultural lands that are regularly disked to control invasive weeds such as mustard and Russian thistle; the intervening growth of weeds creates cover that is too tall for burrowing owls to have a clear viewshed for foraging and predator avoidance, and the regular disking prevents the establishment of long-term burrows for breeding or winter cover. Suitable habitat is predominantly limited to the margins of the managed fields where irrigation ditches and berms occur, which would be avoided as described above. Following construction, the Project would implement a Vegetation Management Plan that would result in restoration of the Project site to a mix of native and naturalized grassland and forb species which would provide a more consistent source of foraging habitat for the species than currently exists under the regular disking regimen. Thus, construction would not result in permanent impacts to burrowing owl habitat, given the requirements for restoration of temporary impact areas in the Project site to suitable foraging habitat for Swainson's hawk, burrowing owl and other wildlife. Moreover, extensive suitable habitat is present immediately adjacent to the Project site and throughout the region for burrowing owls to

utilize. The only permanent impacts to burrowing owl habitat would be those areas where permanent structures are built (e.g., O&M building, substation).

For limited permanent impacts to burrows which occur during construction, the Burrowing Owl Management Plan (provided as Appendix B) prepared for the Project outlines measures during construction to evaluate potentially suitable alternate natural burrows and/or provide artificial burrows to adequately compensate for burrows made unavailable during Project construction. Based on existing surveys, it is also anticipated that many of the burrows that could potentially be occupied by owls, would not be excavated or directly impacted, but rather will remain available for use during and after construction; thus, they will not be permanently impacted by Project construction. Temporarily affected burrowing owls may spend up to 36 months in adjacent natural burrows and/or artificial burrows; however, burrowing owl occupancy of the Project site during operations is expected to closely resemble occupation prior to Project construction, if not improve as a result of site restoration, since burrowing owl are expected to return from the adjacent alternate or artificial burrows once construction is complete and the temporarily closed burrows are made available again.

3.1.33 Data Request DR BIO-36

DR BIO-36: No compensatory mitigation was proposed in the application for foraging raptors. Appendix Q, Volume 2, Appendix Q-8, p. 16, states that "... 48% of the study area was conservatively assumed to be rendered unsuitable foraging for [Swainson's hawk] (i.e., permanently impacted by panel cover at peak horizontal orientation and other permanent project infrastructure)." Please discuss why compensatory mitigation was not provided for other aerially foraging raptors and owls (such as the northern harrier, golden eagle (*Aquila chrysaetos*), and great horned owl (*Bubo virginianus*), etc.) that could be impacted by the project including a similar reduction in available foraging habitat.

Also, discuss avoidance, minimization, and mitigation measures for impacts to insects and avian fauna from artificial lighting, polarization of light, and any other potential adverse impacts to these species. In addition, discuss the potential "lake effect" of PV panels, which may act as an attractant to migratory birds, as well as any measures proposed to avoid and/or reduce potential adverse impacts to tricolored blackbird nesting habitat.

Response: Aerially foraging raptors, such as northern harrier and golden eagle are relatively mobile, are not expected to rely solely on the Project site for foraging and are expected to locate additional foraging habitat remaining in the region. We consider Swainson's hawk an umbrella species as it relates to raptor impacts. The Swainson's hawk is the more sensitive species within the context of the Project site itself, having both nesting and foraging habitat within the site, and a high abundance of active nests within both the region and the Project site. We consider the analysis of impacts to Swainson's hawk foraging habitat and associated mitigation in the form of restoration capture impacts and mitigation to all raptors. As discussed in Appendix Q-8, *Analysis of Project Impacts to Swainson's Hawk Foraging Habitat*, a total of 205,133 acres of suitable raptor foraging habitat occur within the region of the Project site. The Project will result in the loss of only 2.3 percent of this foraging habitat. Additionally, implementation of the Swainson's Hawk Conservation Strategy (refer to Mitigation Measure BIO-9 in the response to DR BIO-41) and the Vegetation Management Plan (refer to Mitigation Measure BIO-10 in the response to DR BIO-42) will restore almost all of the Project site to suitable foraging habitat for all of these species. Project impacts to foraging habitat for other raptors, such as great horned owl, will not be significant considering the remaining

foraging habitat adjacent to the Project site and in the region. As a result, no compensatory mitigation is proposed.

As discussed in the response to DR BIO-29 above, impacts to insects and avian fauna from artificial lighting and polarization of light would not be significant; therefore, no avoidance and minimization measures or mitigation measures are proposed.

Please refer to the response to DR BIO-15 above regarding potential adverse impacts to tricolored blackbird nesting habitat. As no suitable tricolored blackbird nesting habitat occurs within the Project site, no avoidance or minimization measures are proposed for tricolored blackbird nesting habitat.

3.1.34 Data Request DR BIO-37

DR BIO-37: Please discuss any feasible mitigation measures, outside of a revegetation plan, for San Joaquin kit fox and burrowing owl, as well as provide an evaluation of the anticipated efficacy of the measures.

Response: The following provides a discussion of feasible mitigation measures and evaluation of the anticipated efficacy of the measures for burrowing owl and San Joaquin kit fox.

Burrowing Owl

Direct impacts to burrowing owl will be avoided and minimized through implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-5 as presented in Section 5.12, *Biological Resources* of the Opt-in Application. In addition, the Vegetation Management Plan, Burrowing Owl Management Plan, PV and Gen-tie Biological Resources Management Plan, and Operations and Maintenance Biological Resources Management Plan prepared for the Project will further avoid and minimize potential direct and indirect impacts to burrowing owl. With the implementation of these measures it is anticipated that any impacts to burrowing owl will be less than significant.

- Mitigation Measure BIO-1 requires the implementation of a Construction Worker Environmental Awareness Training and Education Program inclusive of burrowing owl life history and legal protection status. Educating construction workers about the potential presence of burrowing owl on the Project site in addition to required avoidance and minimization actions, the role of biological monitoring during construction, actions to take if burrowing owl is observed near construction activities, and potential penalties for violations, increases sensitive resource awareness and improves compliance.
- Mitigation Measure BIO-2 includes limiting the spread of weeds and maintaining work areas free of trash or pets to avoid and minimize impacts to burrowing owl such as degradation of habitat quality and introduction of predators (i.e., coyote). In addition, implementation of the Project's Vegetation Management Plan (Mitigation Measure BIO-10, refer to the response to DR BIO-42) provides for control of weeds post-construction and promotes the maintenance of foraging habitat and prey base for Swainson's hawk, which would also contribute to maintain suitable burrowing owl habitat. The Vegetation Management Plan includes success criteria and adaptive management to adjust targets and approaches as needed.
- Measure BIO-3 requires a pre-construction survey for special-status species such as burrowing owl no more than 30 days prior to ground disturbing activities. Measure BIO-5 outlines burrowing owl avoidance measures if occupied burrowing owl burrows are confirmed prior to construction, such as focused burrowing owl surveys, no-disturbance buffer zones, and passive

relocation when avoidance is infeasible. The Project's Burrowing Owl Management Plan includes these measures and provides additional detail regarding their implementation during construction activities. These measures comply with the requirements of the Staff Report on Burrowing Owl Mitigation (CFGC 2012) to ensure effective burrowing owl avoidance, mitigation, and management.

- An Operations and Maintenance Biological Resources Management Plan will be prepared for the Project that will contain measures to avoid and minimize potential impacts to sensitive species during the Project's operations.

San Joaquin Kit Fox

San Joaquin kit fox is not expected to occur throughout the majority of the Project site. There is only a low potential the species would occur incidentally in the work area west of Interstate 5. However, in the unlikely event San Joaquin kit fox occur during construction, impacts will be avoided and minimized through implementation of Mitigation Measures BIO-1, BIO-2, and BIO-4 as presented in Section 5.12, *Biological Resources* of the Opt-in Application. With the implementation of these measures, it is anticipated that any impacts to San Joaquin kit fox will be less than significant.

- Mitigation Measure BIO-1 requires the implementation of a Construction Worker Environmental Awareness Training and Education Program inclusive of San Joaquin kit fox life history and legal protection status. Educating construction workers about the potential for San Joaquin kit fox in addition to required avoidance and minimization actions, the role of biological monitoring during construction, actions to take if San Joaquin kit fox is observed near construction activities, and potential penalties for violations, increases sensitive resource awareness and improves compliance.
- Mitigation Measure BIO-2 includes limiting the spread of weeds and maintaining work areas free of trash or pets to avoid and minimize impacts to San Joaquin kit fox that could result from attracting them to the Project site and/or encouraging introduction of predators (i.e., coyote).
- Mitigation Measure BIO-3 requires a pre-construction survey for special-status species such as San Joaquin kit fox no more than 30 days prior to ground disturbing activities. Identification of potential San Joaquin kit fox presence and location aids in identifying the most suitable avoidance and minimization measures during construction.
- Mitigation Measure BIO-4 outlines construction monitoring and buffer zone requirements for San Joaquin kit fox. The Project's Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan also outlines construction phase requirements for monitoring that will contribute to avoiding and minimizing impacts to any potential San Joaquin kit fox that unexpectedly travel into the Project site.

Given the absence of occupied suitable habitat for kit fox throughout the entire Project site and given that the species is not expected to occur, these measure have been developed to address the unlikely event of an incidental occurrence of kit fox at the utility switchyard area from the Ciervo Hills. Given the low potential for kit fox and the absence of habitat, these industry standard measures for preconstruction clearance surveys, biological monitoring, speed limits and attractant control would reduce potential impacts to this species to less than significant.

3.1.35 Data Request DR BIO-38

DR BIO-38: Please provide a mitigation measure that would reduce potential impacts to Crotch's bumble bee, see also DR BIO-25 and DR BIO-18.

Response: No suitable habitat for Crotch's bumble bee species occurs within the BSA, and this species has likely been extirpated from the region. Therefore, Crotch's bumble bee is not expected to occur. Refer to response to DR BIO-25.

3.1.36 Data Request DR BIO-39

DR BIO-39: The applicant's proposed Mitigation Measure, BIO-1, item 3 discusses a "project biologist", whereas the applicant's APM BIO-1, items 3 and 4 discuss a "qualified biologist". Please clarify each term and provide a separate mitigation measure which details the qualifications and duties of a "qualified biologist" and a "project biologist".

Response: The use of "project biologist" in Mitigation Measure BIO-1, item 3 was a typo. It should instead read "Qualified Biologist." The Qualified Biologist will have relevant experience with the taxa and species in the Central Valley and San Joaquin Valley for which pre-construction surveys, monitoring, or other support is required during Project construction and/or operation. The Qualified Biologist role may be satisfied by one or more individuals depending on qualifications and experience with one or more species and taxa.

3.1.37 Data Request DR BIO-40

DR BIO-40: No closure/revegetation plan was included as mitigation. Please prepare and submit a closure and revegetation mitigation measure that includes goals, objectives, and success criteria, etc.

Response: A Reclamation Plan has been submitted as Appendix H of the Opt-In Application, which contains the anticipated Project life, timeline for decommissioning, and measures for returning the Project site to its previous agricultural capability. The Reclamation Plan informs the post-decommissioning revegetation plan identified in Mitigation Measure BIO-10.2 in the response to DR BIO-42 below.

3.1.38 Data Request DR BIO-41

DR BIO-41: The Swainson's Hawk Conservation Strategy, included as Appendix V, needs to be provided as a mitigation measure which includes goals and objectives, performance criteria, regular monitoring schedules and reporting, etc. Please provide a mitigation measure to address potential impacts to Swainson's hawk.

Please include additional information regarding proposed measures to avoid impacts to Swainson's hawk and other protected species during helicopter use.

Response: Mitigation Measure BIO-9, provided below, incorporates the elements of the Swainson's Hawk Conservation Strategy (Appendix V of the Opt-in Application) and specifies both short-term and long-term conservation strategies for Swainson's hawk nesting and foraging habitat.

As indicated in the Helicopter Use Plan submitted with Data Response Set #2, a full-time avian monitor will be onsite to monitor helicopter activities and ensure all mitigation measures for avoidance and minimization of impacts to Swainson's hawk and other avian species are

implemented and effective, including the construction buffers outlined in the Swainson's Hawk Conservation Strategy.

Mitigation Measure BIO-9 Swainson's Hawk Conservation Strategy

The Applicant shall prepare a Swainson's Hawk Conservation Strategy to be implemented during Project construction and operations. The goals of the conservation strategy will be to avoid and minimize direct impacts to individuals present within the Project vicinity, and manage nesting and foraging habitat within the Project site to benefit the Swainson's hawk through implementation of both short-term and long-term conservation strategies during Project construction and operation, including specific methodologies, location of specific mitigation and management actions, success criteria, and evaluation of success criteria. The Swainson's Hawk Conservation Strategy will include the items described below.

Short-Term Conservation Strategy

Short term conservation measures are intended to address potential impacts to nesting and temporary loss of foraging habitat during the Project's construction phase, and will include a discussion of:

1) Nesting habitat
    a. Preservation of nest trees
    b. Temporary construction buffers
    c. Temporary nest structure establishment
    d. Establishment of new nest trees
2) Foraging habitat
    a. Habitat restoration

Long-Term Conservation Strategy

Long-term conservation measures are intended to address potential cumulative impacts and promote Swainson's hawk population stability and growth, as well as address potential impacts to nesting Swainson's hawks during some O&M phase activities, and will include a discussion of:

1) Implementation of a Vegetation Management Plan
2) Monitoring and management of nest tree plantings and artificial nest structures
3) Implementation of Swainson's hawk management research program

Success Criteria and Evaluation

1) Short-term conservation strategy success criteria
2) Long-term conservation strategy success criteria
3) Success criteria evaluation

3.1.39 Data Request DR BIO-42

DR BIO-42: The applicant's proposed Vegetation Management Plan is included as Appendix D of Appendix U.3 in Appendix U, Volume 3. Please provide the Vegetation Management Plan as a standalone mitigation measure to address impacts to Swainson's hawk. See also DR BIO-43.

Response: Mitigation Measure BIO-10, provided below, specifies the preparation of a Vegetation Management Plan for the Project. It will include the goals and framework of revegetation, invasive weed maintenance, and habitat management for the Project. It will entail an independent research program, to be implemented by Cornell University, under Dr. Steven Grodsky. The intent of the research program will be to evaluate the restoration and management practices that provide the best results towards meeting success criteria for development of Swainson's hawk foraging habitat, including soil and land preparation, seed mix, and management regimes (e.g., mechanical vs grazing). The final vegetation management plan will be developed in conjunction with the experimental design for the study and informed by the results of the study in real-time. The research design is currently under development and the goals and objectives, as well as content to be included in the Draft Vegetation Management Plan (captured in Mitigation Measure BIO-10) is intended to function as a preliminary strategy and conceptual outline to establish goals and success criteria.

Mitigation Measure BIO-10 Vegetation Management Plan

Revegetation and Vegetation Management Goals and Objectives

Revegetation and vegetation management of the Project site will occur during the Project construction and operation phases. Revegetation will account for on-site constraints including a lack of irrigation, saline soils, and poor drainage conditions. The Project will facilitate a Before-After-Control-Impact (BACI) research design to test the efficacy of multiple vegetation management regimes on the establishment of Swainson's hawk foraging habitat with the goal of achieving the following success criteria:

- Establish permanent, regenerative vegetative cover that will:
  - Represent high-quality foraging habitat for Swainson's hawks (i.e., appropriate vegetative structure that maintains a sufficient prey base).
  - Provide suitable floral resources for native pollinators.
  - Prevent and control noxious weed infestations.
  - Allows for safe and efficient O&M Project activities.

Additional benefits of a vegetation management plan that achieves these primary goals would be reduced fire risk through management of fuel loads, erosion control, stormwater runoff control, and water quality control during the Project's operational phase.

Preparation of a Vegetation Management Plan

The Applicant shall prepare a Vegetation Management Plan to be implemented during construction and operations Project phases. The plan shall be developed to address the goals and objectives outlined above and will contain the following sections and information:

1) Purpose of the plan
2) List and discussion of target species

3) Prevention methods
    a. Specifications for completing preconstruction weed survey
    b. Discussion of control methods including preconstruction, construction, and O&M methods
    c. Vehicle inspections and cleaning during construction
    d. Weed free materials
    e. Preliminary seeding
4) Weed control methods
    a. Mechanical and manual controls
    b. Chemical controls
    c. Grazing controls
5) Revegetation Implementation Plan
    a. Site preparation methods
        i. Soil testing
        ii. Methods
        iii. Timing
    b. Seed Pallet
6) Planting Methods and Guidelines
    a. Seeding
    b. Tree container planting
7) Vegetation Maintenance and Long-Term Management
8) Preliminary Monitoring Plan
    a. Study Design
        i. Vegetation Sampling
        ii. Soils/Phytoremediation
        iii. Wildlife Sampling
9) Success Criteria
10) Adaptive Management
11) Post Decommissioning Revegetation Plan

3.1.40 Data Request DR BIO-43

DR BIO-43: The applicant's proposed measure, APM BIO-1, included in Chapter 2, page 2-32 to 2-33, is inadequate since it lacks specific details regarding performance criteria, methodology, location of specific mitigation and management actions, at a minimum, for the following bullet points, listed in Section 2.4, page 2-33: preservation of existing nest trees; temporary nest structure establishment; and establishment of new nest trees, see also DR BIO-42.

Response: Please refer to response to DR BIO-42.

3.1.41 Data Request DR BIO-44

DR BIO-44: Please provide proposed compensatory mitigation for burrowing owl. See also DR BIO-37.

Response: Compensatory mitigation for burrowing owl is outlined in Mitigation Measure BIO-5, as presented in Section 5.12, *Biological Resources* of the Opt-in Application, and the Burrowing Owl Management Plan prepared for the Project (refer to the response to DR BIO-7 and Appendix B).

3.1.42 Data Request DR BIO-45

DR BIO-45: Please submit any preliminary correspondence (emails and record of conversations) with state and federal resource agencies.

Response: The following coordination was conducted with state and federal resource agencies. Notes from the February 21, 2023, site walk with the agencies and a September 11, 2023, meeting to discuss the Swainson's hawk conservation strategy are included as Appendix I to this document.

- August 23, 2022 - project introduction virtual meeting with CDFW (Lawrence Bonner, Carrie Swanberg, Kari Daniska, Jeremy Pohlman)
- October 27, 2022 - Project introduction virtual meeting with USFWS (Matthew Nelson)
- February 21, 2023 - site walk with CDFW (Carrie Swanberg, Kari Daniska) and USFWS (Matthew Nelson)
- Meetings with CDFW to discuss Swainson's hawk conservation strategy approach: June 22, 2023; August 25, 2023; September 11, 2023

3.1.43 Data Request DR BIO-46

DR BIO-46: Several fully protected species (e.g., white-tailed kite (*Elanus luecerus*), golden eagle and blunt-nosed leopard lizard) are known or expected to occur on-site or immediately offsite based on species, yet there is no accompanying proposed mitigation. Please provide proposed mitigation measures to reduce potential impacts to these fully protected species.

Response:

- **White-tailed Kite:** Analysis of potential impacts to white-tailed kite provided in Section 5.12, *Biological Resources*, pages 5.12-40 to 5.12-41 of the Opt-in Application, concludes that the implementation of Mitigation Measures BIO-1, BIO-7, and BIO-8 would mitigate potential direct impacts to white-tailed kite to less than significant; and potential indirect impacts to white-tailed kite are less than significant without mitigation. No additional mitigation is required.
- **Golden Eagle:** Analysis of potential impacts to golden eagle provided in Section 5.1.2, *Biological Resources*, page 5.12-40 of the Opt-in Application, concludes that potential direct impacts are less than significant and no indirect impacts are expected. The presence of golden eagle at the Project site would be incidental during migration or dispersal, and thus golden eagles would not be expected to rely on the Project site for breeding or wintering habitat. Incidental golden eagles passing through would be able to avoid direct impacts during construction activities, therefore resulting in no significant impact. Foraging habitat is present throughout the Project site, but loss of foraging habitat due to Project implementation would be less than significant as it would not jeopardize an individual's survival. No indirect impacts are expected. In the case of incidental occurrence of golden eagle at or adjacent to the Project site during migration or dispersal, Mitigation Measures BIO-1, BIO-2, BIO-3; Project Plans described in the response to

DR BIO-7; and the Vegetation Management Plan (Mitigation Measure BIO-10) would avoid impacts to the species.

- **Blunt-nosed Leopard Lizard:** Please refer to responses to DRs BIO-9, BIO-10, and BIO-11. Potential impacts to blunt-nosed leopard lizard would be avoided through implementation of the Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan (Appendix D of this document) and Mitigation Measures BIO-1, BIO-2, and BIO-3 (refer to Section 5.1.2, *Biological Resources* of the Opt-in Application).

3.1.44 Data Request DR BIO-47

DR BIO-47: Please provide a table that includes specific mitigation measures and/or actions to be taken during construction and operations to show conformity with all biological resources laws, ordinances, regulations and standards (LORS) as well as any adopted local, regional, state, and federal land use plans, leases, and permits that would apply to the project.

Response: A Laws, Ordinances, Regulations, and Standards (LORS) table is provided in Section 5.12.5, *Laws, Ordinances, Regulations, and Standards*, which summarizes the LORS relevant to the Project. This table has been modified to reference the relevant Project Mitigation Measures and/or actions for each LORS identified to demonstrate Project conformity and is included as Appendix J to this document.

Appendix B

DR BIO-7 Burrowing Owl Management Plan - SUPERSEDED by December 2024 Version

Appendix C

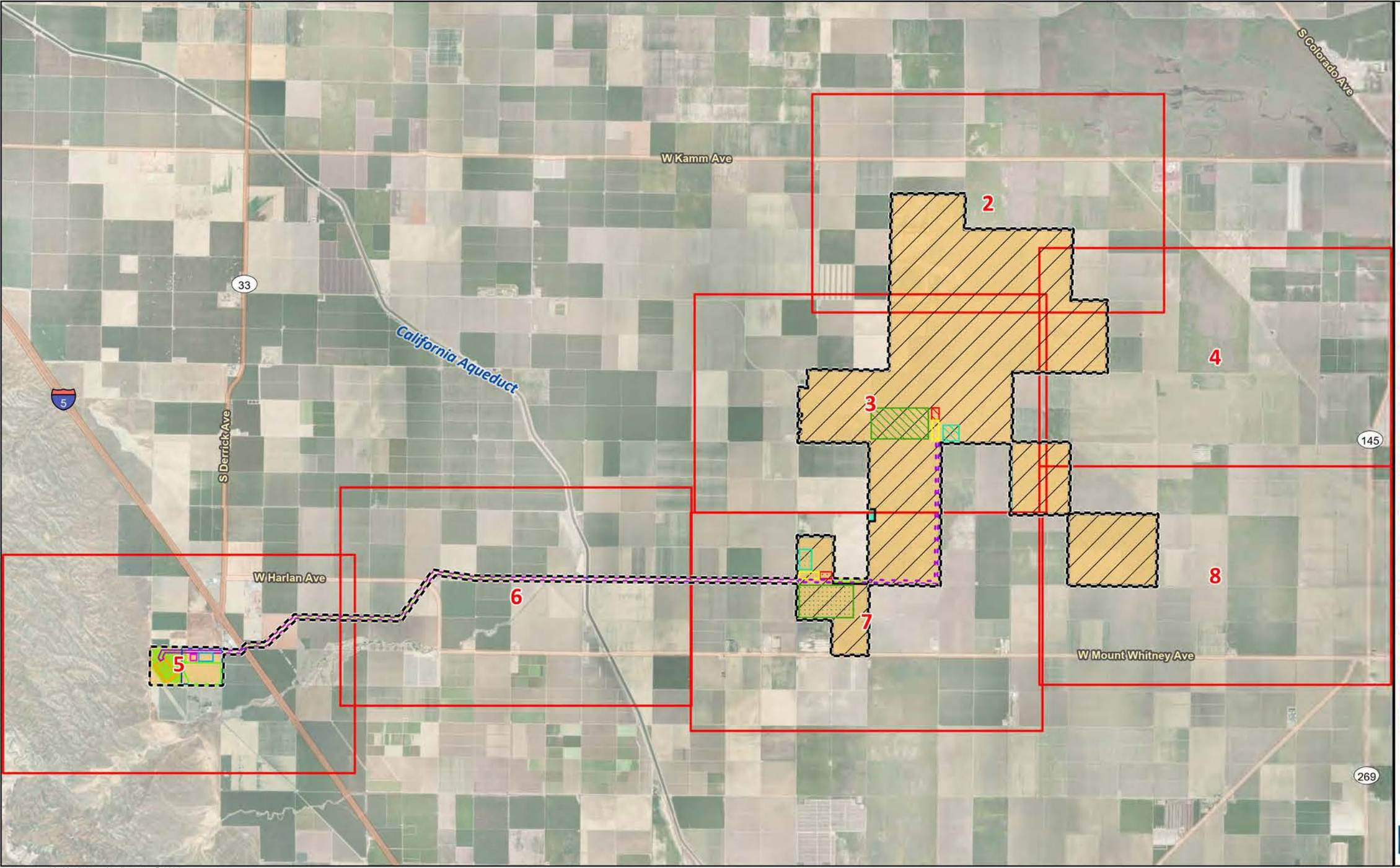
DR BIO-7 PV and Gen-tie Biological Resources Management Plan - SUPERSEDED by December 2024 Version

Appendix D

DR BIO-7 Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan - SUPERSEDED by December 2024 Version

Appendix E

DR BIO-18 Land Cover Maps



Darden Clean Energy Project

Fresno County, California

1 Mapbook Page

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agriculture
- Orchard
- Grassland
- Open Water
- Developed

Project Components

- Solar Facility
- Utility Switchyard
- Utility Switchyard Parcel
- Gen-Tie Line ROW

Option 1

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation
- Gen-Tie Line ROW Extension

Option 2

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation

Alternate Green Hydrogen Site

- Green Hydrogen Facility
- Green Hydrogen Substation
- Green Hydrogen Switchyard
- Green Hydrogen Parcels

0 0.75 1.5 Miles

N

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

Unclassified

Non-Active Agricultural Fields

Orchard

Project Components

Solar Facility

0 1,000 2,000 N

Feet

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard

Project Components

- Solar Facility

Option 1

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation
- Gen-Tie Line ROW Extension

0 1,000 2,000 N

Feet

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard

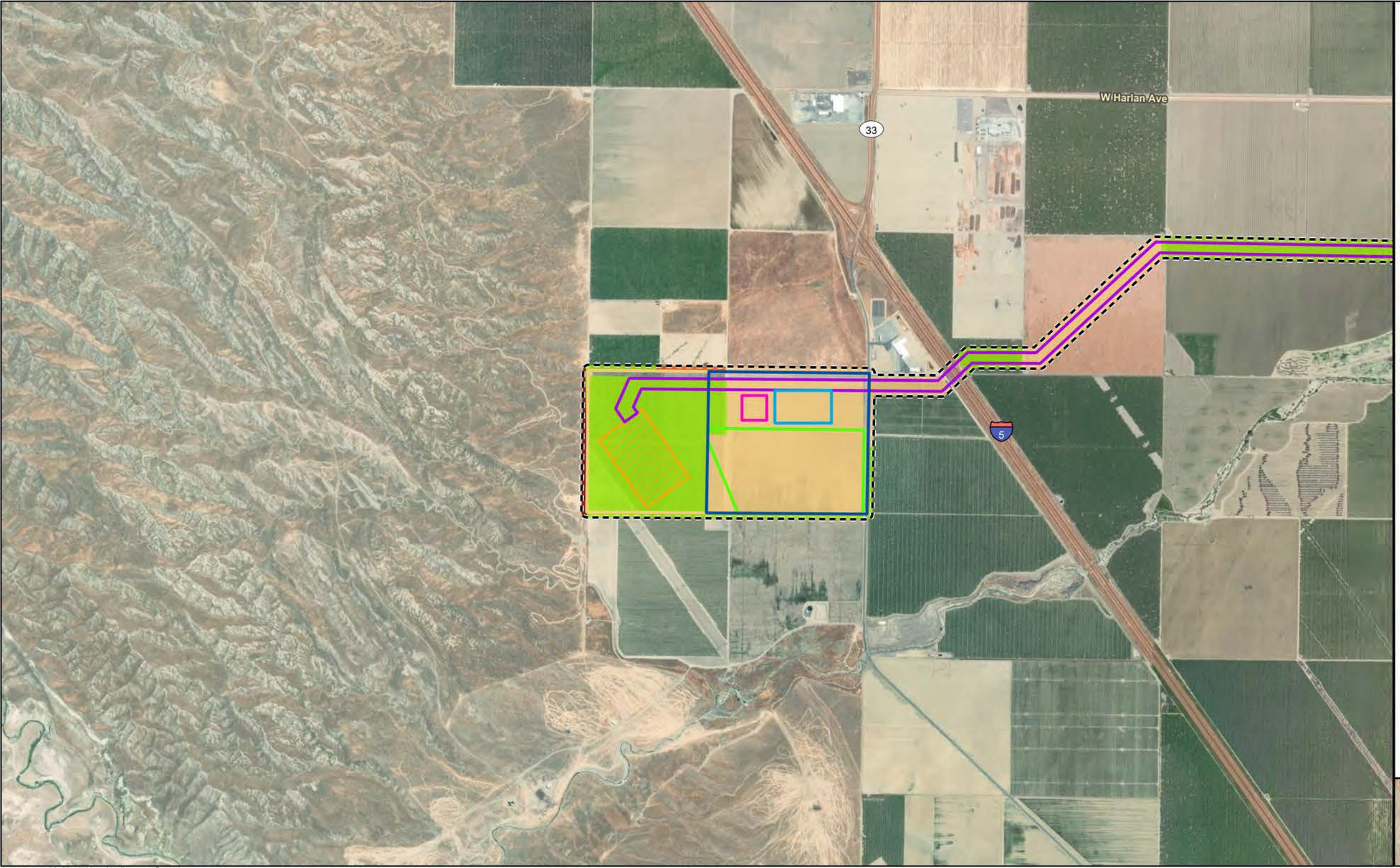
Project Components

- Solar Facility

0 1,000 2,000 N

Feet

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers



Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard
- Grassland

Project Components

- Utility Switchyard
- Utility Switchyard Parcel
- Gen-Tie Line ROW

Alternate Green Hydrogen Site

- Green Hydrogen Facility
- Green Hydrogen Substation
- Green Hydrogen Switchyard
- Green Hydrogen Parcels

0 1,000 2,000 N

Feet

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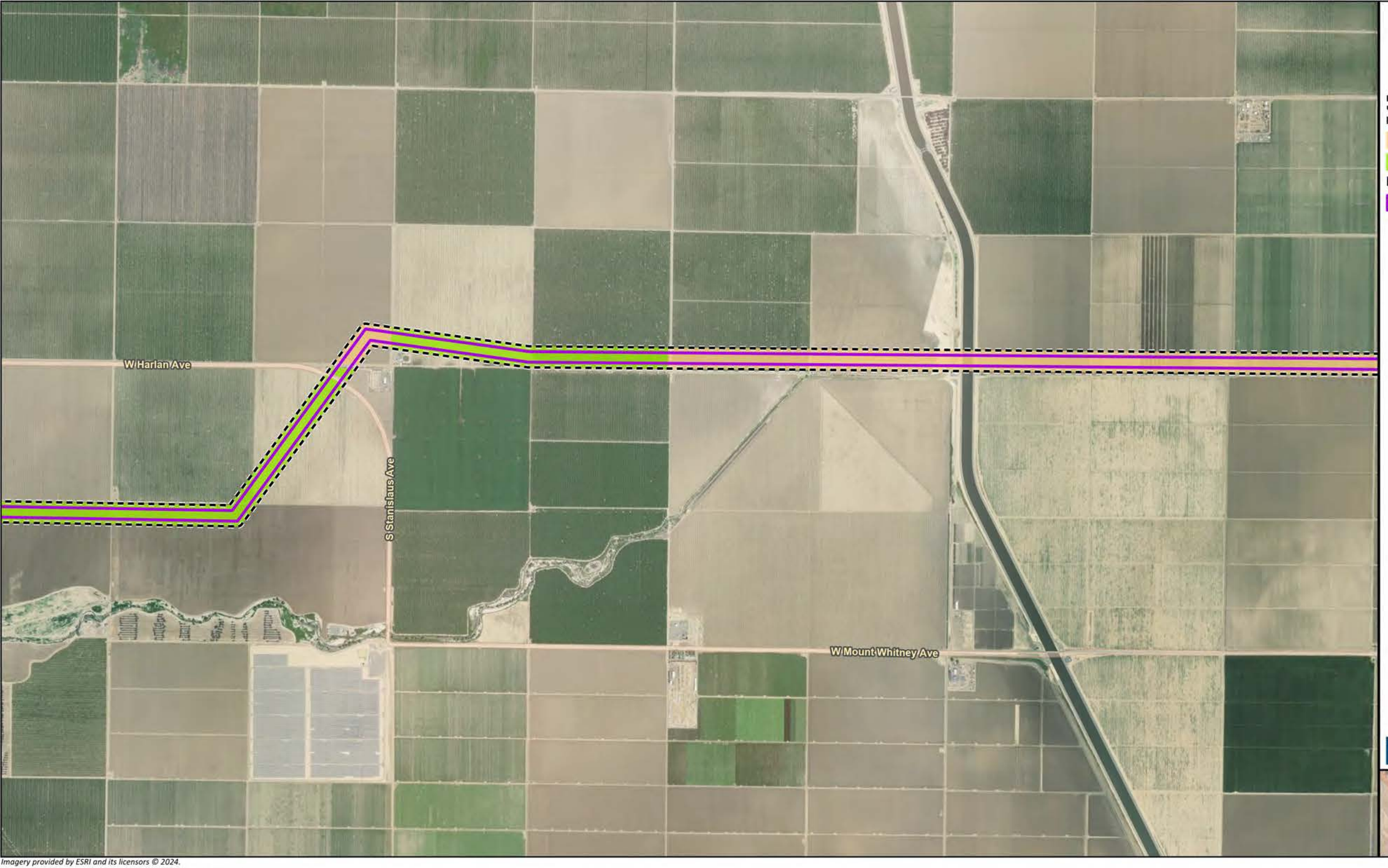
22-13580 Land Use and Agriculture
Fig X Land Cover Types



Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

Non-Active Agricultural Fields

Orchard

Project Components

Gen-Tie Line ROW

0 1,000 2,000 N

Feet

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Additional data provided by the California Department of Conservation, CNRA, 2020.

22 13580 Land Use and Agriculture
Fig X Land Cover Types

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

- Unclassified
- Non-Active Agricultural Fields
- Orchard

Project Components

- Solar Facility
- Gen-Tie Line ROW

Option 1

- Gen-Tie Line ROW Extension

Option 2

- BESS
- Green Hydrogen Facility
- O&M Facilities
- Step-Up Substation

0 1,000 2,000 N

Feet

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Additional data provided by the California Department of Conservation, CNRA, 2020.

Darden Clean Energy Project

Fresno County, California

100-Foot Buffer

Land Cover

Unclassified

Non-Active Agricultural Fields

Project Components

Solar Facility

0 1,000 2,000 N

Feet

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers

Appendix F

DR BIO-20 Model Parameters and Assumptions

DR-BIO 20 Model Parameters, Assumptions, and Results

Model Parameters and Assumptions

The Project includes emergency backup generators and fire pump engines, which would operate during major power supply failures and to ensure the safe and reliable shutdown of the green hydrogen facility. Criteria air pollutant emissions would be generated during the operation of emergency backup generators and fire pump engines, including nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulates (PM10 and PM2.5). The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) was used to assess nitrogen. The AERMOD regulatory non-default options for total, wet and dry deposition algorithms were implemented into the model. Additional Project assumptions include:

- Nitrogen emission sources are associated with emergency generator and/or fire pump engine use during emergency Project operations, including:
  - Two Power Solutions Int'l (PSI) 8800CAC Emergency Generator Sets, LPG-fired, 150-electrical kilowatt (ekW) rated. One will be located at either step up substation Option 1 or 2 located within the PV solar facility footprint. The other will be located at the step down substation (also referred to as the green hydrogen substation) at the alternate green hydrogen site on the west side of Interstate 5.
  - Two CAT C18 Fire Pump Engine, diesel-fired, 447-eKW rated. The equipment will be located at one of the three options for the green hydrogen facility (Option 1 and Option 2 are located in the PV solar facility footprint; the alternate is located west of Interstate 5). This equipment is assumed to meet Tier 3 emissions standards.
  - Two CAT C18 Emergency Generator Set, diesel-fired, 600-eKW rated. The equipment will also be located at one of the three options for the green hydrogen facility (Option 1 and Option 2 are located in the PV solar facility footprint; the alternate is located west of Interstate 5). This equipment is assumed to meet Tier 4 emissions standards.
- AERMOD source groups were designed for each of the Project generator/fire pump locations described above (Option 1 and Option 2 locations within the PV solar facility footprint, and the alternate green hydrogen site on the west side of Interstate 5). A source group "All" was also implemented to present a maximally conservative impacts approach, which assumes the combined operation of the equipment for each option (i.e., source duplication). The source group "All" is a conservative assessment since the emergency generators and fire pump engine will not occur at every option location, but only at the step up substation and/or the green hydrogen facility that is developed.
- A polar receptor grid was designed to capture the requested 6-mile radius from the Project site. This was accomplished by designated a center point between all Project options and creating a radius that extends beyond each potential source by at least 6 miles.
- The land use in the region is currently mixed but primarily agricultural or rural/undeveloped. The "Land Use Category" of "2 – Agricultural Land" in AERMOD was selected.

- A 100 percent conversion of NO_x and ammonia (NH_3) into atmospherically derived nitrogen (ADN or nitrogen). This conversion is assumed to occur within the engine stacks rather than in the atmosphere (which would occur over greater distances and time). Therefore, once emissions leave the engine stacks, nitrogen immediately begins to deposit in the surrounding lands.
- Nitric acid (HNO_3) has a strong affinity for impacts to soils and vegetation and was used for the AERMOD source gas particle inputs, including:
  - The molecular diffusivity (D_a) = 0.1628 centimeters squared per second (cm^2/s)
  - The diffusivity in water (D_w) = 2.98×10^{-5} cm^2/s
  - The cuticular resistance = 1.0×10^5 seconds per centimeter (s/cm)
  - The Henry's Law constant = 8.0×10^{-8} Pascal-meters cubed per mole ($Pa\text{-}m^3/mol$)
- AERMOD model default values for deposition velocities, gas deposition parameters and seasonal categories were applied.
- The model assumed an annual averaging period.
- The same meteorology file used for air permitting (Mendota MM5) was used in this AERMOD run.

The emissions calculations were based on the 100-percent conversion to nitrogen during combustion and the equipment operating for 100 hours per year, which is consistent with the annual hourly operation assumption included in the preliminary draft air permit application prepared for the Project. Ammonia is a product of combustion with equipment having selective catalytic reduction (SCR) equipment. The liquified petroleum gas (LPG)-fired and diesel-fired generators are assumed to be equipped with SCR. The diesel fire pump engine is expected to meet Tier 3 standards (without SCR equipped); however, it was also assumed to have NH_3 emissions from an SCR, should the design change to Tier 4 in the future. This assumption that all equipment would result in ammonia generation from use of a SCR results in a conservative estimation of nitrogen deposition.

The AERMOD model calculates atmospheric deposition of nitrogen by calculating the wet and dry fluxes of total nitrogen. This deposition is accomplished by using a resistance model for the dry deposition part, and by assigning particle phase washout coefficients for the wet removal process from rainout. As discussed above, depositional parameters for HNO_3 are input into the model to calculate the deposition of nitrogen. AERMOD sums the results of the wet and dry nitrogen deposition to produce annual deposition rates in units of grams per square meter (g/m^2) for the entire 5-year meteorological period modeled, which are converted to kilograms per hectare per year (kg/ha/yr) in response to DR BIO-20.

Model Results

The 6-mile radius from the Project site that was assessed in the nitrogen deposition model includes the agricultural areas within the western San Joaquin Valley, as well as non-native grassland, sand dune, freshwater emergent wetland, and riparian habitats. The non-native grassland within the Ciervo Hills west of the utility switchyard and alternate green hydrogen site footprint is located approximately 4,000 feet west of the proposed engine locations associated with the alternate green hydrogen facility. Monvero Dunes is an isolated dune habitat within the Ciervo Hills and located

approximately 5.5 miles northwest of the alternate green hydrogen site footprint. Cantua Creek and associated riparian corridor flows from within the Ciervo Hills to the California Aqueduct and runs roughly parallel to and approximately 200 feet south of the gen-tie line corridor at its nearest point. Freshwater emergent wetland habitat occurs within the Fresno Slough, located approximately 1.1 miles northeast of the solar facility footprint. As these non-agricultural areas cover a variety of elevations and distances, the annual average deposition rates calculated for all receptors modeled were used for comparison to threshold levels. The maximum Project impacts of nitrogen deposition rates for source group "All" would be 0.684 kg/ha/yr immediately adjacent to the source(s) within the boundaries of the Project site.

"Critical loads" are nitrogen deposition accumulation thresholds below which there are no discernible effects on plant diversity or soil nutrient levels. The critical load for freshwater wetlands ranges from 2.7-13 kg/ha/yr,[1] and the critical load for California grasslands ranges from 5-10 kg/ha/yr.[2] A threshold at which harmful effects from nitrogen deposition on dune, stream or riparian plant communities has not been firmly established; however, a value of 5 kg/ha/yr is often used for comparing nitrogen deposition among plant communities.[3] The Project is situated in an area of California that is typically exposed to average nitrogen deposition levels of approximately 7 to 9 kg/ha/yr.[4] The results of the nitrogen deposition model indicate the average nitrogen deposition rates using the source group "All" conservative approach would be on the order of 1.0 x 10^{-5} kg/ha/yr in the non-native grassland, dune and freshwater emergent wetland habitats and 1.0 x 10^{-4} kg/ha/yr along the Cantua Creek aquatic habitat and riparian corridor. Based on the defined critical loads the maximum and average levels of nitrogen deposition from the Project in these non-agricultural vegetation communities are well below levels that would significantly affect vegetation communities in the vicinity of the Project site. Therefore, the maximum levels of nitrogen deposition from the Project are also well below levels that would significantly affect special status species that may occur within these vegetation communities.

The quantity of nitrogen deposition from the Project emissions on vegetation would, in practice, be less than the model results because the assumptions modeled are inherently conservative (e.g., assuming the emergency backup generators and fire pump engines are duplicated at all potential locations and are running at the same time). The nitrogen deposition would also be distributed incrementally throughout a year and not all nitrogen added to the soil during each deposition event would be available for plant use because of losses associated with soil processes. As a result, operation of the Project's emergency backup generators and fire pump engines would not lead to nitrogen deposition levels that exceed critical thresholds associated with significant impacts to non-

[1] Pardo, L.H., M.J. Robin-Abbott, and C.T. Driscoll. 2011. Assessment of Nitrogen Deposition Effects and Empirical Critical Loads of Nitrogen for Ecoregions of the United States. Gen. Tech. Rep. NRS-80. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 291 p.

[2] Fenn, M.E., E.B. Allen, S.B. Weiss, S. Jovan, L.H. Geiser, G.S. Tonnesen, R.F. Johnson, L.E. Rao, B.S. Gimeno, F. Yuan, T. Meixner, and A. Bytnerowicz. 2010. Nitrogen Critical Loads and Management Alternatives for N-Impacted Ecosystems in California. J. of Env. Management 91: 2404-2423.

[3] Weiss, S.B. 2006. Impacts of Nitrogen Deposition on California Ecosystems and Biodiversity. California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2005-165.

[4] Fenn, M.E., E.B. Allen, S.B. Weiss, S. Jovan, L.H. Geiser, G.S. Tonnesen, R.F. Johnson, L.E. Rao, B.S. Gimeno, F. Yuan, T. Meixner, and A. Bytnerowicz. 2010. Nitrogen Critical Loads and Management Alternatives for N-Impacted Ecosystems in California. J. of Env. Management 91: 2404-2423.

native grassland, dune or riparian vegetation communities in the vicinity of the Project site or special status species that may occur within the vegetation communities. Therefore, operation of the Project's emergency backup generators and fire pump engines would result in less than significant impacts to natural vegetation communities and special status species within 6 miles of equipment operation.

Darden Clean Energy Project

Equipment Summary

Engine Information

Engine No.	Make / Model	Location	# of Units	Size (ekW)	Size (bhp)	Fuel	Reference File Name
1A	Power Solutions Int'l (PSI) 8800CAC (LPG) Emergency Generator Set	Step Up Substation Option 1	1	150	262	LPG	Oberon MTU GS150 submittal file Rev. 1.pdf
1B		Step Up Substation Option 2	1	150	262		
2		Step Down Substation	1	150	262		
3A	CAT C18 Fire Pump Engine	Option 1	2	400	536	Diesel	C18FP_EM0067 Perf Data.pdf
3B		Option 2	2	400	536		
3C		Option 3	2	400	536		
4A	CAT C18 Diesel Emergency Generator Set	Option 1	2	600	805	Diesel	600kw C18_LEHE1581-02.pdf
4B		Option 2	2	600	805		
4C		Option 3	2	600	805		

Notes: ekW = electrical kilowatts; bhp = brake horsepower; LPG = liquified petroleum gas

Emission Rates

				NOx Emission Factor (g/bhp-hr)		VOC Emission Factor (g/bhp-hr)		CO Emission Factor (g/bhp-hr)		SOx Emission Factor (g/bhp-hr)		PM Emission Factor (g/bhp-hr)		NH3	CO2	CH4	N2O
Engine No.	Emission Factors Source	Max Daily Hours	Max Annual Hours	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled	Controlled		g/bhp-hr	
1A, 1B, 2	Spec Sheets	1	100	n/a	1	n/a	0.7	n/a	2	n/a	n/a	n/a	n/a	n/a	*	*	*
3A, 3B, 3C	US EPA Tier 3	1	100	2.85	2.85	0.15	0.15	2.6	2.6	2.05E-03	2.05E-03	0.15	0.15	n/a	568	0.023	0.005
4A, 4B, 4C	US EPA Tier 2 / Tier 4	1	100	4.56	0.5	0.24	0.14	2.6	2.6	2.05E-03	2.05E-03	0.15	0.022	n/a	568	0.023	0.005

Notes: US EPA = United States Environmental Protection Agency; NOx = oxides of nitrogen; VOC = volatile organic compounds; CO = carbon monoxide; SOx = sulfur oxides; PM = particulate matter; NH3 = ammonia; CO2 = carbon dioxide; CH4 = methane; N2O = nitrous oxides; g/bhp-hr = grams per brake horsepower-hour

* The LPG engine has emission factors based on fuel flow rates as provided by the US EPA's 2023 Emission Factor for Greenhouse Gas Inventories. The engine fuel consumption at 100% rating is 695 ft3/hr (or 19.7 m3/hr).

Per Table A of Appendix A of SCAQMD's *Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Threshold* s, for Electric Generation, PM10 is 96% of Total PM and PM2.5 is 93.7% of Total PM. For the Fire Pump Engines, PM10 is 97.6% of Total PM and PM2.5 is 96.7% of Total PM

SOx Factors from AP-42 Table 3.3-1

Stack Parameters

Engine No.	SJVAPCD Source ID	UTM X	UTM Y	Release Height (m)	Stack Diameter (m)	Temp (K)	Gas Velocity (m/s)	Gas Flow Rate (cfm)
1A	275_DE	749650	4040200	2.43	0.12	795.31	50.25	1204.2
1B	275_DE	746900	4036800	2.43	0.12	795.31	50.25	1204.2
2	275_DE	733300	4034400	2.43	0.12	795.31	50.25	1204.2
3A	600_DE	748500	4040200	3.71	0.16	793.56	92.45	3938.6
3B	600_DE	747100	4036100	3.71	0.16	793.56	92.45	3938.6
3C	600_DE	733300	4034100	3.71	0.16	793.56	92.45	3938.6
4A	825_DE	748500	4040200	6.07	0.19	784.00	87.68	5267.5
4B	825_DE	747100	4036100	6.07	0.19	784.00	87.68	5267.5
4C	825_DE	733300	4034100	6.07	0.19	784.00	87.68	5267.5

Notes: m = meters; m/s = meters per second; cfm = cubic feet per minute

SJVAPCD stack parameters provided via email on 2/15/2024.

UTM = Universal Transvers Mercator Coordinate; coordinate locations are based on assumed equipment locations.

Darden Clean Energy Project

Ammonia Calculations for Nitrogen Deposition Modeling

CARB NH3 Limit Assumed: 10 ppm

Ammonia (NH3) emissions calculations are based off of the "Stack Flow Method" provided at the following reference.
Ref: https://www4.des.state.nh.us/OneStopPub/Air/3300900021FY07-0091TypeCalculations.pdf

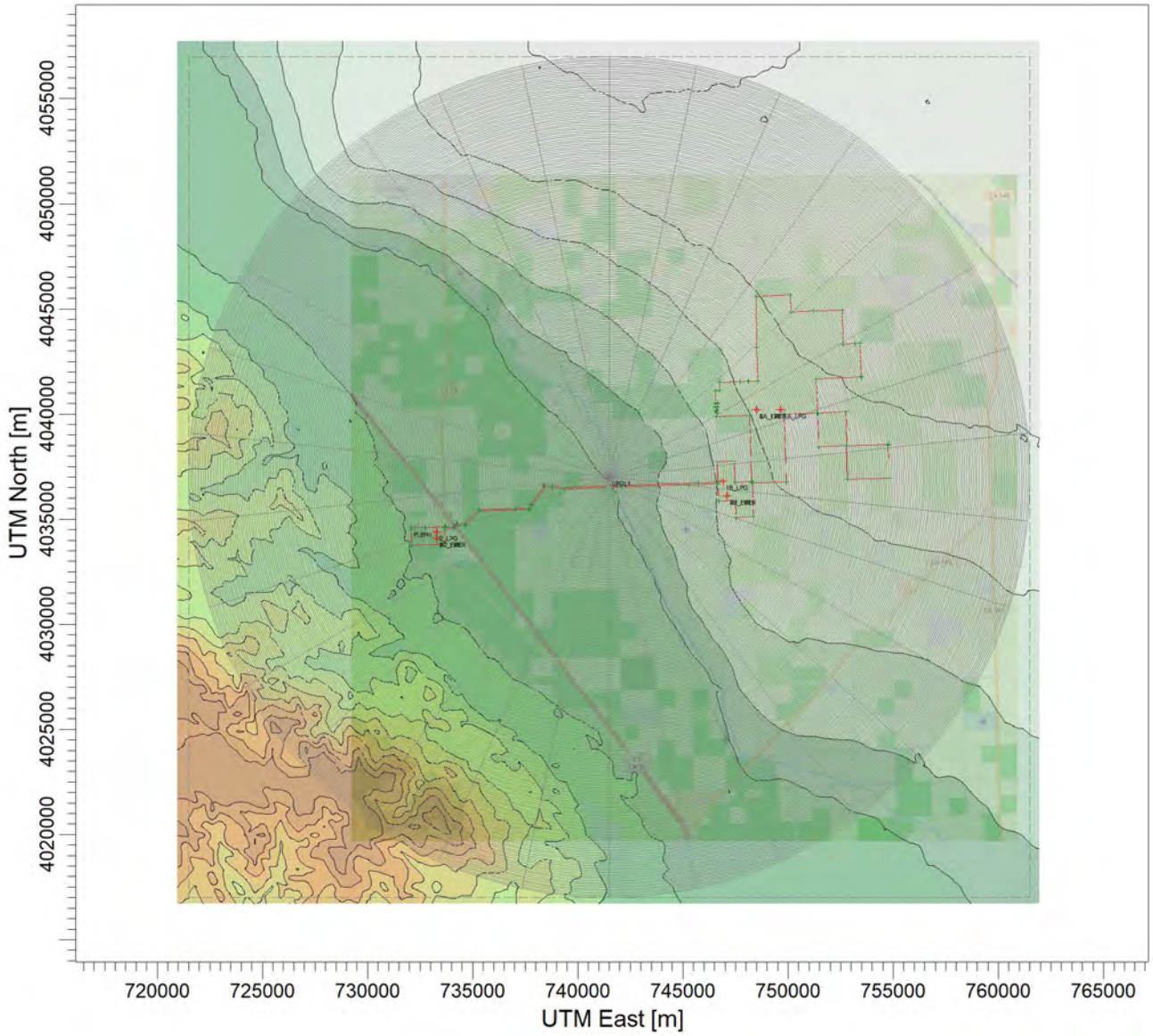
Constants:
10 ppm = 10 ft3/1,000,000 ft3 stack flow
1 lb mole NH3 = 385.3 ft3 NH3
17 lb NH3 = 1 lb-mole NH3

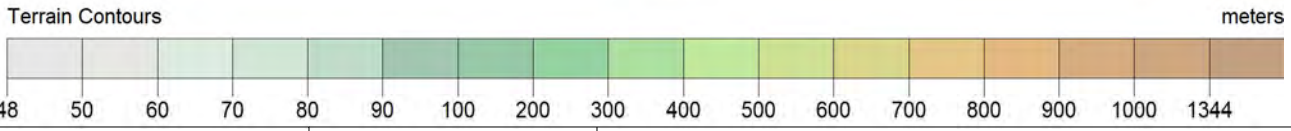
Engine No.	Make / Model	Location	NH3 Limit (ppm)	Stack Flow Rate (ft3/min)	Emissions NH3 (lb/hr)	Emissions NH3 (lb/yr)	Emissions NOx (lb/yr)	Emissions ADN (lb/yr)	Annualized g/s for AERMOD
1A	Power Solutions Int'l (PSI)	Step Up Substation Option 1	10	1204.19	0.03	3.19	57.76	60.95	0.000876648
1B	8800CAC (LPG) Emergency	Step Up Substation Option 2	10	1204.19	0.03	3.19	57.76	60.95	0.000876648
2	Generator Set	Step Down Substation	10	1204.19	0.03	3.19	57.76	60.95	0.000876648
3A		Option 1	10	3938.61	0.10	10.43	674.07	684.50	0.009845334
3B	CAT C18 Fire Pump Engine	Option 2	10	3938.61	0.10	10.43	674.07	684.50	0.009845334
3C		Option 3	10	3938.61	0.10	10.43	674.07	684.50	0.009845334
4A		Option 1	10	5267.49	0.14	13.94	207.05	220.99	0.003178576
4B	CAT C18 Diesel Emergency Gener	Option 2	10	5267.49	0.14	13.94	207.05	220.99	0.003178576
4C		Option 3	10	5267.49	0.14	13.94	207.05	220.99	0.003178576
Notes:					**Total per Option (tpy):**	**0.02**	**0.50**	**0.51**	

ADN = atmospherically derived nitrogen; NH3 = ammonia; NOx = oxides of nitrogen; ppm = part per million; ft3/min = cubic feet per minute; lb/hr = pounds per hour; lb/yr = pounds per year; g/s = grams per second
It was assumed that all equipment are potential sources of NH3 emissions. NOx emissions are calculated for the air quality study and imported here to determine ADN.
The stack flow rates are based off of information provided by the SJVAPCD.
The annualized g/s for AERMOD column is the data enterred into the air dispersion model.

PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
Model Setup Overview

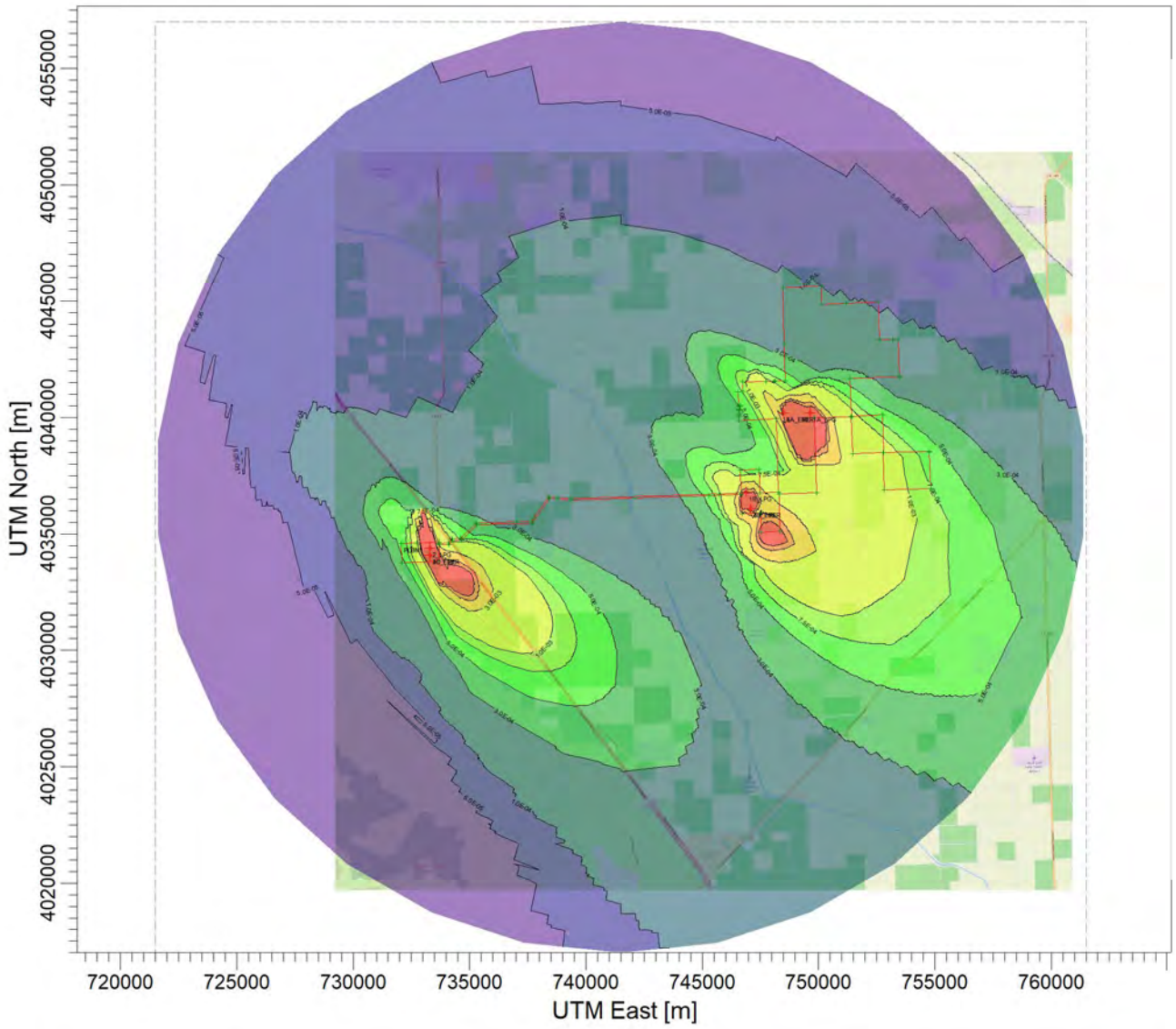




COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
		SCALE: 1:320,862 0 10 km	
		DATE: **3/20/2024**	PROJECT NO.:

PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
ALL Project Options



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL g/m^2

Max: 6.8E-02 [g/m^2] at (733320.91, 4034342.45)

1.0E-05 5.0E-05 1.0E-04 3.0E-04 5.0E-04 7.5E-04 1.0E-03 3.0E-03 5.0E-03 6.0E-03

COMMENTS:	SOURCES: **9**	COMPANY NAME:	
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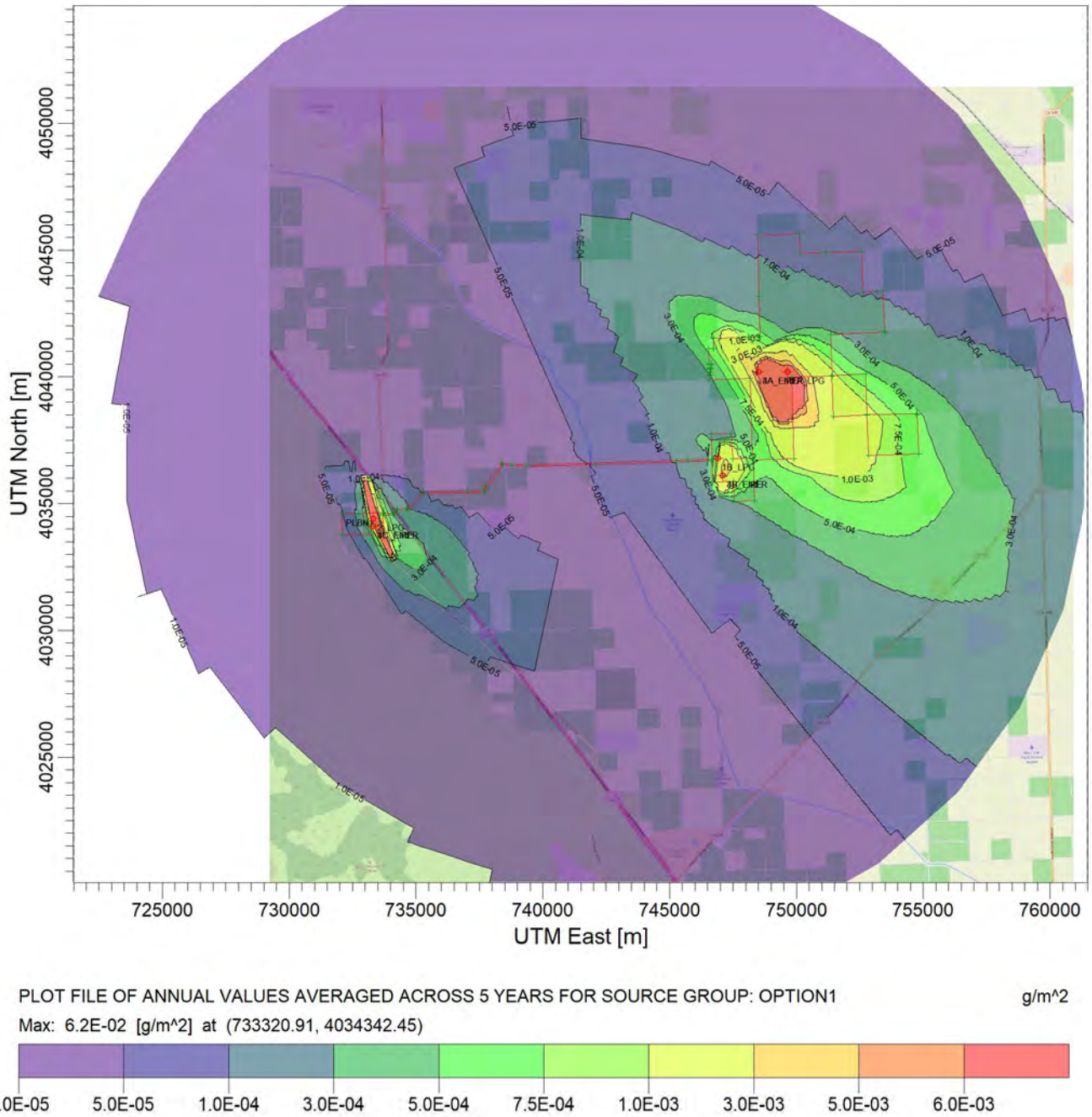
PROJECT TITLE:

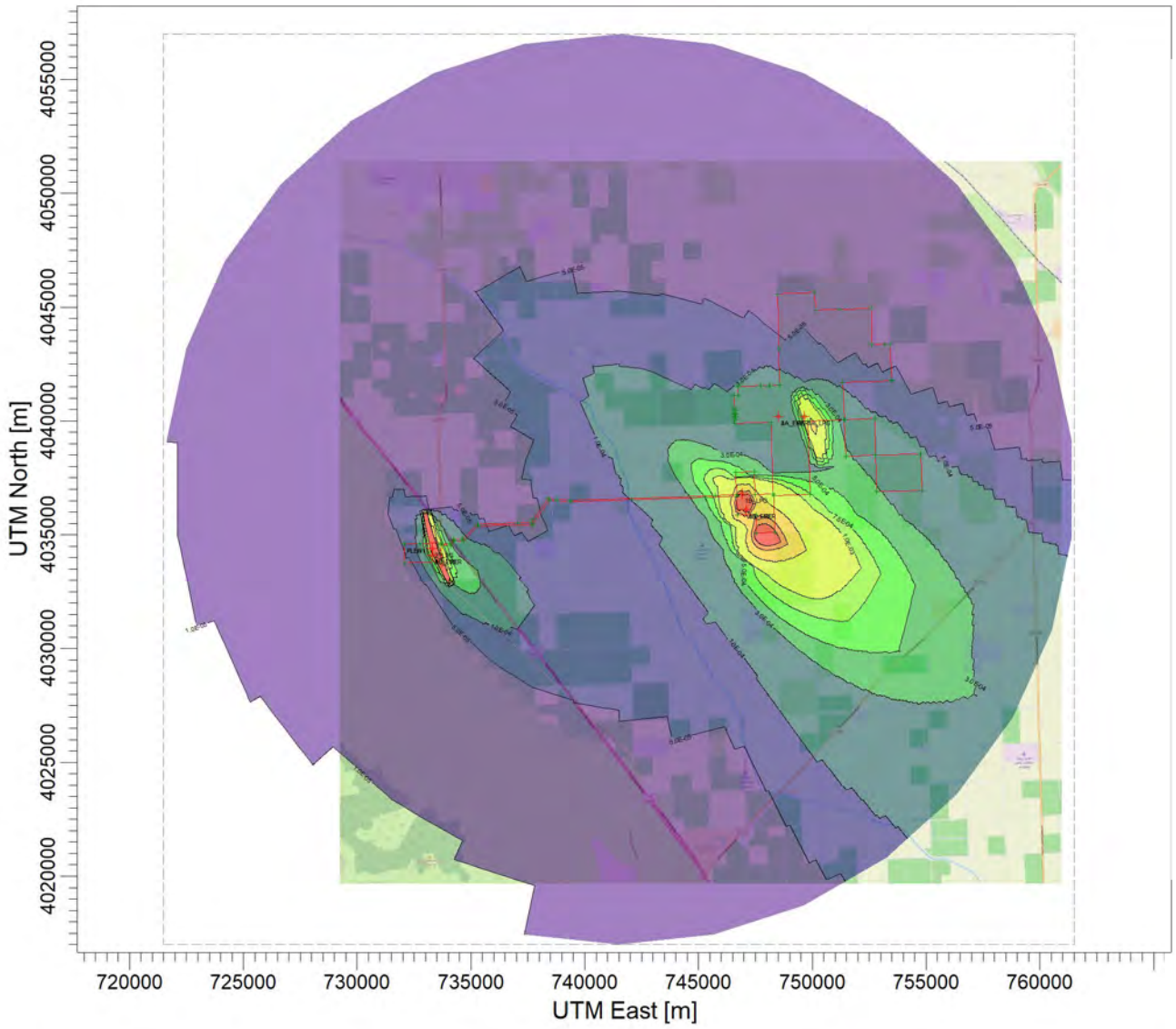
Darden Clean Energy Project Nitrogen Deposition
Project Option 1



COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:251,566 0 5 km	
	MAX: **6.2E-02 g/m^2**	DATE: **3/20/2024**	PROJECT NO.:

PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
Project Option 2



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: OPTION2 g/m^2

Max: 6.2E-02 [g/m^2] at (733320.91, 4034342.45)

1.0E-05 5.0E-05 1.0E-04 3.0E-04 5.0E-04 7.5E-04 1.0E-03 3.0E-03 5.0E-03 6.0E-03

COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:302,379 0 10 km	
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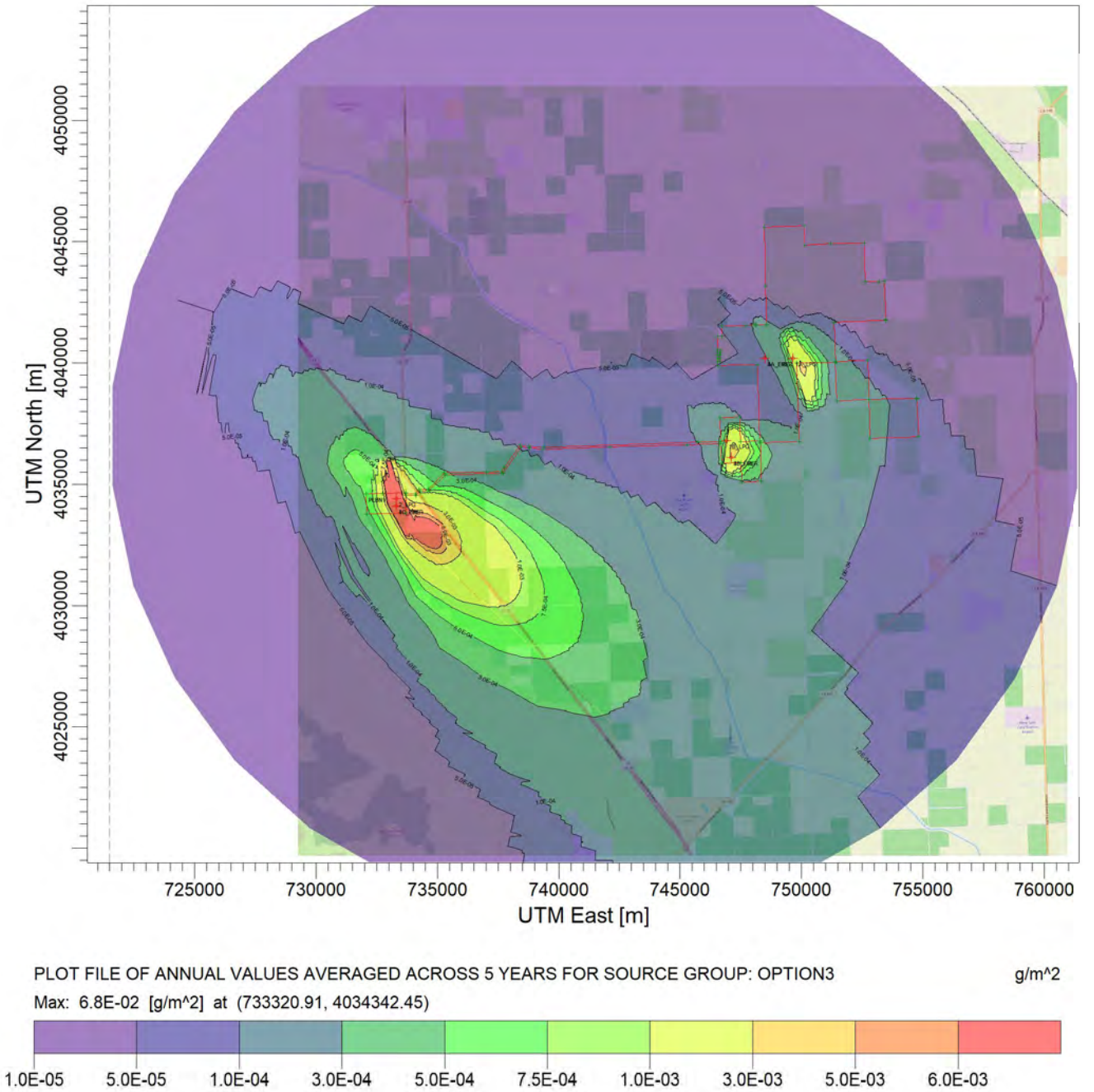
PROJECT TITLE:

Darden Clean Energy Project Nitrogen Deposition
Project Option 3



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: OPTION3 g/m^2

Max: 6.8E-02 [g/m^2] at (733320.91, 4034342.45)

1.0E-05 5.0E-05 1.0E-04 3.0E-04 5.0E-04 7.5E-04 1.0E-03 3.0E-03 5.0E-03 6.0E-03

COMMENTS:	SOURCES: **9**	COMPANY NAME:	
	RECEPTORS: **6085**	MODELER:	
	OUTPUT TYPE: **Total Depos.**	SCALE: 1:257,025 0 5 km	
	MAX: **6.8E-02 g/m^2**	DATE: **3/20/2024**	PROJECT NO.:

Appendix G

DR BIO-23 CNDDB Form Data Tables

Swainson's Hawk Nesting Observations

Observer Name*	Observer Contact*	SciName*	Com Name	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	3			2 Adult, 1 Juvenile	Nesting	Incubating, one fledgling in nest, 2nd adult seen in the tree	Seen	0.22 miles north of W Davis Ave and S Sonoma Ave interesection, approx 150 ft east of S Sonoma Ave	-120.248579	36.4757391	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Nearby disking			Multiple Survey Dates: 4/12/23, 5/4/23, 6/12/23, and 7/12/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	3			2 Adult, 1 Juvenile	Nesting	Incubation, adult on nest; another adult foraging nearby	Seen	800 ft N of S. Napa Ave and Harlan Ave Intersection, on the west side of Napa Ave	-120.2297183	36.44379081	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Fallow land that has become non-native grassland		Fallow land that is regularly disked	Possible disking			Multiple Survey Dates: 6/13/23, 7/12/23	
Morgan Craig	mcraig@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	4			2 Adult, 2 Juvenile	Nesting	Two separate adults seen at edge of nest; two fledglings	Seen	235 ft S of the S Colusa Ave and W Harlan Ave intersection	-120.1938171	36.44312582	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Nearby disking/ machinery use			Multiple Survey Dates: 4/17/23, 5/3/23, 6/13/23, 7/12/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	4			2 Adult, 1 Subadult, 1 Juvenile	Nesting	Fledging in nest, adults guarding. Subadult observed nearby.	Seen	0.22 miles south of the W. Cerini Ave and S El Dorado Ave intersection	-120.212207	36.45549196	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			Multiple Survey Dates: 5/1/23, 6/12/23, and 7/12/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	2			2 Adult	Nesting	Two adults observed copulating and approaching nest after	Seen	0.28 miles north east from intersection of Cantua Creek and S. Monterey Ave, along the creek bank	-120.3705611	36.42316483	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards and rural development				Multiple Survey Dates: 5/2/23, 6/14/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	2			2 Adult	Nesting	Pair of adults perched in a tree near a nest	Seen	0.19 miles SE of W Manning Ave and S Levee Rd Intersection, along west bank of Fresno Slough	-120.2182758	36.59998218	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards and rural development				Multiple Survey Dates: 5/1/23, 6/14/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	2			2 Adult	Nesting	Female on nest and another adult perched near the nest	Seen	645 ft NW of S Levee Rd and W Dinuba Ave intersection, on the west bank of Fresno Slough	-120.2145155	36.58928223	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting grassland and orchards				Multiple Survey Dates: 5/2/23, 6/14/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	2			2 Adult	Nesting	Two adults perched in tree around a nest	Seen	0.28 miles E of intersection of W Clarkson Ave and S San Mateo Ave, approx. 160 ft south side of W Clarkson Ave	-120.3111661	36.50090651	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Trees in rural development		Rural development				Multiple Survey Dates: 5/1/23, 6/13/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	2			1 Adult, 1 Juvenile	Nesting	Nestling heard crying; One adult incubating observed	Seen, heard	650 ft E of W Jeffery Ave and S San Mateo Ave, just S of W Jeffery Ave	-120.3178554	36.37042812	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Nearby disking/ machinery use			Multiple Survey Dates: 5/2/23, 6/14/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	3			1 Adult, 2 Juvenile	Nesting	Adult sitting in nest; Two fledglings in nest	Seen	0.35 miles SE of the intersection of W Summer Ave and W Adams Ave, on the east side of James Bypass in tree area surrounded by grassland	-120.1484209	36.62184042	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Grassland		renaturalized fallow				Multiple Survey Dates: 5/1/23, 6/12/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	2			2 Adult	Nesting	One adult sitting in nest. One adult perched nearby.	Seen	521 ft NW of intersection of Colorado Rd and W Huntsman Ave, in tree on east side of Colorado Rd	-120.15342	36.58286562	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Larger tree in Orchard		Orchard	Machinery use likely			Multiple Survey Dates: 5/2/23, 6/12/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	1			1 Adult	Nesting	One adult perched near nest	Seen	0.3 miles E ofintersection of Colorado Rd and W Floral Rd, in windbreak trees on south side of Floral Rd	-120.1365615	36.57449352	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded rural development and orchards		Windbreak				Multiple Survey Dates: 5/1/23, 6/12/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Possibly nesting	Nest in sparse eucalyptus. Two adults observed sitting on pole next to nest tree.	Seen	985 ft SW of intersection of W Paige Ave and S Napa Ave, on the west side of an unmarked dirt road	-120.2311269	36.38311683	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked and rural development		Windbreak	Nearby disking/ machinery use			Multiple Survey Dates: 5/2/23, 6/13/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/03/23	2			2 Adult	Possibly nesting	Adult pair observed, nest unknown	Seen	Approx 150 ft E of the intersection of W Manning Ave and S Madera Ave, north side of W Manning Ave	-120.060866	36.60378919	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Larger tree bordering an orchard		Orchard	Potential nearby disking/ machinery use				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	2			2 Adult	Nesting	Nest with two adults perched in the tree	Seen	0.36 SE of where S Lassen Ave crosses Stinson Canal	-120.0948516	36.48202922	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting fallow land that is regularly disked	Potential nearby disking/ machinery use			Multiple Survey Dates: 5/2/23, 6/15/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	2			2 Adult	Nesting	Observed adult fly over twice. Potentially heard chick calls. Cannot see into nest; Earlier date: Copulation observed. Pair taking over GHOW nest	Seen, potentially heard	0.2 miles SW from the intersection of W Paige Ave and S Amador Rd, on west side of canal	-120.2694626	36.38277572	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Grassland		Grassland and fallow land that is regularly disked				Multiple Survey Dates: 5/3/23, 6/13/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Nesting	Large stick nest with adult perched in tree	Seen	approx. 707 ft W/NW of S Lassen Ave and W Kramm Ave intersection	-120.1001882	36.53218627	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Trees in rural development		Rural development				Multiple Survey Dates: 5/2/23, 6/13/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	3			2 Adult, 1 Juvenile	Nesting	Two adults separately observed, one on the nest and one at the edge of the nest; one fledgling. 5/2 Adult sitting on nest	Seen	0.52 miles west of W Mount Whitney Ave and S Sonoma Ave intersection, north side of W Mount Whitney Ave	-120.2568613	36.42933122	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development and fallow land that is regularly disked		Windbreak	Likely disking/ machinery use nearby			Multiple Survey Dates: 5/2/23, 6/13/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Nesting	Nest building; copulation and nest material carry observed	Seen	273 ft SW of W Mount Whitney and S Amador Rd intersection	-120.2661708	36.42830207	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development and fallow land that is regularly disked		Windbreak	Likely disking/ machinery use nearby				
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			1 Adult, 1 Juvenile	Nesting	Adult observed returning to nest. Potential food carry. Adult observed carrying materials to nest; one fledgling	Seen	0.23 miles N/ NE of S Colusa Ave and W Laguna Ave intersection	-120.1931956	36.4182025	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development		Windbreak	Likely disking/ machinery use nearby				
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			1 Adult, 1 Juvenile	Nesting	Adult and fledgling observed in nest	Seen	0.31 miles N/ NE of S Colusa Ave and W Laguna Ave intersection	-120.1931975	36.41933261	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development		Windbreak	Likely disking/ machinery use nearby				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/02/23	1			1 Adult	Nesting	Adult SWHA sitting in nest	Seen	0.68 miles SW of where S Dover Ave crosses Murphy Slough, E side of Fresno slough	-119.9981631	36.46768447	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/fallow land that is regularly disked				Multiple Survey Dates: 5/3/23, 6/15/23	

Observer Name*	Observer Contact*	SciName*	Com Name	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats Landowner	Comments	Other
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	2			2 Adult	Nesting	One adult in nest, one adult perched in tree	Seen	E bank of Fresno Slough, 0.29 miles S of Elkhorn and W Elkhorn merge/cross Fresno Slough	-120.0016765	36.48223975	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/fallo w land that is regularly disked			Multiple Survey Dates: 5/3/23, 6/15/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/03/23	2			2 Adult	Nesting	One adult sitting in nest, one adult perched in tree.	Seen	370 ft S/SE of where W Conejo Ave dead-ends at Fresno Slough, east slough bank	-120.053072	36.5162144	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting fallow land that is regularly disked and orchards			Multiple Survey Dates: 5/3/23, 6/15/23	
Shannon Morris	smorris@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	2			1 Adult, 1 Juvenile	Nesting	Adult in nest; fledgling seen sitting on nest	Seen	520 ft NE of W Excelsior Ave and S Lassen Ave interesection	-120.1024393	36.40179604	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development		Windbreak			Multiple Survey Dates: 5/3/23, 6/15/23	
Shannon Morris	smorris@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	3			2 Adult, 1 Juvenile	Nesting	Two adults - one in nest and one sitting on tree; Nestling observed in nest	Seen	485 ft NW of W Ford Ave and S Lassen Intersection;	-120.1048032	36.31413501	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by grassland and rural development		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/04/23	2			2 Adult	Nesting	Adult pair observed in tree near nest; Earlier date: courting behaviors observed	Seen	0.23 miles SE of W Oakland Ave and S Siskiyou Ave intersection	-120.0817266	36.34115591	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, grassland, and fallow land that is regularly disked		Windbreak			Multiple Survey Dates: 5/4/23, 6/15/23	
Amy Trost	atrost@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/04/23	2			2 Adult	Nesting	One adult on nest, the other on a pole	Seen	610 ft NE of W Jeffrey Ave and S Lassen Ave interesection	-120.1022417	36.37303786	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, grassland, and fallow land that is regularly disked		Windbreak			Multiple Survey Dates: 5/4/23, 6/15/23	
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	05/04/23	1			1 Adult	Nesting	Adult observed on top of tree	Seen	0.58 miles E of S Derrick Ave and W Conejo intersection, on north side of W Conejo Ave	-120.3787588	36.51619052	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, orchards, grassland, and fallow land that is regularly disked		Windbreak				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/13/23	2			2 Adult	Nesting	Adult pair sitting in tree near nest	Seen	0.53 miles E of S Contra Costa Ave and W Parlier intersection, on south side of W Parlier Ave	-120.2412576	36.60983302	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Lone stand of trees		Fallow land that is regularly disked, abutting orchards				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/12/23	1			1 Adult	Nesting	1 adult on nest	Seen	930 ft N/NE of W Clarkson Ave and S El Dorado Ave intersection	-120.2055993	36.50428563	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Tree abutting small rural development, surrounded by disked fields		Rural development surrounded by fallow land	Disking			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	2			1 Adult, 1 Juvenile	Nesting	1 adult in nest; 1 fledgling on nest 5/1/23: Adult observed at nest 4/17/23: Unoccupied nest observed in tree in northern portion of northernmost Eucalyptus tree line. A pair of Swainson's hawks observed in the vicinity. Previous survey 4/4: Adult observed perched in line of Eucalyptus	Seen	0.5 miles SE of W Davis Ave and S Npapa Ave intersection	-120.2210289	36.47139846	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, grassland, and fallow land that is regularly disked		Windbreak			Multiple Survey Dates: 4/4/23, 4/17/23. 5/1/23, 6/13/23	
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/14/23	1			1 Adult	Nesting	Adult observed flying overhead of nest	Seen	0.25 miles SE of W Lincoln Ave and S Denver Ave	-120.2307692	36.64324097	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Single tree surrounded by rural development and fallow land that is regularly disked		Fallow land that is regularly disked				
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	1			1 Adult	Possibly Nesting	Observed one adult fly out of a eucalyptus, too high to see possible nest	Seen	350 ft S of W Elkhorn Ave and S Howard Ave intersection, on west side of S Howard Ave	-120.0313757	36.48422837	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded orchards and fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	1			1 Adult	Nesting	One adult female sitting in nest that previously had a GHOW	Seen	0.8 mile E of W Cerini Ave and S Howard Ave intersection, N side of W Cerini Ave	-120.0458241	36.4589954	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by rural development, orchards, and fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/15/23	1			1 Adult	Nesting	One adult perched in tree near nest	Seen	0.38 mile SW of W Cerini Ave and S Dover Ave intersection, east bank of Fresno Slough	-119.9924082	36.45682295	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ fallow land regularly disked				
Cristy Rice	crice@rinconconsultants.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	06/16/23	2			2 Adult	Nesting	One adult in nest, one perched next to it. In a cottonwood.	Seen	0.52 miles east of W Mount Whitney Ave and S Siskiyou Ave intersection, on north side of W Mount Whitney Ave	-120.0755962	36.43002575	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded rural development, orchards,and fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	07/12/23	2			2 Adult	Nesting	Two adults guarding nest	Seen	0.6 mile SE of W Davis Ave and S Napa Ave intersection	-120.2214236	36.46556538	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Wind break trees surrounded by fallow land that is regularly disked		Windbreak	Potential nearby disking/ machinery use			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/05/23	20			Adult	Foraging	Group of ~20 adults observed foraging in recently disked field	Seen	.24 mile E of interesection of W Cerini Ave and S Colusa Ave, on south side of W Cerini Ave	-120.198301	36.458159	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Disked field		Fallow	Disking			
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/03/23	2			2 Adult	Courtship behaviors	2 adults observed displaying courtship behaviors and perched in cottonwood tree	Seen	Tree on bank of Cantua Creek, 0.26 mile NW of the intersection of W Mount Whitney Ave and S Stanilaus Ave	-120.343024	36.429429	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ fallow land regularly disked				
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/04/23				Adult	Foraging	Group of foraging adults observed in field behind tractor as it was being disked	Seen	0.21 mile NE of intersection of S Sonoma and W Davis Ave	-120.24491	36.474319	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Fallow /disked land		Fallow agriculture	Disking			

Observer Name*	Observer Contact*	SciName*	Com Name	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	04/11/23	2			2 Adult	Flying	Adult pair observed flying overhead	Seen	Above bank of Cantua Creek, 0.43 mile NE of S Oil City Ave and W Mount Whitney Ave intersection	-120.34895	36.430162	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ fallow land regularly disked					
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	5/1/2023	2			2 Adult	Perched	Adult pair observed near beginning of a nest	Seen	Tree on south bank of Cantua Creek, 426 ft NE of the intersection of W Mount Whitney Ave and S Stanilaus Ave	-120.3367667	36.428929	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Riparian		Riparian corridor abutting orchards/ regularly disked fallow land					
Stephen Stringer	stringerbiological@outlook.com	Buteo swainsoni	Swainson's Hawk	Y		Very Confident	5/12/2023	1			1 Adult	Foraging	One adult observed foraging in field of mustard (Brassica nigra) near Eucalyptus tree line	Seen	0.33 mile SW of W Cerini Ave and S El Dorado Ave intersection	-120.21671	36.455162	WGS84		ArcGIS Field Maps		Protocol Swainson's Hawk Surveys	Fallow field		Fallow agriculture	Disking				

Special Status Species Observations

Observer Name*	Observer Contact*	SciName*	ComName	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM_zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	12/16/2022	1			adult	foraging	foraging	seen	0.4 mile W of intersection of W Elkhorn Ave and S Yuba Ave	-120.1861878	36.48761709	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	12/16/2022	flock (unknown)			adult	foraging	foraging	seen	0.4 mile W of intersection of W Elkhorn Ave and S Yuba Ave	-120.1861798	36.48762269	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	12/16/2022	13			adult	foraging	foraging	seen	0.23 mile E of intersection of W Clarkson Ave and S Colusa Ave	-120.184515	36.50203251	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Charadrius montanus*	mountain plover	Y	Sibley field guide	Confident	2/22/2023	flock (unknown)			adult	foraging	foraging	seen	0.43 mile SE of intersection of W Conejo Ave and S Colusa Ave	-120.181125	36.51447216	WGS84	10	ArcGIS Field Maps		biological monitoring				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	3/31/2023	3			2 adult, 1 juvenile	foraging	foraging	seen	0.5 mile E of intersection of S San Mateo Ave and Harlan Ave	-120.3113122	36.44324478	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	3/31/2023	1			adult	foraging	foraging	seen	0.24 mile W of intersection of W Mt. Whitney Ave and S Sonoma Ave	-120.252063	36.42904675	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	8/30/2023	2			adult	roosting	roosting	seen	0.5 mile N of intersection of W Mt. Whitney Ave and S Sonoma Ave	-120.247144	36.436111	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	3/31/2023	2			adult	foraging	foraging	seen	NE corner of intersection of W Davis Ave and S Colusa Ave	-120.193962	36.473204	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/4/2023	2			adult	foraging	foraging	seen	In eucalyptus trees 0.51 mile W of intersection of S El Dorado Ave and W Davis Ave	-120.221042	36.471244	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/5/2023	2			adult	foraging	foraging	seen	In eucalyptus trees 0.25 mile S of intersection of S El Dorado Ave and W Cerini Ave	-120.212081	36.454364	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	8/30/2023	1			adult	foraging	foraging	seen	0.87 mile NE of intersection of W Elkhorn Ave and S Yuba Ave	-120.166867	36.495191	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	3/30/2023	2			adult	foraging	foraging	seen	0.5 mile E of intersection of W Elkhorn Ave and S Yuba Ave	-120.168572	36.487511	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/14/2022	1			adult	flyover	flyover	seen	0.41 mile S of intersection of S Sonoma Ave and W Cerini Ave	-120.2478223	36.45212919	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Amy Trost, Shannon Morris	atrost@rinconconsultants.com	*Ardea alba*	great egret	Y	Sibley field guide	Confident	12/14/2022	1			adult	flyover	flyover	seen	0.41 mile S of intersection of S Sonoma Ave and W Cerini Ave	-120.2478223	36.45212919	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/15/2022	1			adult	foraging	foraging	seen	Immediately north of intersection of W Davis Ave and S Colusa Ave	-120.194061	36.47309272	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Falco mexicanus*	prairie falcon	Y	Sibley field guide	Confident	12/15/2022	1			adult	foraging	foraging	seen	Flying over field approximately 0.39 mile NW of intersection of W Elkhorn Ave and S Colusa Ave	-120.201094	36.488289	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/15/2022	1			adult	foraging	foraging	seen	Immediately SW of intersection of El Dorado Ave and W Elkhorn Ave	-120.206214	36.487372	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig, Shannon Morris	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/16/2022	1			adult	flyover	flyover	seen	0.16 mile E of intersection of W Clarkson Ave and S El Dorado Ave	-120.2041309	36.50198459	WGS84	10	ArcGIS Field Maps		reconnaissance survey	disked field			historical agricultural use and regular disking				
Morgan Craig, Shannon Morris	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/16/2022	1			adult	flyover	flyover	seen	0.44 mile W of intersection of W Clarkson Ave and S El Dorado Ave	-120.2148758	36.50194599	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig, Shannon Morris	mcraig@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	12/16/2022	1			adult	foraging	foraging	seen	In tree located 0.43 mile W of intersection of W Conejo Ave and S Colusa Ave	-120.1962165	36.51667981	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo regalis*	ferruginous hawk	Y	Sibley field guide	Confident	12/16/2022	1			adult	foraging	foraging	seen	0.68 mile NW of intersection of W Clarkson Ave and S Yuba Ave	-120.179033	36.509269	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	2/22/2023	1			adult	foraging	foraging	seen	On electrical wires 0.1 mile W of intersection of W Elkhorn Ave and S Yuba Ave	-120.1809977	36.48771049	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	2/23/2023	1			adult	roosting	roosting	seen	In pipe near intersection of W Elkhorn Ave and S El Dorado Ave	-120.2120447	36.48737936	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/5/2023	2			adult	foraging	foraging	seen	0.38 mile S of intersection of W Harlan Ave and S El Dorado Ave	-120.211856	36.438058	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Circus hudsonius*	northern harrier	Y	Sibley field guide	Confident	4/5/2023	1			adult	foraging	foraging	seen	In field approximately 0.44 mile SE of intersection of W Cerini Ave and S Napa Ave	-120.2259	36.4527	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/12/2023	4			adult	foraging	foraging	seen	In field approximately 0.38 mile NW of intersection of W Elkhorn Ave and S Yuba Ave	-120.183903	36.491517	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Falco peregrinus*	peregrine falcon	Y	Sibley field guide	Confident	4/12/2023	1			adult	foraging	foraging	seen	In field approximately 0.46 mile NE of intersection of W Elkhorn Ave and S Yuba Ave	-120.175092	36.493361	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Cristy Rice	crice@rinconconsultants.com	*Buteo swainsoni*	Swainson's hawk	Y	Sibley field guide	Confident	4/17/2023	2			adult	mating	courting	seen	In field approximately 0.2 mile NW of intersection of W Davis Ave and S El Dorado Ave	-120.215558	36.473275	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Aquila chrysaetos*	golden eagle	Y	Sibley field guide	Confident	5/11/2023	1			adult	flyover	flyover	seen	Observed flying overhead. Observer was standing approximately 0.07 mile NW of intersection of W Elkhorn Ave and S El Dorado Ave	-120.213136	36.487833	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Elanus leucurus*	white-tailed kite	Y	Sibley field guide	Confident	5/24/2023	1			adult	foraging	foraging	seen	0.48 mile N of intersection of W Elkhorn Ave and S El Dorado Ave	-120.206926	36.494429	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				

Observer Name*	Observer Contact*	SciName*	ComName	Sp Found (Y/N)	Sp Determine	ID Confidence	Observation Date*	Number Observed*	Phenology	Collection	Animal Age Class	Animal Site Use*	Animal Behavior*	Animal Detection Method*	Location Description	X Coordinate*	Y Coordinate*	Datum*	UTM_zone*	Coord. Source*	Coord. Accuracy	Survey Effort*	Habitat	Site Quality	Land Use	Disturbances	Threats	Landowner	Comments	Other
Shannon Morris	smorris@rinconconsultants.com	*Setophaga petechia*	yellow warbler	Y	Sibley field guide	Confident	8/24/2023	1			adult	foraging	foraging	seen	In cottonwood tree approximately 0.2 mile NE of intersection of W Clarkson Ave and S El Dorado Ave	-120.205445	36.50462	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Eremophila alpestris*	horned lark	Y	Sibley field guide	Confident	8/31/2023	flock (unknown)			adult	foraging	foraging	seen	In field approximately 0.32 mile N of intersection of W Conejo Ave and S Yolo Ave	-120.216499	36.520872	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Eremophila alpestris*	horned lark	Y	Sibley field guide	Confident	8/31/2023	flock (unknown)			adult	foraging	foraging	seen	In field approximately 0.39 mile SE of intersection of W Clarkson Ave and S El Dorado Ave	-120.202084	36.498	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Eremophila alpestris*	horned lark	Y	Sibley field guide	Confident	8/31/2023	1			adult	foraging	foraging	seen	In field approximately 0.69 mile NE of intersection of W Clarkson Ave and S Napa Ave	-120.21606	36.508434	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Michael Hernandez	mhernandez@rinconconsultants.com	*Lanius ludovicianus*	loggerhead shrike	Y	Sibley field guide	Confident	1/8/2024	1			adult	foraging	foraging	seen	On power line approximately 0.03 mile W of intersection of W Cerini Ave and S El Dorado Ave	-120.212575	36.457984	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Pooecetes gramineus affinis*	Oregon vesper sparrow	Y	Sibley field guide	Confident	8/24/2023	1			adult	foraging	singing	heard	Heard singing in field approximately 0.39 mile NE of intersection of W Cerini Ave and S Colusa Ave	-120.192297	36.463754	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	foraging	foraging	seen	Perched outside of open pipe approximately 0.60 mile W of intersection of W Harlan Ave and S Butte Ave	-120.168273	36.444048	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from burrow adjacent to road approximately 0.12 mile S of intersection of W Cerini Ave and S Butte Ave	-120.157038	36.456784	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from pipe adjacent to road approximately 0.24 mile S of intersection of W Cerini Ave and S Butte Ave	-120.157045	36.454989	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Shannon Morris	smorris@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from pipe adjacent to road approximately 0.24 mile S of intersection of W Davis Ave and S Yuba Ave	-120.179208	36.469536	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	foraging	foraging	seen	Standing outside of open pipe near the NE corner of intersection of W Elkhorn Ave and S Napa Ave	-120.224811	36.487359	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	Flushed from canal channel approximately 0.05 mile NW of intersection of W Cerini Ave and S Yuba Ave	-120.179947	36.458539	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
William Lawton	wlawton@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/15/2023	1			adult	roosting	roosting	seen	In pipe adjacent to road approximately 0.23 mile S of intersection of W Davis Ave and S Yuba Ave	-120.179351	36.469634	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	12/19/2023	1			adult	foraging	foraging	seen	Perched outside burrow adjacent to road approximately 0.5 mile N of intersection of W Mt Whitney Ave and S Sonoma Ave	-120.24659	36.43620	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Morgan Craig	mcraig@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	2/17/2023	1			adult	foraging	foraging	seen	Perched along bank of canal approximately 0.04 mile S of intersection of W Elkhorn Ave and S Colusa Ave	-120.194121	36.48692	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				
Jessica Quinn	jquinn@rinconconsultants.com	*Athene cunicularia*	burrowing owl	Y	Sibley field guide	Confident	6/5/2023	1			adult	foraging	foraging	seen	Standing along road at SE corner of intersection of W Cerini Ave and S Butte Ave	-120.15702	36.45843	WGS84	10	ArcGIS Field Maps		reconnaissance survey				historical agricultural use and regular disking				

Appendix H

DR BIO-24 CDFW Correspondence

Christina Shushnar

From: Daniska, Kari@Wildlife [redacted]
Sent: Thursday, April 13, 2023 10:50 AM
To: Christina Shushnar; Swanberg, Carrie@Wildlife
Cc: Marisa Mitchell; Becky Moores; Logan Nonnez; David Daitch; Stephen Stringer
Subject: RE: [EXT] RE: Darden Clean Energy Project SWHA Survey Approach

Hi Christina,

While the proposal you have outlined below may be sufficient to inform the CEQA document and impact analysis, CDFW recommends that to meet the minimum level of protection for the species, surveys be conducted for a ½ mile radius around all project activities using the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Vall*ey (Swainson's Hawk Technical Advisory Committee, 2000) to identify survey timing and frequency.

Without a completed protocol species survey for at least the two survey periods immediately prior to a projects initiation, CDFW may not accept a determination of species absence on the project site.

I hope that clarifies my previous response. If not please feel free to contact me and we can discuss further.

Kari Kyler Daniska
Senior Environmental Scientist (Specialist)
Central Region Conservation & Renewable Energy Program
California Department of Fish and Wildlife
[redacted]

NEW for Rails, Roads, and Renewables!
[redacted]
(please use this email address for all permit-related submittals and administrative program questions)

California Department of
Fish and Wildlife

Personal Mission: Learn from the past, monitor the present, model the future.

From: Christina Shushnar [redacted]
Sent: Thursday, April 6, 2023 12:30 PM
To: Daniska, Kari@Wildlife [redacted] Swanberg, Carrie@Wildlife [redacted]
Cc: Marisa Mitchell [redacted] Becky Moores [redacted] Logan Nonnez [redacted] David Daitch [redacted] Stephen Stringer [redacted]
Subject: RE: [EXT] RE: Darden Clean Energy Project SWHA Survey Approach

Hi Kari,

Apologies for not being more clear on the purpose of our earlier communication. We want to be sure we are aligned with CDFW on the approach so that we don't end up with results that CDFW is unable to rely on. Also, apologies for a bit of a lengthy communication here, but I think it is a good idea to have this fully spelled out.

Required Analyses - We have two separate analyses going on here: 1) Standard SWHA presence/absence surveys within ½-mile of the project for the analysis of direct impacts to nesting individuals; and 2) a SWHA nesting analysis within 10 miles of the project site, to inform the analysis of impacts to foraging habitat. Our intent was to develop a survey methodology that will result in data that can be applied to both analyses. Our goal now is to get some indication from you that the survey methodology is acceptable in the absence of clarity in the guidelines.

Survey Guideline Documents - In order to develop a combined survey approach, we have reviewed the two guidance documents pertinent to these analyses: 1) Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys In California's Central Valley (SHTAC 2000); and 2) Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California (CDFW 1994).

> **SHTAC (2000)** - Our understanding from reviewing this material is that SHTAC (2000) does not explicitly specify the exact protocol to be followed, rather, the document states "*Surveys should be conducted in a manner that maximizes the potential to observe the adult Swainson's hawks, as well as the nest/chicks second,*" then specifies that "*To meet the minimum level of protection for the species, surveys should be completed for at least the two survey periods **immediately prior** to a project's initiation,*" and then concludes that "*it is always recommended that surveys be completed in Periods II, III and V. Surveys should not be conducted in Period IV.*" It is important to note this protocol appears to specifically address the surveys that should be conducted immediately prior to the project initiation (i.e., too late to inform CEQA), and does not specify the preferred or recommended protocol for presence/absence survey conducted to support CEQA environmental review, well in advance of project implementation.
>
> **Staff Report (1994)** - The staff Report (CDFW 1994) does not specify any protocol, methodology or timing for completing surveys in support of foraging impacts analyses, stating only that "*Project applicants and CEQA Lead Agencies may also need to conduct site specific surveys (conducted by qualified biologists at the appropriate time of the year using approved protocols) to determine the status (location of nest sites, foraging areas, etc.) of listed species as part of the CEQA and 2081 Management Authorization process,*" and noting the various potential sources of existing data on known nest sites (e.g., CNDDB).
>
> **Protocol/Methodology** - So, with that background, we know the guidelines recommend six (6) surveys within ½-mile of the project site during various survey periods (per the SHTAC guidelines) for presence/absence, and we know from our SWHA specialist, Stephen Stringer, that SWHA survey methodology developed by Jim Estep (and accepted by CDFW) to support the foraging impacts analyses is comprised of two (2) surveys of a project site plus a 10-mile radius during specific survey periods, including Period IV. The surveys conducted during Period IV

for the foraging study largely consist of monitoring known prior documented nest sites and sites identified during the nest reconnaissance.

Our Proposed Methodology - We do feel that two of the presence/absence surveys can be completed concurrently with the foraging nest surveys, allowing us to complete a total of six (6) surveys to inform both impacts analyses (i.e., direct and foraging impacts). Of these six surveys, all would cover the project site, four (4) would include the area within ½-mile of the site, and the remaining two (2) surveys would include a 10-mile buffer of the project site (inclusive of full surveys within ½-mile of the project site).

We have selected the below survey windows to meet the intent of the SHTAC (2000) guidelines, and to meet the unpublished historic precedent for the foraging impact analysis surveys. We believe these six (6) surveys would provide good cover of the activity season and maximize the potential of observing both adults and chicks if/where present.

- Period II (March 20 - April 5) – 1 survey
- Period III (April 5 - April 20) – 2 surveys
- Period IV (April 21 - June 10) – 1 survey
- Period V (June 10 - July 30) – 2 surveys

We want to be sure we've been able to work through any potential concerns you may have with the proposed methodology, so that when complete, we can be confident that we're all in agreement that the results are based on sufficiently robust methodology to inform the impacts analyses. Please let us know if you have questions, if this methodology is consistent with your expectations, or if you feel this needs to be discussed further.

Thank you,

Christina Shushnar, Director – Natural Resources
[redacted]

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Out of Office Alert: April 28, May 4-5

From: Daniska, Kari@Wildlife [redacted]
Sent: Monday, March 20, 2023 9:15 AM
To: Christina Shushnar [redacted] Swanberg, Carrie@Wildlife [redacted]
Cc: Marisa Mitchell [redacted] Becky Moores [redacted] Logan Nonnez [redacted] David Daitch [redacted]
Subject: [EXT] RE: Darden Clean Energy Project SWHA Survey Approach

Good morning, Christina-

Thank you for reaching out with the proposed survey schedule for SWHA nesting and foraging.

To meet the minimum level of protection for the species, CDFW recommends surveys be conducted for a ½ mile radius around all project activities using the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Vall*ey (Swainson's Hawk Technical Advisory Committee, 2000) to identify survey timing and frequency.

Without a completed protocol species survey, CDFW may not accept a determination of species absence on the project site.

If you have any questions, please let me know.

Kari

From: Christina Shushnar [redacted]
Sent: Thursday, March 16, 2023 5:13 PM
To: Swanberg, Carrie@Wildlife [redacted] Daniska, Kari@Wildlife [redacted]
Cc: Marisa Mitchell [redacted] Becky Moores [redacted] Logan Nonnez [redacted] David Daitch [redacted]
Subject: Darden Clean Energy Project SWHA Survey Approach

Good afternoon,

Following up from our February 21 site walk at the Darden Clean Energy Project site, I wanted to provide an update that we plan to begin SWHA nesting and foraging surveys the first week in April. The primary intent of these surveys will be to determine presence/absence of active nests to inform impacts analyses for both nesting and foraging impacts. Our survey methodology is designed to conduct nesting and foraging surveys concurrently, and includes a total of 6 surveys as outlined below. This methodology was developed using the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Vall*ey (Swainson's Hawk Technical Advisory Committee, 2000) and methods developed by Jim Estep and adapted for use on other large scale solar developments in the southern San Joaquin Valley (Fresno and Kings counties).

- Period II (March 20 - April 5) – 1 survey
- Period III (April 5 - April 20) – 2 surveys
- Period IV (April 21 - June 10) – 1 survey
- Period V (June 10 - July 30) – 2 surveys

Please let us know by March 24 if you have any concerns with this approach or if you'd like to set-up a time to discuss. If we do not receive a response by March 24, we will consider this approach approved and move forward with the surveys as outlined above.

Thank you,

Christina Shushnar, Director – Natural Resources
[redacted]

Out of Office Alert: March 22 – April 4, 2023

Appendix I

DR BIO-45 Agency Correspondence

Christina Shushnar

From: Logan Nonnez [redacted]
Sent: Wednesday, February 22, 2023 12:08 PM
To: Christina Shushnar; Brian Boroski; Becky Moores; [redacted] David Daitch; [redacted] Lindsey Sarquilla; Marisa Mitchell; [redacted]
Subject: [EXT] Darden Agency Site Walk Notes - Intersect Power
Attachments: Darden Agency Site Walk Notes_02212023.docx

Hi All,

Thank you so much for attending yesterday's site walk for the Darden Clean Energy Project. Attached are notes from the field. We appreciate getting everyone's eyes and perspectives on the site and we look forward to working with each of you as the project progresses.

Thank you,

Logan Nonnez
Environmental & Permitting Specialist
INTERSECT POWER
[redacted]

Darden Clean Energy Project
Agency Site Walk
02/21/2023

Attendees:

CDFW
Carrie Swanberg
Kari Daniska

Intersect Power
Marisa Mitchell
Becky Moores
Logan Nonnez

HT Harvey & Associates
Brian Boroski

Stringer Biological
Stephen Stringer

Rincon
Christina Shushnar

USFWS
Matthew Nelson

Notes From Each Stop:

Stop 1: SWITCHYARD

- Which tower numbers are we looping between on switchyard parcel? 4 towers transmission towers on/crossing parcel
  - APN: 045-160-24, 135 acres, Switchyard is 20 acres.
- CDFW
  - Need avoidance and minimization measures in place for switchyard parcel, we should "be ready" for kit foxes.
- USFWS
  - Implement standard avoidance and minimization measures.
- Brian
  - Concur with implementation of standard kit fox avoidance and minimization measures

Stop 2: CANTUA CREEK

- No comments from CDFW & USFWS

Stop 3: CENTRAL PV

- Two areas of Eucalyptus trees
  - CDFW: trees with Swainson's hawk nests and some surrounding trees should be left in place; some trees within the rows may still be removed.
  - IP preference is to take down, if we find nests then would have to call CDFW; potential is high for ITP if we want to remove trees containing previously active Swainson's hawk nests.

- 0.5 mile buffer for construction if a nest is found in trees during nesting season. Can build panels close to trees if left in, site specific set back requirements from CDFW.
    - Minimization or avoidance: could take out some trees, based upon a site specific analysis.
    - Compensatory Mitigation: HM lands with known occupied hawks on it. Ratio acreage average dependent on habitat impacted vs mitigation habitat conditions. Better mitigation habitat would lead to less acreage required. Mitigation average ratio would be dependent on acreage of nesting habitat removed.
    - Mitigation measures: 2 sets: one for ITP (fully mitigate) and one for CEQA (reduce impacts to less-than-significant). Applicable to the area we want coverage for.
    - ITP may be needed to remove previously active Swainson's hawk nests.
- IP Comments:
    - Potential need for shading structure analysis for trees, maybe we carve out areas near trees and leave to Westlands
    - Could mitigation banking credits be used in lieu of ITP as the Eucalyptus area is small, IP will look into this

Stop 4: NORTHERN PV

- Need better sense of where property boundaries are, as sensitive features are on borders
- CDFW says to address in CEQA doc that "burrowing owls may need to be excluded"

STOP 5: EAST PV

- No comments from group

Stop 6: AGRICULTURAL POND

- CDFW: 1602 desktop analysis for streams
- No ditches are jurisdictional, CDFW has permitted ag ditches before, but these likely don't meet definition for jurisdictional

OVERALL END OF SITE REVIEW:

- Swainson's hawks biggest concern
- Need to discuss kit fox mitigation measures with HT Harvey
- Most owls won't need to be relocated if no berm impacts - 50 meter buffer in winter typically

Meeting Notes

Darden Project – Swainson's Hawk Conservation Strategy Check-in
September 11, 2023

Attendees

CDFW	Larry Bonner, Julie Vance, Krista Tomlinson
Intersect Power	Marisa Mitchell, Becky Moores
Rincon Consultants	Dave Daitch, Christina Shushnar

- Intersect provided the Draft Darden SWHA Conservation Strategy in advance of the meeting

CDFW Comments on Draft Darden SWHA Conservation Strategy

- Expand the discussion on the status of the Central Valley population with more recent studies, if available
- CDFW has taken a position to not permit any decommissioning activities in ITPs because there are too many unknowns for an activity that may occur 30+ years out
- Cumulative impacts
    - Cumulative results are pending and will be included in the forthcoming Foraging Impacts Analysis Report
    - CDFW may have some specific thoughts that will help frame the cumulative impacts
    - Geographic and temporal limits should be stated
    - Cumulative study area should be focused on the resource being analyzed
- CDFW is looking for more detail regarding the proposed Research Component (Section 6.1), specifically regarding who will conduct the studies, the commitment for funding and funding amounts, and details regarding specific research questions, methods, and monitoring, if available
- The document is inconsistent on how it addresses tree preservation, stating in some places a commitment to preserve all trees, while other areas discuss possible exceptions to the commitment. CDFW is requesting we clarify the commitment and be specific about the situations in which a tree may have to be removed for safety.
- CDFW has requested more information on the work area buffers, IP clarified that we are in the process of developing a full list of construction and O&M activity and proposing specific buffers for all defined work activity
- CDFW requested more specific information on the nest tree planting and establishment. Specifically, CDFW has asked for more details on the following:
    - Proposed species
    - Number of trees proposed for planting
    - Success criteria (tree survivorship and survivorship timeline)
    - Monitoring duration (10 years was mentioned with every other year monitoring) with and without supplemental water

    - Specific information on tree establishment procedures and long-term management
    - Perpetual Success/Planting Plan

- CDFW had some questions regarding foraging habitat
    - Can we create rodent prey base without putting infrastructure at risk (wire chewing)? – this should not be an issue based on buried wires and use of conduit
    - What types of plants are going to be viable given the site conditions and goal of creating foraging habitat – IP is working on a suitable seed mix list
    - How does Crotches bumblebee fit into the habitat, now and in the future – the current habitat is not suitable for the species
    - Krista noted that she had a CV project that conducted experimental plantings and there may be useful information on species list for the site
        - Follow-up question for Krista: Could you please send the name and/or link to the project/study details for reference?
- CDFW expressed interest in the specifics of artificial nests and in studies that might document efficacy of those structures
- CDFW requested we revise the phrasing of “take” in section 3.3.2 and rephrase the last sentence of the first paragraph in section 5.4.1
- CDFW requested additional detail on distance of setbacks from preserved nest trees
- CDFW stated that the conservation strategy (inclusive of incorporating details requested during this call) achieves the fully mitigated standard with on-site mitigation as proposed and offsite compensatory mitigation would not be required for this project

Christina Shushnar

From: Becky Moores [redacted]
Sent: Friday, October 6, 2023 10:33 AM
To: [redacted] Tomlinson, Krista@Wildlife
Cc: Christina Shushnar; David Daitch; Marisa Mitchell; Vance, Julie@Wildlife
Subject: [EXT] RE: Intersect Power - Darden SWHA Conservation Strategy Comments
Attachments: 2023.09.11_Meeting Notes_Darden SWHA.docx

Hi Larry,

Attached are our notes from the call on September 11 that document our discussion and the items we are addressing to update the SWHA conservation strategy for the Darden project. Please let me know if you have any edits to the notes.

We will send you an updated conservation plan early next week for review. We are aiming to submit our CEC application package the week of 10/16.

Thank you,

Becky Moores
INTERSECT POWER
[redacted]

From: Becky Moores
Sent: Friday, September 29, 2023 10:41 AM
To: [redacted] Tomlinson, Krista@Wildlife [redacted]
Cc: [redacted] Dave Daitch [redacted] Marisa Mitchell [redacted] Vance, Julie@Wildlife [redacted]
Subject: Intersect Power - Darden SWHA Conservation Strategy Comments

Larry and Krista,

Could you please send the version of the Darden SWHA plan with your comments? We took notes during our last call but want to ensure we have incorporated all the of details from your requests.

Krista – you had mentioned a project you were involved in the central valley that conducted experimental plantings. Could you provide a name, reference, or report on those studies so we can look into the details of the seed mixes?

Larry – do you have availability next week to discuss the approach for cumulative impacts? Rincon has completed their analysis and we would like to ensure it is inclusive of the necessary details and analysis.

We intend to submit our CEC application on October 16 and would like to work with you to finalize our conservation strategy over the next two weeks. Is it best to reach out to Veronica to coordinate another meeting or two with this group?

Thank you,

Becky Moores
Director, Environmental & Permitting
INTERSECT POWER
[redacted]

Appendix J

DR BIO-47 Updated Section 5.12.5 Laws, Ordinances, Regulations, and Standards

DR BIO-47 Updated Section 5.12.5

5.12.5 Laws, Ordinances, Regulations, and Standards

This section lists and discusses the biological resource LORS that apply to the Project. Consistent with the CEC's Application for Certification requirements, all plans and policies applicable to the study area are summarized below. As discussed above, the Project site is entirely within unincorporated Fresno County. Table 5.12-2 summarizes the LORS relevant to the Project.

Table 5.12-1 LORS Applicable to Biological Resources

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
Federal	Federal Endangered Species Act (ESA; 16 USC 1531 *et seq*.)	Designates and protects federally threatened and endangered plants and animals and their critical habitat. Applicants for projects that could result in adverse impacts to any federally listed species are required to consult with and mitigate potential impacts in consultation with USFWS.	Throughout this Opt-In Application	The Project has low potential to impact federally listed species. The Project will include mitigation measures and plans to reduce impacts to those federally listed species with potential to occur to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Vegetation Management Plan (Mitigation Measure BIO-10).
Federal	Migratory Bird Treaty Act (MBTA; 16 USC 703 to 711)	Protects all migratory birds, including nests and eggs.	Section 5.12.5.1	The Project would potentially impact migratory bird species. The Project will include mitigation measures and plans to reduce impacts to resident and migratory birds to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, BIO-7, BIO-8; Burrowing Owl Management Plan; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).

[1] Mitigation Measures referenced here are described in detail in Section 5.12.3, Impact Analysis (*Mitigation Measures*), or in the referenced Plans.

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
Federal	Bald and Golden Eagle Protection Act (16 USC 668)	Specifically prohibits the taking of bald and golden eagles, including their parts (feathers), nests, or eggs.	Section 5.12.5.1	The Project would potentially impact golden eagle foraging habitat, though such impacts would be less than significant. The Project's planned implementation of the following would ensure avoidance of impacts to incidental occurrences of golden eagles at or adjacent to the Project site: Mitigation Measures BIO-1, BIO-2, BIO-3; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Vegetation Management Plan (Mitigation Measure BIO-10).
Federal	Clean Water Act (Section 404)	Authorizes the USACE to issue permits regulating the discharge of dredged or fill materials into waters of the U.S., defined as navigable waters, perennial and intermittent streams, lakes, rivers, ponds, as well as wetlands, marshes, and wet meadows.	Section 5.12.1	The Project is not anticipated to impact any waters of the U.S.
State	California Endangered Species Act (CESA; Fish and Game Code Section 2050 *et seq.*).	Designates and protects state threatened and endangered plants and animals and their habitats. Applicants for projects that could result in adverse impacts to any state listed species are required to consult with and mitigate potential impacts in consultation with CDFW.	Throughout this Opt-In Application	The Project would potentially impact state listed species. The Project will include mitigation measures and plans to reduce impacts to state listed species to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
State	Fish and Game Code Sections 3511, 4700, 5050, and 5515	Designates 33 species of wildlife as Fully Protected. Fully Protected species may not be taken or possessed, except under highly specific permit requirements.	Throughout this Opt-In Application	The Project is unlikely to impact any Fully Protected species; however, there is a low potential for impacts to blunt-nosed leopard lizard, white-tailed kite and golden eagle. The Project will include mitigation measures, plans, and/or permitting under Senate Bill 147 to reduce impacts to fully protected species to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-7, BIO-8; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Vegetation Management Plan (Mitigation Measure BIO-10).
State	Fish and Game Code Sections 3503, 3503.5, 3513, and Senate Bill 147	Provides protection to native birds, specifically preventing the take, possession, or destruction of nests, eggs, birds-of-prey, and migratory non-game birds. Senate Bill 147 authorizes permitted take of Fully Protected species under specified project types, including Solar photovoltaic projects and appurtenant infrastructure improvements, including associated electric transmission projects to the point of grid interconnection.	Throughout this Opt-In Application	The Project would potentially impact native bird nests, eggs, birds-of-prey, or migratory non-game birds. The Project will include mitigation measures and plans to reduce impacts to native bird nests, eggs, birds-of-prey, or migratory non-game birds to a less than significant level: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, BIO-7, BIO-8; Burrowing Owl Management Plan; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
State	Native Plant Protection Act (Fish and Game Code Section 1900 *et seq.*)	Authorizes the State to designate and protect certain native plants as endangered or rare. Take of endangered or rare native plants is generally prohibited, except under certain highly specific circumstances.	Throughout this Opt-In Application	The Project is not anticipated to impact any endangered or rare native plant species.
State	Fish and Game Code Section 1602 *et seq.*	Prohibits alteration of any lake, river, or stream, including intermittent and seasonal channels and many artificial channels, without a permit from CDFW.	Section 5.12.2	The Project is not anticipated to impact any State jurisdictional aquatic resources.
State	California Environmental Quality Act	CEQA requires state and local agencies to identify the environmental impacts of proposed projects and consider alternatives and mitigation measures prior to approving them.	Section 5.12.3	The Project's Opt-In Application analysis and process is CEQA equivalent. All requirements under CEQA are met with the analysis in the Project's Opt-In Application.
State	Warren Alquist State Energy Resources Conservation and Development Act (Public Resources Code Section 25000 *et seq.*)	Establishes the CEC as the primary agency responsible for implementing energy policies, planning and regulations in the state. Outlines requirements for CEQA-equivalent environmental assessment of certain projects.	Throughout this Opt-In Application	The Project's Opt-In Application analysis and process is CEQA equivalent. All requirements under CEQA are met with the analysis in the Project's Opt-In Application.
State	Assembly Bill 205	Amends the Warren Alquist Act, extending an optional state-level permitting process to qualifying renewable energy generation and storage project.	Throughout this Opt-In Application	This Project qualifies for permitting via AB205 and intends to pursue this process.
State	Clean Water Act (Section 401)	Requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide State certification that the proposed activity will not violate State and federal water quality standards	Section 5.12.2	This Project is not anticipated to impact federally jurisdictional navigable waters.
State	Porter-Cologne Water Quality Control Act	Requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB.	Section 5.12.2	This Project is not anticipated to impact waters of the State.

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity[1]
Local	Fresno County General Plan Policy OS-A.2 Policy OS-A.18 Policy OS-A.19 Policy OS-A.24 Policy OS-A.15 Policy OS-A.26 Policy OS-E.1 Policy OS-E.2 Policy OS-E.3 Policy OS-E.6 Policy OS-E.9 Policy OS-E.17 Policy OS-F.5 Policy OS-F.8	Contains goals and policies concerned with protecting and preserving natural resources and open space areas.	Section 5.12.3	This Project would be consistent with applicable policies from the County's General Plan through Project design and implementation of applicable mitigation measures and plans: Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8; Burrowing Owl Management Plan; PV and Gen-Tie Biological Resources Management Plan; Utility Switchyard and Alternate Green Hydrogen Site Biological Resources Management Plan; O&M Biological Resources Management Plan; Swainson's Hawk Conservation Strategy (Mitigation Measure BIO-9); Vegetation Management Plan (Mitigation Measure BIO-10).
Local	Fresno County Code of Ordinances Title 15	Describes ordinances applicable within Fresno County, including ordinances related to building and construction.	Throughout this Opt-In Application	This Project is located within Fresno County and therefore would be designed in compliance with the County's Ordinance Code.